Collectible Cards: Web Application Store

IEEE Website Requirements Specification Document

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Course Specialisation: *Business Analysis*

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Declaration Cover Sheet for BSHTM4 Project Submission

SECTION 1 *Student to complete*

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SECTION 2 Confirmation of Authorship

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I confirm that I have read the College statement on plagiarism (summarized overleaf and printed in full in the Student Handbook) and that the work I have submitted for this assessment is entirely my own work.

Signature: Paul Margelino

Date: 14ᵗʰ May 2023

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- The imposition of a fine.

- The requirement that a student to attend additional or other lectures or courses or undertake additional academic work.

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1.1 Introduction

Collectible cards is a web application store that is based in Dublin Ireland and will ship collectible trading cards worldwide while focusing most of its sales mostly around Europe and Ireland. For this project, I will need to document, gather and analyse all functional and non-functional requirements for developing this web application.

The reason I have chosen to develop a collectible trading card web store is due to recent events that have introduced many opportunities and overall interest within the trading card market. Recent events such as the COVID-19 global pandemic has sparked a lot of interest and nostalgic feelings from previous Pokémon card collecting fans and has ever since been growing.

Many celebrities, especially during the COVID-19 pandemic also began to start gaining interest in the Pokémon card collecting hobby which also resulted in a boost for the overall interest, exposure and love for the hobby. Some of these celebrities included the likes of YouTube star Logan Paul, who at the peak of the hobbies interest, livestreamed and opened a base set Pokémon Booster Box worth $200,000.

Interestingly though, he didn't open the booster box at the expense of his own money, but instead sold the 36 individual packs inside the booster box on Goldin Auctions. *"We got the first ever million dollar Pokémon box. I had no idea it was going to be this big Logan said on episode 257 of imPaulsive. "I thought the packs would maybe sell for $15,000 each. They sold for an average of $38,250 on Goldin Auctions"* (Bennett, 2021)

The livestream at the time also peaked at around 300,000 concurrent viewers while the video of the livestream on YouTube currently has over 12 million views.

This event alone would kick start the rebirth of the "Pokémon Card craze" that hasn't been this big ever since the launch of the first ever official Pokémon trading cards in the western world back in the year 1999.

Many people also considered *"When COVID-19 hit, a lot of Gen X and Millennials were looking for things to do and we found a lot of these guys and girls started playing Pokémon again because they grew up with it"* (Serjeant, 2021)

From the recent points above, there is no denying that a lot of interest has recently been gained towards the hobby of collecting cards again which is why I chose to base my web application towards this market.

The hobby is also backed by a lot of celebrities, who have a lot of influence in modern times. The main demographic I will be basing my project on will be towards a younger audience of around 7-12 years of age but will also heavily include older audiences from 18 years old and up. The reasoning for younger audiences is pretty self-explanatory as Pokémon is a child friendly game / cartoon that appeals to children.

However, I also decided to include older audiences, primarily from 18 years old and up due to my recent findings of the majority of Pokémon players and fans actually being over 18 years old. *"According to our latest data, we have seen that the ratio of players in their 20s and 30s has risen for Pokémon Sun and Pokémon Moon compared to past Pokémon titles for Nintendo 3DS"* (Nintendo, 2017)

This project will also primarily focus on the opinions and inputs given from the stakeholders that are involved with the project. These inputs will then be used to design and further develop the web application to tailor towards our customers and target demographic. We will be gathering these inputs and information given from our stakeholders through the use of elicitation techniques. The elicitation techniques I have chosen to use for this project include:

Interviews

Interviews will be carried out as a way to gain insight and information of what the stakeholders requirements are. This elicitation technique is considerably important as we can use the information we gather to really gain insight on what the ideal and perfect collectible card web application would be according to our stakeholders.

There is so many variables when it comes to creating a web application store such as the design, layout, type of products being sold, how much the customer is willing to spend and the ideal cost of our product in which the use of interviews can really give us that solid information and insight on how to develop and design our web application.

I plan on conducting 3 interviews between various stakeholders. I plan on doing at least one of these interviews face to face in a collectible card store in Gamers World located in Dublin City Centre. I chose this store as I could conduct interviews (with permission from the owner) with their employees as they fall within the same category of our stakeholders.

The other interviews will be conducted via Discord. Discord is a voice and video chat application where it would be a perfect place for me to conduct online interviews. With regards to how we will find the appropriate and suitable stakeholders for the interviews, I will be conducting them with a person from the "Pokémon Cards Ireland" discord server which I have been a member of for over 3 years now and I can easily get participants all thanks to the amount of personal relations I have with the members of the server.

The last interview I plan on doing is with a Web Developer (my dad) to understand the minimum requirements to develop a web application. This should be fairly easy enough as my dad is an IT engineer at Ergo and has previous experience working with web application development.

Surveys

The next elicitation technique I will use for this project will be surveys. Using surveys will allow me to gain information from a large sample size of stakeholders and gather stakeholder needs and preferences when it comes to developing the web application. I can also use surveys to gather information on our stakeholder's preference when it comes to web store design and functionality.

Prototyping

Prototyping will also be used as an elicitation technique to identify any design flaws for our first ideas of the web application. Finding these flaws early before creating the application can significantly save time and money. Prototyping can also provide better experience for the user as we can distribute the prototype to select stakeholders, who can then give us information on what could be improved and also understand stakeholders needs and preferences. Prototyping for this project will be done through the use of wireframes.

Brainstorming

Brainstorming will be done through the early stages of the project as it increases creativity, engagement and participation for the project. Brainstorming will also help breakdown any problems I come across and break them down into smaller and more manageable activities. The use of brainstorming can also be *"used to generate new ideas"* (Software Testing, 2023) Which we can use to further add to the web application.

Observation

Observation will be used to observe select participants using web application stores. This will give me a better idea and understanding of how customers or users operate when they are utilising a web application store. I can then use my findings from the observation to help develop the prototype for this web application.

1.2 Business Needs:

As briefly stated in the introduction section, I believe that Pokémon and trading cards as a whole has a lot of market opportunities due to global recent events. One of the most notable one has been Brexit. Now you may ask yourself, what does Brexit have to do with Pokémon cards? To answer that, due to the tariffs and custom duties imposed between the United Kingdom and European Union, it is now more expensive to both buy and sell goods from the United Kingdom. Many notable Trading Card Stores that were within the geographical location of Europe were actually based in United Kingdom such as Chaos Cards, Magic Madhouse and Total cards. These were some of the most trusted and reliable online retail stores for people situated within Europe, but ever since the events of Brexit many customers have since stopped purchasing from online retail stores based in the UK store due to the addition of customs duties and import duties. Not only did Brexit bring on import duties which heavily affected trading card products coming out of the UK, but Brexit also caused a disruption in supply chains. A disruption in supply chain can *"decrease production, diminish customer confidence, reduce sales, and impact revenue"* (Randstad, 2022) Disruption in supply chains could also lead to delays of product delivery, which is a huge deal for customers.

Apart from the events of Brexit, I also believe that this project will help provide and keep up with the recent increase in customer demand. Like I said in the introduction section, many celebrities and social media personalities have become getting more involved within the trading card hobby, which also leads their followers and fans to do the same. The rise of popularity within the hobby also comes with a rise in demand for products which this web application store can meet.

This project also seeks to provide a more unique and never before seen services to customers which include product live breaks – where a customer selects a product to buy such as a Pokemon Booster Box (contains 36 packs) and we open all 36 packs live on a streaming service such as Twitch or YouTube. We will then only ship the valuable cards to the customer while we keep the common cards (also known as bulk cards) which we will then sell to another company that purchases bulk cards such as MJ Holding for example.

Another service I plan to offer to our customers would be an option for customers to raffle off their own cards and we provide a middle man service where we take the cards the customer wants to raffle off, inspect the card and verify its authenticity, once verified I will then take high quality images of the card and list it up for the chosen raffle format the seller would like it to be in. (example the seller wants to sell a card for 20 euro which includes 10 participants that buy a ticket for 2 euro) This raffle system can generate profit as the business will just take a sales percentage

fee for each ticket sold while the buyer covers the shipping costs to us and the shipment from us to the raffle winner. I will be discussing these 2 processes in greater detail throughout the document.

The last business needs I plan to fulfil with this project would be building a strong and welcoming community. An online store where we livestream the opening of our customer's products can provide good customer relations, as we chat back to our customers during these livestreams. The livestreams will also end up naturally building community as our customers can discuss with one another through the live chat.

1.3 Business Case

The business case for this project is to develop a profitable web application that sells Pokemon trading cards. The reason I chose the development of this web application is because of the shortage of online trading card stores for Ireland but also due to the events of Brexit which lead to many trading card stores over in the United Kingdom to be less attractive for online consumers due to the additional fees and import duties applied to all their online retail stores. Additionally, due to the spike of interest from Pokemon trading cards during the COVID pandemic, I believe we can take advantage of this opportunity and profit from the high demand and huge interest in Pokemon. This interest and demand can be seen from the Pokemon companies report back in 2022 where *"the firm reported $1.6 billion in sales for fiscal year 2022, concluding on February 28. This represents an increase of 70.4 percent from the previous fiscal year"* (PocketGamer, 2022)

The main purpose for this web application is to give an option for consumers within Ireland and the European Union to purchase sealed Pokemon product at a retail price but are then also given the option for us to open up their product live on a streaming platform where they would keep the valuable holographic cards we open from packs while we keep the bulk common cards that nobody would want. (these cards are usually only worth 2-10 cent each) Choosing this option will not only give us better profit margin because shipping sealed product is more expensive to ship (Sealed Pokemon products would have to be shipped in a parcel box along with bubble wrap due to their size and shape compared to just us shipping them cards in an envelope, shipping for parcel would also be more expensive compared to envelope) but it also gives our customers better value for their money as the market for bulk cards are pretty much non-existent on the secondary market. This leads on to my next point, where we can then get the bulk cards left over and sell them to wholesale companies that purchase bulk Pokemon cards such as MJ holding. MJ Holding would then repackage these bulk cards in to their own sealed product and resell them in retail stores. The web application will also include the standard buy and sell page for Pokemon cards, where customers can sell their own cards to us for 60% of the market value for cash or 75% of the market value for store credit.

It is also important to develop a clear and understandable web application. Customers should be able to navigate the web store with ease and be able to gain access to view all our products at any time. We must also keep all our broadcasts of past livestreams on YouTube and Twitch available to view at any time in case customers who purchased our product won't be able to watch the livestream while their products are being opened due to personal / work related reasons. The web application will be linked to both our YouTube and Twitch streaming platforms, where there will be a livestream section on our navigation bar so users can click and watch the livestream directly from our web page.

Throughout the project, it is important for us to understand what the stakeholders needs and wants are for the project. This applies to all the stages when engaging in the elicitation techniques which include interviews, surveys, brainstorming, and prototyping. If we do not accurately and precisely gather the stakeholder needs, then it could result in a failed business due to the costs of developing the application, advertising and purchasing product stock.

1.4 Stakeholder List & Power / Influence Matrix

The stakeholder list for this web application store include:

- Project Manager
- Business Analyst
- Web Developer
- Customers
- Suppliers
- Marketing
- Finance
- Social Media Team
- Customer Care
- IT Team

Influence Matrix

Keep satisfied
- Customers
- Customer Care

Manage closely
- Project Manager
- Business analyst
- Web Developer
- Finance

Monitor

Keep informed
- Suppliers
- Marketing
- Social Media Team
- IT Team

High / Low — Influence
Low / High — Interest

Power / Influence Matrix for Collectible Cards

The power / influence matrix above indicates all the relevant stakeholders for this project, and how much influence and interest they have for the business. The project manager is the most important stakeholder in the Matrix as they will be the stakeholder that plans and co-ordinates the entire project. The project manager is also needed so that we can identify any risks or issues within the project and be able to correctly respond to them.

It is also important for the Project Manager to keep all other stakeholders involved within the project informed and give updates on any new development of the web application and also any issues we may come across during the project. Next we have the business analyst, who we must manage closely as they can help with identifying any opportunities for the growth of the web store. They find these opportunities through the analysis of the different areas within the business and find ways to improve the business processes, identify opportunities for revenue growth and find ways to reduce cost. The web developer should also be managed closely as they will be designing and developing the front end of the application, which will be the first thing customers will see.

The last stakeholder that should be managed closely will be the finance manager as they will be involved with financial planning and analysis. For the stakeholders that are within the keep informed section such as suppliers, marketing team, social media team and the IT team it is important to keep them informed and up to date with the project as they will be shaping and assisting with the developing process.

Although they won't have much influence / power within the project, their skills and ability will be very useful. Lastly we have the keep satisfied section, which include customers and customer care. Both these stakeholders will be important as they are the main source of our revenue which means they have a high influence on the project. Customers are also essential for the business growth as they can provide us feedback and also spread the business name around through the use of word of mouth. The feedback we then receive from customers can also be used as a source of innovation as feedback will help us find ways to improve the business.

1.5 Requirements Elicitation Techniques

1.5.1 Survey

For our first elicitation technique, we will be using multiple sources of participant which include:

- Members from the Pokémon Cards Ireland discord server
- Members from a Pokémon Card collecting forum page
- Customers at a local card shop called Gamers World

Methods of Distribution

The methods of distribution for this survey will include:

1. Posting a google forum link to participants of a Pokémon Card collecting community discord server
2. Posting a google forum link to participants of PokemonTCG forum page on Reddit.
3. Printing a physical copy of the google form survey and handing it out to customers in a local card shop called "Gamers World" located in Dublin City centre.

Objectives of the survey

The main objective of this survey is to gain data from customers who have an interest in Pokémon card collecting and shopping for Pokémon cards. The survey for this project is aimed to gain an insight on how frequent the target sample purchase Pokémon cards, the type of sealed product they are most interested in, (single booster packs, booster boxes, collector tins) how often they use streaming services to watch Pokémon card openings, how much money they are willing to spend on sealed product, how satisfied they are from the cards they get when opening sealed product and lastly the types of features they would like to see included in a Pokémon card store. By asking these questions, it will give the business analyst the data they require in order to create an efficient, profitable and successful web store by learning more from their target audience.

 Additionally, the survey will provide information on whether or not customers are truly happy with their current option when purchasing sealed product. Before the survey results, I will assume that majority will say they are not content or satisfied when opening sealed product from my past anecdotal experiences. I tried to keep the survey as short as possible so it will not lead to inaccurate data as the target participant could get impatient and start providing inaccurate or untrue answers.

Survey Questions:

Question 1 - How old are you?

- Under 12 years' old
- 12-17 year's old
- 18-24 year's old
- 25-34 year's old
- 34+ year's old

Question 2 - How often do you purchase sealed Pokémon product?

- Daily
- Weekly
- Monthly
- Only when new product is released (such as new sets / new promos)
- Never

Question 3 – What type of sealed product are you more likely to purchase?

- Booster Packs
- Collection Tin's / Collection Boxes
- Booster Boxes
- Single Cards

Question 4 – How much would you be willing to spend on sealed product?

- Less than 5 euros
- 5-15 euros
- 15-25 euros
- 25-50 euros
- Over 50 euros

Question 5 – Whenever you have opened sealed Pokémon product, how satisfied are you with the cards you got?

- Very satisfied
- Somewhat satisfied
- Neutral
- Not very satisfied
- Not satisfied at all

Question 6 – How often do you watch Pokémon card openings on streaming platforms such as YouTube / Twitch?

- Always
- Very often
- Sometimes
- Rarely
- Never

Question 7 – In your experience, how often do you get cards from sealed product that are of the same value or more on the secondary market compared to how much you have spent on the sealed product?

- Very frequently
- Frequently
- Occasionally
- Rarely
- Never

Question 8 – Do you think it would be better to buy sealed product at a cheaper price but ONLY keeping the holographic cards you pull?

- Much better
- Somewhat better
- Stays the same
- Somewhat worse
- Much worse

Question 9 – What features would you like to see for an online Pokémon Card store? (select all that applies)

- Competitive pricing
- Ability to purchase wide variety of single cards
- Live streaming section to see Pokémon product getting opened daily
- Live customer support
- Secure payment options such as Visa, PayPal, Revolut, Bank Transfer
- Raffle section where cards / sealed product are raffled weekly
- Other (please specify)

Question 10 – How important is the price of Pokémon Cards when you are deciding to purchase?

- Very important
- Somewhat important
- Neutral
- Not very important
- Not important at all

Question 11 – How important is the price of shipping when deciding to purchase Pokémon product?

- Very important
- Somewhat important
- Neutral
- Not very important
- Not important at all

Link to google forms survey: https://docs.google.com/forms/d/e/1FAIpQLSfhNWVWcM_8p-p3472N5_-SYj65jXZ0UGCzG4KrwjEwO_uQfg/viewform?vc=0&c=0&w=1&flr=0

1.5.2   Interviews

Interview One: Gamers World Manager

Participants

Manager who works in one of Dublin's biggest trading card store, Gamers World.

Interview Location

The location of this face to face interview took place in Gamers World – Unit 1, 1 Jervis St, North City, Dublin.

Date of interview

The interview took place on the 29th of April 2023.

Time of Interview

The interview took place at 6 pm and lasted until 6:15pm.

Objective of this interview:

The main objective of this interview is to gain an insight and perspective from a person who is running a collectible card store. This interview aims to gather requirements by finding the best features of a physical brick and mortar store and trying to apply (or what is applicable) them to a web application store. Another objective for this interview would be understanding stakeholder needs such as finding out how a collectible card store attract customers, what they do to maintain a loyal customer base and if they have any tips or advice when starting a web application from scratch. Additionally, we can also identify any risks involved when running a collectible store. I chose this candidate for the interview as I found that the amount of experience and knowledge they have when it comes to collectible cards would be suitable for the requirements gathering part of the project. Conducting interviews, especially with people from other businesses will also help build relationships and could possibly lead to collaborative work in the future.

Interview Questions

Q1) From your experience running a card store, what do you believe is the best way to attract customers? Why?

Q2) How do you think Gamers World and many other local card stores around the world maintain a loyal customer base?

Q3) Why do you think customers choose to purchase sealed collectible card product from you instead of giant retail stores such as Smyth's, GameStop?

Q4) What do you think are the main risks when choosing to start a business within the collectible cards market? How often do they happen?

Q5) What features do you think Gamers World offer their customers that set them apart from other collectible card stores? How would you improve these features?

Interview Two: New Pokémon Collector (Collecting cards and involved with the hobby for less than a year)

Participant

Pokémon Collector who has been collecting and involved with the hobby for less than a year.

Interview Location

This interview took place online on a private discord call.

Date of Interview

The date of this interview took place on the 15th of January 2023.

Time of Interview

The interview took place at 4pm and lasted until 4:15 pm.

Objective of this interview

For this interview, the main objective is to gather insight based off the participants past experiences when purchasing Pokémon card products and also their experiences using similar services that buy and sell Pokémon card product e.g. eBay, Card market and adverts. This interview will also help understanding the needs and wants from a customer's perspective.

By understanding their need and wants we can then use the information acquired from this interview to further improve certain areas of the project such as the development of the website, ways to improve features such as the customer support section and the best form of marketing in regards to a Pokémon card store. This interview will also allow us to gather more requirements for the project because we are interviewing someone with a deep passion and knowledge for the hobby as a whole. Due to their experience with the hobby, they will be able to provide us with past anecdotal experiences such as previously shopping on an online card store.

Lastly, this interview will allow us to build strong stakeholder relationships as they could become a potential customer in the future. As I mentioned before, this person has been participating in the hobby for less than a year and if we show them that their feedback matters and implement the needs and wants they give us during the interview, it shows that we are a business that listens and wants to provide for our customers and that we value their feedback and opinion.

Interview Questions

Q1) So from the information you have given us, you have been collecting and have been involved within the Pokémon trading card hobby for less than a year, could you name 3 websites that you frequently purchase from, and why you like using them?

Q2) Why do you collect Pokémon cards? What makes it the most enjoyable for you?

Q3) What type of sealed product would you be most inclined to purchase? Could you explain why?

Q4) Are there any specific features on a Pokémon card selling website you'd like to see? How do you think these features would benefit you, as the customer?

Q5) For any other websites you use for purchasing Pokémon cards, was there any form of customer support featured? If there is, do you think there are any ways to improve it?

Interview Three: Web Developer

Participants

The interview was conducted with a web developer (my father)

Interview Location

This interview took place face to face at my home.

Date of Interview

The date of this interview took place on the 27th of March 2023.

Time of Interview

The time of this interview took place at 9pm and lasted until 9:20pm.

Objective of this interview

The main objective of this interview would to be to find out from a developer what the minimum requirements are when developing the Collectible Cards web application. I also want to find out what approaches should be taken during the development stages of the application and also what technical skills would be required as I think it will be quite tricky trying to implement a live streaming broadcast within the web app alongside other features. The requirements gathered from this interview can then be used for Moscow analysis so I can prioritise which requirements I would need to do first for the project.

Interview Questions

Q1) What are the minimum requirements to run a web application store?

Q2) Is it possible to add third party services onto the web application such as payment gateways when they purchase product?

Q3) How difficult would it be to design a database that stores customers' orders for this web application?

Q4) How can we implement a live broadcasting stream such as Twitch streaming directly from the web application?

Q5) What programming languages would be required to develop a web application?

Q6) So one of the ideas for this web application is to sell customers a "live box break opening" where a customer would make a purchase of a sealed product e.g. a booster pack. Would it be possible to link a customer's order to the livestream broadcast archive to the exact time stamp their product was opened?

1.5.3   Brainstorming

Objective

The main objective for this elicitation technique is to gather 3 different people who all share an interest in Pokémon card collecting and engage in a brainstorming session. During these brainstorming sessions, I plan on bringing up multiple creative ideas for the web application such as implementing the livestream broadcast feature on the web application for customers to watch and see, a raffle system that could be implemented on the web application and any other creative ideas my partners could bring up during the session. Additionally, I plan on also discussing any challenges we could face during the development of the application such as legal issues that could be brought from the raffle system, how hard would it be to implement a livestream on a web application and would these ideas even be profitable. By bringing up ideas and then pairing them up with the challenges faced when trying to implement these ideas, I can then further evaluate and refine these ideas.

Who will take part during the brainstorming session?

The participants involved during the brainstorming session include:

- Gamers World Manager
- Pokemon card collector
- Pokemon card collector

I chose these select participants as I feel people who have experience with working in a collecting card shop can give me the pros and cons of each of my suggestions for the web application and a regular customer who buys collectible cards regularly can give me their opinion and thoughts about the ideas.

Location of the brainstorming session:

The brainstorming session took place within the back office space of Gamers World.

Duration of the brainstorming session:

The duration for this brainstorming session lasted from 6:15pm to 6:37pm (22 minutes).

Brainstorming rules during the session:

During the brainstorming session I let each participant know that they must follow these rules.

- Each participant must provide honest feedback for any suggestions given.
- Be open and provide constructive criticism from any ideas suggested.
- Don't be close ended when giving feedback to suggestions. (don't just answer yes the idea is good or no the idea is not good, explain why you think so)
- During the brainstorming session, if a participant is talking, don't interrupt them.
- Turn off any electronic devices during the brainstorming session to prevent any distraction and increase engagement between people. (laptops, mobile phones)

1.5.4 Prototyping

Objective

So for this elicitation technique, the main objective is that we create a prototype of the application that is non-functioning so that we get an idea of what the web application could potentially look like. We can then show the stakeholders the prototype, so that they can get an idea of what the web application could possibly look like design wise and how it would be laid out. It will also help make sure that the final product for this project will meet the stakeholders needs. For this elicitation technique I decided to use wireframes as the tool that will create this prototype. Once the wireframe is finished, I will then host a group call with various stakeholders such as 3 members from the Pokémon Cards Ireland discord server (these people would be considered potential customers), a business analyst who I have previously worked with from my previous internship in 3rd year and the gamers world manager. I also plan on basing the insight I get from the any findings I get during the observation technique.

Who will take part in the prototype showcase?

The participants involved during the prototype showcase include:

- Members from the Pokémon Cards Ireland discord server
- Business Analyst who I have previously worked with from Jabil.
- Gamers World Manager

Location of the prototype showcase:

The prototype showcase took place online on a discord call.

Date of prototype showcase:

The prototype showcase took place on the 2nd of May 2023.

Duration of the prototype showcase:

The duration of the call for the prototype showcase lasted from 8:05pm to 8:28pm (23 minutes).

1.5.5   Observation

Objective

The last elicitation technique I plan to conduct during the requirements gathering stage for this project is observation. The main objective I have for this elicitation technique would be to gain insight by observing how users use other, similar card selling web applications. I can then use the insight gained from this elicitation technique to help with the development of the web application prototype.

The 3 web applications I have in mind include CardMarket, TCGPlayer and eBay as these are the most common websites used worldwide when purchasing collectible cards.

During the observation stage, I plan on using a structured observation method rather than an unstructured one as I find that a structured approach would be more appropriate as it would give me more accurate results for the type of data I'm looking for.

I will conduct the observation phase with 3 different individuals using 3 different websites, 2 of which will be conducted online during a Discord call via screen share and 1 will be conducted in person. During these sessions, I will be observing how the 3 different participants:

- Navigate and use the website – will they find any usability issues while browsing the website? How do they find navigating through the website? Are there any interface issues?
- How satisfied they are with the website – What are their first impressions upon seeing the website, what their impressions are after using the website, purchasing an item and checking out.
- Their behaviour when using the website – This includes how they actually interact with the website. How do they navigate through the different sections? Are they using any specific features the website offers?

Observation participants:

- 2 individuals who have no past experience with collectible cards or purchasing cards from a card selling website (this is to get a more honest and first hand opinion during observation)
- Gamers World Manager

Date of observation:

This observation took place on the 4th of March 2023.

Location of observation:

The location of the observation took place in 2 settings. The first setting was at a local card store called Gamers World and the second setting took place online via a Discord call and observing them through screen share.

Duration of the observation:

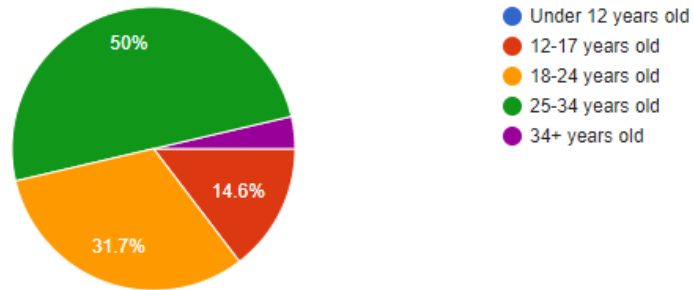Each observation took around 15-20 minutes to complete.

2. Requirements elicitation results & conclusions

2.1 Survey results and conclusion

How old are you?
82 responses

- Under 12 years old
- 12-17 years old
- 18-24 years old
- 25-34 years old
- 34+ years old

50%
14.6%
31.7%

How often do you purchase Pokemon sealed product?
82 responses

- Daily
- Weekly
- Monthly
- Only when new product is released (new sets, promo cards)
- Never

45.1%
28%
24.4%
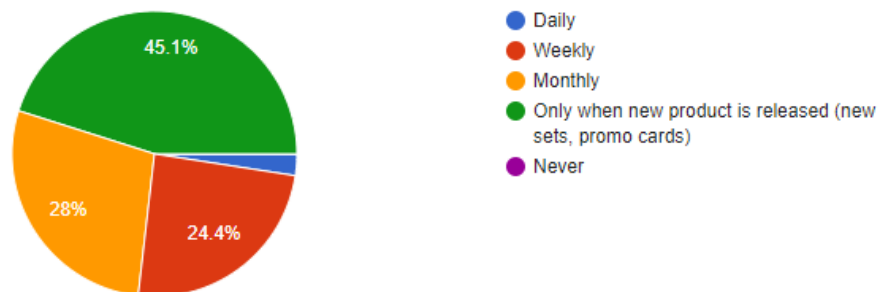
What type of sealed product are you most likely to purchase?

82 responses

Category	Value
Booster Packs	56 (68.3%)
Collector Tins / Collection Boxes	56 (68.3%)
Booster Boxes	49 (59.8%)
Single Cards	47 (57.3%)

How much would you be willing to spend on sealed product?

82 responses

- Less than 5 euros
- 5-15 euros
- 15-25 euros
- 25-50 euros
- Over 50 euros

69.5%
8.5%
19.5%
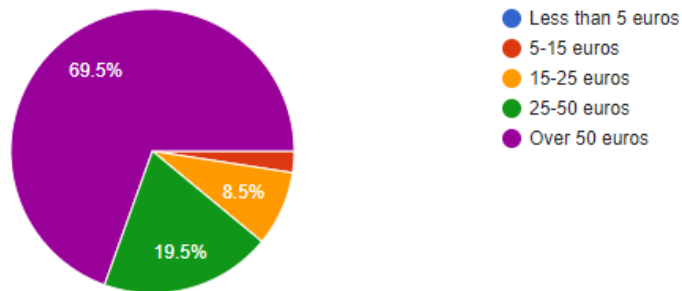
Whenever you have opened sealed product, how satisfied are you with the cards you got?
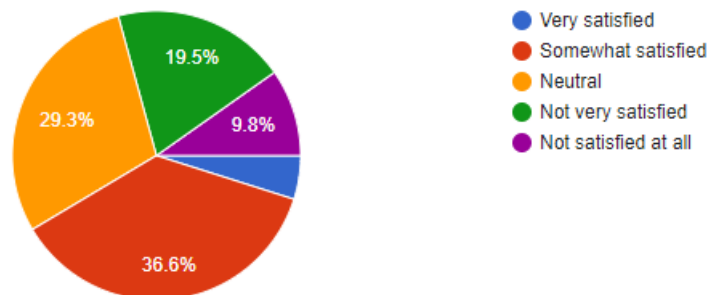
82 responses

- Very satisfied
- Somewhat satisfied
- Neutral
- Not very satisfied
- Not satisfied at all

19.5%
29.3%
9.8%
36.6%

How often do you watch Pokémon card openings on streaming platforms such as YouTube / Twitch

82 responses

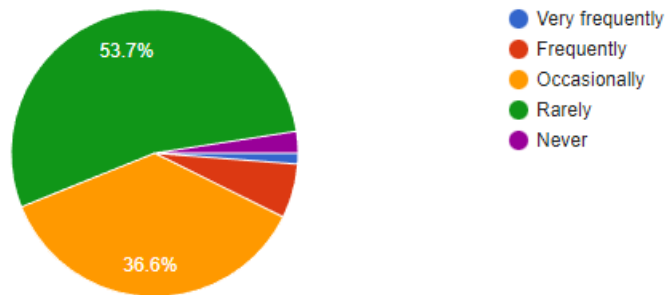- Always
- Very often
- Sometimes
- Rarely
- Never

35.4%

32.9%

18.3%

In your experience, how often do you get cards from sealed product that are of the same value or more on the secondary market compared to how much you have spent on the sealed product?

82 responses

- Very frequently
- Frequently
- Occasionally
- Rarely
- Never

53.7%

36.6%
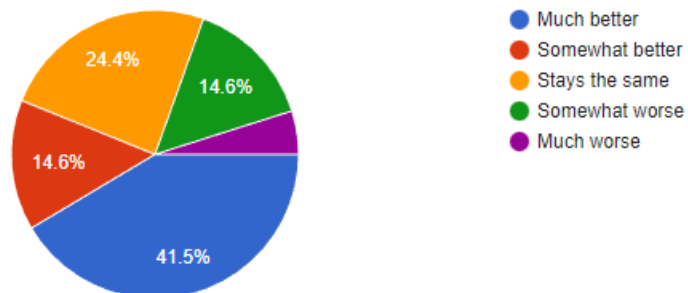
Do you think it would be better to buy sealed product at a cheaper price but ONLY keeping the holographic cards you pull?

82 responses

- Much better
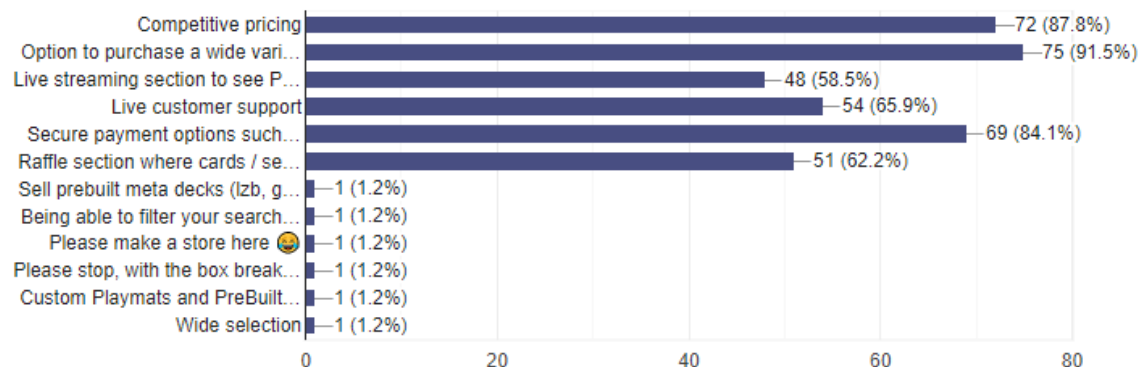- Somewhat better
- Stays the same
- Somewhat worse
- Much worse

24.4%

14.6%

14.6%

41.5%

What features would you like to see for an online Pokémon Card store? (select all that applies)

82 responses

Feature	Count
Competitive pricing	72 (87.8%)
Option to purchase a wide vari...	75 (91.5%)
Live streaming section to see P...	48 (58.5%)
Live customer support	54 (65.9%)
Secure payment options such...	69 (84.1%)
Raffle section where cards / se...	51 (62.2%)
Sell prebuilt meta decks (lzb, g...	1 (1.2%)
Being able to filter your search...	1 (1.2%)
Please make a store here 😂	1 (1.2%)
Please stop, with the box break...	1 (1.2%)
Custom Playmats and PreBuilt...	1 (1.2%)
Wide selection	1 (1.2%)

How important is the price of Pokémon Cards when you are deciding to purchase?

82 responses

- Very important — 59.8%
- Somewhat important — 34.1%
- Neutral
- Not very important
- Not important at all

24
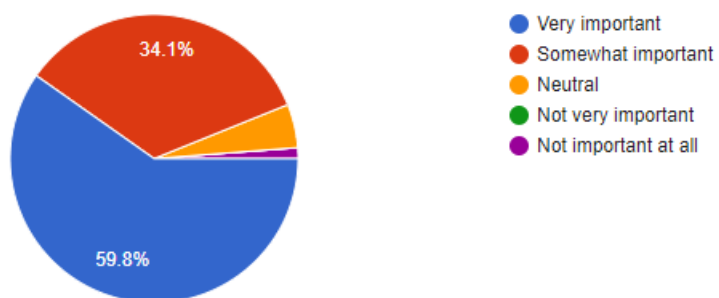
How important is the price of shipping when deciding to purchase Pokémon product?

82 responses

Legend:
- ● Very important
- ● Somewhat important
- ● Neutral
- ● Not very important
- ● Not important at all

Pie chart values: 56.1%, 28%, 9.8%
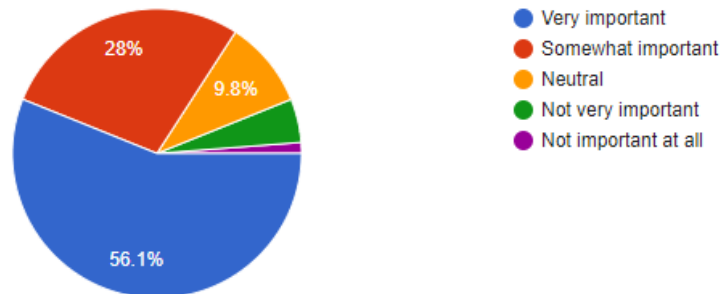
Survey Findings

This survey was conducted over a span of 3 weeks. The survey was distributed in The Pokémon Ireland Cards Discord Server, PokemonTCG which is a forum page on reddit and was lastly given to local customers in a collectible card store called Gamers World. In total I got a sample size of 82 responses which I find is an ideal enough size for the data I required.

For the first question, we can see that majority of survey participants are between 25-34 years old **(50%)**. From the data given we can assume that majority of Pokémon collectors are young adults, which backs up my assumption from the business needs section in this report, where I stated that majority of Pokémon collectors today were actually younger collectors in the past, who fell in to the nostalgia bubble during COVID. I will also assume that, these collectors have gotten stable / decent income jobs, where they can afford to spend a decent sum of money on cards which concludes that this age group will be our main target audience.

The second question results indicate that around **45.1%** of the survey participant only buy products when newer sets are released, with monthly coming in at **28%**, weekly coming at **24.4%** and daily coming at **2.4%**. From these results, it would be a good idea to make sure that the businesses inventory is at its highest during set releases, which the Pokémon company provides to retail stores. Knowing roughly when our customers will purchase items will also help with inventory management, (potential to save space assuming we sell majority of inventory) better management of our website trafficking as we can show data to our web provider's on when we will need better RAM and lastly make sure our live customer support will be fully capable of handling customer traffic during new releases for product.

The results for the third question indicates that **68.33%** of participants purchase booster packs and collector tins, **59.8%** purchase booster boxes and **57.3%** purchase single cards. With this data, we can ideally direct our stock towards booster packs and collector tins seeing as they are the most popular product, followed by booster boxes and then single cards.

For the fourth question, it shows that **69.5%** of participants are willing to spend over 50 euros on sealed product, **19.5%** are willing to spend between 25-50 euros, **8.5%** are willing to spend 15-25

euros and lastly only **2.4%** are willing to spend between 5-15 euros. We can conclude from this data that it would be safe enough to sell any sealed product that are worth between 25-50+ euros, as a combined result of **89%** of participants would be spend this much. We can then structure our inventory / stock to contain more high end and expensive products such as collector tins that retail for 25 euros, premium collection boxes that retail from 50 euros and lastly booster boxes which retail between 120-140 euros.

The results for the fifth question gave mixed results / feedback. **36.6%** of participants stated that they were *somewhat satisfied* from the cards they get when opening sealed product, **29.3%** had neutral feelings about it, **19.5%** stated they were not very satisfied, 9.8% stated that they were not satisfied at all and lastly only **4.9%** of participants stated that they were very satisfied with the cards they got. The data given was actually really interesting as I expected the "very satisfied" option to have at least 10% of votes from participants. The main goal I have for this project would be to implement the idea of a "box break" feature for the web application. This would mean that customers have the option to buy sealed product at a much cheaper price (customer pays 3 euro a pack compared to purchasing at MSRP price for 4 euro) but only keeping the holographic cards they pull. This would result in them not only saving money on the product itself but also saving money on shipping as we can just ship the cards they get in a sealed envelope compared to a parcel. This ties in with the overall value they get with their money, as majority of common cards only sell for around 5-10 cent on the secondary market.

For the sixth question, I asked how frequently the participants watch online streams and videos of Pokémon cards being opened. The reason I asked this question was so I could know if people would be interested in a livestream feature where users can watch their packs being opened in real time. This will provide trust with our customers, as they will see their order number live on stream for people to watch anytime and anywhere in the world. Past broadcasts will also be saved through YouTube and Twitch archive to provide customers an ability to view their openings if they are busy / not able to attend the livestream. This will also potentially generate another source of income through ad revenue and YouTube / Twitch subscriptions. To come back to the results, it shows that **35.4%** of participant's watch openings sometimes, **32.9%** watch very often, **18.3%** watch always, **8.5%** rarely watch and only **4.9%** never watch. This concludes that a good amount of participants would at least occasionally watch pack openings which is well enough to go down the live streaming route and hopefully also bring up the company's popularity albeit it would be a difficult and slow at the start.

The seventh question results showed that **53.7%** of participants rarely get the value they get back from sealed product, **36.6%** occasionally got value back, **6.1%** frequently got value back, **2.4%** never got value back and **1.2%** very frequently got value back. From these results we can conclude that opening sealed product normally doesn't often provide secondary market value back to the customer, which we can change with the box break feature I plan to implement for the web application.

For the eight question I asked what features the participants would like to see on the web application. **87.8%** wanted competitive pricing, **91.5%** wanted option to purchase a wide variety of single cards, 58.5% wanted to see a live streaming section on the web application, **65.9%** wanted live customer support, **84.1%** wanted secure payments and **62.2%** wanted a raffle section on the website. The Moscow methodology can be used here and we can prioritize what features are the most in demand for our website. Some participants also submitted a few features they'd like to see on the website which included:

- Premade decks for competitive play
- Filter option that filters by card illustrator
- Custom play mats prebuilt competitive decks
- Wide selection

A few features I see from the suggested that I think would be profitable for the business would be prebuilt competitive decks. Making a competitive deck for playing the game itself would take time and effort, which we could charge a premium for our customers rather than them having to go out and waste time trying to find the individual cards they need and on top of that paying for more shipping if we consider the fact that they are purchasing from multiple sellers. I also like the suggestion of custom play mats, as we will save money from purchasing play mats at MSRP and make our own custom ones. (obviously we also have to take in to consideration how much it would cost to manufacture, raw materials needed and also an artist we could hire for the design)

For the ninth question **59.8%** of participants stated that the price of cards is very important when deciding to purchase, **34.1%** stated somewhat important, **4.9%** were neutral and **1.2%** stated it wasn't important at all. From these results we can conclude that it is important that we price both are sealed product and single cards competitively, as majority wants to find the cheapest option available in the secondary market.

The same can be said for the last question, where **56.1%** of participants considered the price of shipping to be very important, **28%** stated somewhat important, **9.8%** stated neutral, **4.9%** stated not very important at all and **1.2%** stated not important at all.

Survey Conclusion

In conclusion, from the survey results, I believe these are the requirements gathered to take in to consideration when developing the web application. (Not in specific order)

- Market towards the age demographic of 18-34 years old. (although we might need a bigger sample size as we did distribute these through online forums, servers and groups and some children may not have access / permission on the internet)
- Make sure inventory keeps up with demand with new product release dates as this is when customers are more likely to purchase product rather than buying on a weekly / daily / monthly basis.
- Prepare website traffic for release dates as this is when customers will be viewing the web application.
- Keep the most stock for products customers are most likely to purchase. (Booster Packs, Collector Tins / Boxes, Booster Boxes and Single cards in that order)
- "Box Break" feature would do well, as majority of participants are not satisfied with opening sealed product at an MSRP price and majority also enjoy watching livestreams / videos of products being opened in their free time.
- Pre-built decks could also generate the business profit, as 2 participants in the survey stated they would like that feature implemented and it also saves customers time / hassle trying to organise their competitive decks.
- Prioritise competitive pricing on all our product and shipping to attract customers.

2.2 Interviews results and conclusion

2.2.1   Interview One – Gamers World Manager

Interview Questions for Gamers World Manager

The purpose for this interview is to gain insight and information from the perspective of a person who has been working in a collectible card store. Albeit, Gamers World main customer base is in person rather than online, I believe we can still use a few principles and strategies they use to help with the development of this web application. This interview can also help with the requirements gathering for this web application.

Q1) From your experience running a card store, what do you believe is the best way to attract customers? Why?

- So the best way to attract the customers would be to catering to the community. We have a lot of different communities here in Gamers World, and we try cater for those guys. I feel this is the main strategy for majority of card stores as well, not just Gamers World.
- We also try be friendly with them as possible as much as possible as doing so will make them more inclined to come back.
- We also have a wide variety of games, board games and card games which keeps all of our customers satisfied and gives them a wide selection of product to choose from.
- We also do a lot of advertising on social media such as Facebook and Instagram, where we also post a lot of the new products and cards we get in.
- Lastly, we also offer many different loyalty reward schemes for our customers.

Q2) How do you think Gamers World and many other local card stores around the world maintain a loyal customer base?

- So for maintaining a loyal customer base we try to be as friendly as possible especially with our regular customers. Also, for certain customers rather than offering a loyalty reward scheme we just give them flat discounts on any purchases they make within the store on occasions. These discounts are usually 10-15% off compared to the loyalty reward scheme where customers would have to spend 25 euro 10 times to get a 25-euro voucher for the store.
- Also, if they ever need specific cards or certain sealed trading card product we can order it in specifically for them.
- We also try keep the shop clean as possible and offer a wide variety of snacks and drinks for our customers who are playing inside.

Q3) Why do you think customers choose to purchase sealed collectible card product from you instead of giant retail stores such as Smyth's, GameStop?

- I believe majority of our customers who choose to purchase from us rather than those giant retail stores are that they feel better morally by supporting a small family owned business compared to a giant retail store.

- We also try and keep our prices for product here a slightly bit cheaper compared to those giant retail stores that you listed.
- Also, with those giant retail stores you aren't really considered a regular if you shop their often where as if you shop from Gamers World we recognize who are regular customers are and would offer them discounts, reserve tables for them and just let them hang out whenever they feel the need to in the store.

Q4) What do you think are the main risks when choosing to start a business within the collectible cards market? How often do they happen?

- Considering we are already a big and established business with a loyal customer base it is a bit harder for start-ups or other companies looking to start their own store.
- I also find selling single cards to carry some sort of risk. I found the prices of cards to be quite volatile as a card will never stay the same price. A single card could be 2000 euros one day and then the next month it could drop down to 500 euro because they printed more of the card or it's just not used for competitive play.
- The market is very volatile and you need to speculate a lot. You need think if the next cards coming out are good to get, will they be played? Will it be worth our time keeping the sealed product they come in?
- Sealed product is a good example as well. If you know the next card set, coming out will hold good value you should get more of it in stock compared to getting a set that was released previously and didn't do well. There have been many times where we have gotten sets that weren't as popular compared to others and have ended up costing profits and taking inventory space.
- You need to know about the market for collectible cards and its difficult getting in to this market without having good knowledge and information in the hobby.

Sub question: Have you run into any instances where you bought sealed product and the value of its gone down in the secondary market?

- Yeah for sure, It's happened a lot lately with a different card game called Magic the Gathering. They released a bunch of sets throughout the end of last year – early this year. We got our normal allocation and it just wasn't a good set. We sold a little bit on release, but now the rest of our allocation is kind of just sitting in the back. We still haven't planned what to do with it. Do we take a loss? Sell it for cheaper? Or do we hold on to it and hope it goes up in value on the secondary market?

Q5) What features do you think Gamers World offer their customers that set them apart from other collectible card stores? How would you improve these features?

- One of our features is what I talked about earlier actually! We do a loyalty card, where our customers would spend 25 euro here and get a stamp on the card. Once you get 10 stamps the card turns in to a 25-euro voucher where you can spend it on any product you like.
- We are also very heavily engaged with our customer base through social media and any support or questions they may need we will help them with.
- We have a website as well, but we do plan on improving it in the future as not everything we're sell in the local store is not listed up on the website. This is mainly due to just how busy we are with our local events and maintaining the in-person community it can get difficult at times, but it is a feature we plan on improving.

Interview One Conclusion:

The interview I conducted with the gamers world manager helped me massively with gaining insight and information from someone who works within the trading card market. It helped me gather the requirements needed for a functioning and profitable card store and also what is needed to keep customers satisfied. The interview also helped me understand the risks involved when diving in to this market and the difficulties start up card stores could face during their early days. By understanding what works, what doesn't work, the risks involved and overall the foundation and basis needed for running a functioning card store, I can then mould the web application by addressing and resolving the issues / risks we gathered from the interview.

Q1: For this question the manager addressed how important it is to build a community and be friendlier towards customers as it helps attract even more customers through word of mouth and also helps in maintaining customers by being friendly and building a community. The manager also mentioned that having a wide variety of product is important as it helps you reach out to more people which I didn't take in to consideration before this interview was conducted. He also mentioned that advertising is important, especially on social media and loyalty reward schemes also helps attract customers. From the information gathered, I definitely plan on implementing some sort of loyalty reward scheme in the web application, get involved with social media and potentially create a forum page within the web application to build a community where customers can discuss with each other.

Q2: For question two the manager just repeated a few points he already mentioned while answering question 1 which was being friendly and offering discount codes. Also a few points he mentioned to maintain a loyal customer base was more catered towards a physical card store rather than an online one, although the idea of maybe reserving products and single cards for our loyal customers may be taken in to consideration.

Q3: Here he mentioned that some customers may feel better to purchase and support a start-up / local business rather than a giant retail store such as Smyth's or GameStop, which is good as that's exactly what the web application is and the branding I'm going for. He also mentioned how Gamers World tries to keep pricing for retail stores slightly cheaper compared to the retail stores mentioned, which I will also make sure the web application achieves. Additionally, during my data collection from the surveys, majority of participants specified that pricing is very important when it comes to Pokémon cards which is further evidence that pricing, especially in this market is incredibly important.

Q4: Question 4 I asked what potential risks are involved when trying to start a business in the collectible cards market. The manager mentioned that start-ups especially are hard to setup as the market is quite saturated and that many other companies already have a large and loyal customer base. My take from this is that in order to succeed in this market, you must stand out from the others and offer features and services that no other companies are already doing. The manager also mentioned how single cards can be quite volatile in price compared to sealed product, which is another point I'll take into consideration when developing the web application. Lastly, he told me the experiences where Gamers World has lost profits with certain product, and that certain items can potentially just sit on shelves, and that a good idea / knowledge of the market is necessary in order to succeed.

Q5: Question 5 just talks about previous points he has mentioned in other questions but also talks about trying to improve their own website as they feel it is lacklustre compared to other collectible card stores.

Requirements outcome from interview one:

- Implement a loyalty / reward scheme for repeat customers on the web application.
- Offer a wide variety of product to attract new customers.
- Put in a feature to link web application to various social media pages such as Facebook, Instagram, YouTube and TikTok.
- Offer cheaper prices compared to other collectible card stores.
- Invest more in sealed product compared to single cards as it reduces risk significantly.

2.2.2 Interview Two – New Pokémon Collector (Collecting cards for less than 1 year)

New Pokémon collector interview questions:

The collectible cards web application's is developed mainly towards both veteran and new collectors but mainly focuses on new collectors which is why I chose to interview a new collector. (less than 1 year of collecting cards) The main goal of this interview is to get an idea of the thoughts and opinions from a person new to the hobby, and what features they'd like to see on a web application. The information gathered from this interview can then be used as the requirements needed for the web application.

Q1: So from the information you have given us, you have been collecting and have been involved within the Pokémon trading card hobby for less than a year, could you name 3 websites that you frequently purchase from, and why you like using them?

- For the 3 websites I use to frequently purchase cards I use Card Market, Chaos Cards and Smyth's to buy both sealed and single cards.
- The reason I like using Card Market is because of the wide selection of single cards and sealed product available on the website, although I use it more to buy single cards rather than sealed product. The reason I like purchasing single cards more on Card Market is because it's cheaper compared to websites like Chaos Cards and eBay. Shipping is also quite cheaper compared to those websites. However, an issue I find with Card Market is the lack of photos available for the actual cards, as the website is basically a middle man service where independent sellers all over the world come and list their cards, and there has been times where I have received cards that are listed as "near mint" quality but have actually arrived in a worse condition.
- For chaos cards, I really like the layout and design of the website. It is easy to navigate through and very pleasing to view. The sealed product's available is a great price and they also offer a loyalty scheme where I can build up points to use as a voucher on the website. The only problem I have with the website is actually from recent events. Before Brexit shipping was quite cheap on the website but now when I try purchase from them there is a lot of additional fees and taxes.
- For Smyth's, I like purchasing from them both online and in their physical retail stores. The prices are fair, and shipping is free if you make a purchase over a certain amount. They are really reliable and delivery is quite fast. No complaints from them although I wish they did offer a loyalty scheme and cheaper prices.

Q2: Why do you collect Pokémon cards? What makes it the most enjoyable for you?

- I collect Pokémon cards because I used to watch it and play the games as a child with my older brothers. It's really nostalgic and I also love seeing the different artworks of my favourite characters in person.
- I also love the pack opening aspect of it. I love not knowing what cards I'm getting and the feeling of packing a really expensive card or a card you just wanted is irreplaceable.
- I am also recently getting in to the competitive card game, where you can battle other players but I find it difficult to get in to as I can't really tell what cards are good for playing with.
- I also love just filling out pages on my binder with cards that I love to look at, and always go through them at night just to look at all the different artworks.

Q3: What type of sealed product would you be most inclined to purchase? Could you explain why?

- The sealed product I'm more inclined to purchase are collector tins and collection boxes. I find them to be at a pretty affordable price and most of them also contain a promotional card inside, which is a guaranteed holographic card so you get some of the money you spent on the product back.
- I also like that they come with a good amount of packs so I get the chance of pulling cards I want from the set or cards that are expensive.
- I occasionally also buy booster boxes whenever a set I really like comes out because they usually come at a cheaper price when compared to buying individual booster packs. It saves a lot of money and hassle buying like 3-4 packs at your local retail store every other day or so compared to buying a full booster box at a discounted price from MSRP.

Q4: Are there any specific features on a Pokémon card selling website you'd like to see? How do you think these features would benefit you, as the customer?

- A feature I'd really like to see is a live support feature on a website because for the majority of websites I use to purchase cards from there isn't really a live support service available and only an email support service where it could days maybe even weeks to get a reply from. I believe a live support feature would benefit me as a customer because it can help resolve any issues or questions I have quickly.
- I also find majority of websites don't really offer any giveaways which I'd also like to see as it would just give me the feeling that the website cares about its customers and it would also give me an incentive to visit the website every day to see if there's any new giveaways available. This would benefit me as a customer as I could potentially win free cards or product that could help with my collection.
- I'd also like to see some sort of raffle feature as I know majority of websites don't offer any sort of raffling feature but I always see them being done in card selling pages on Facebook and Instagram.

Q5: For the websites you said you used for purchasing Pokémon cards, was there any form of customer support featured? If there is, do you think there are any ways to improve it?

- For the websites I mentioned I used they all offered a form of customer support section. Card Market operated with an email support feature which was the same with Chaos cards and Smyth's. Smyth's also offered a phone a number you could call to get in touch directly with their customer support.
- So the customer support for the websites are good! I've not once had a bad experience with them and they always satisfied and helped with any issues or questions I have. The only problem I found that all of them had (except Smyth's) was that it took quite a while to get a reply. I know they could be busy on certain dates, especially when a new set comes out, but when you are worried about a purchase you made or your order hasn't arrived and is past the expected delivery date, you really would like some customer live support for assurance.

Interview Two Conclusion:

Q1: The participant mentioned how she likes purchasing from multiple websites as some websites offer better features for single cards and some websites offer better features for sealed product. I believe that by merging the features they like from all the websites, it would help better develop the application and provide a better service.

Participant also mentioned that when purchasing single cards, she sometimes received cards she would expect to be in better condition so it basically falls in to the category of "product not as described". It is important we show our customers exactly what card they are purchasing and the exact condition of it.

Pricing is also important as she said Card Market offered better pricing compared to Chaos Cards and eBay when purchasing single cards. From my observation, I assume that the reason pricing is so cheap on Card Market is because of it being a middle man website where there are multiple sellers compared to the other stores where your orders will only be coming directly from one person. This then results in variables when it comes to sellers as some sellers may think a card is of "near mint" quality while another seller might categorize it as "excellent" or "good" condition so an accurate description of the product quality is definitely needed for this web application.

She also mentioned how important the price of the product itself, and also the price of shipping as she would rather purchase from websites that offered cheaper options. She also mentioned how important the layout of a website is and how she would prefer better navigation on a website.

Q2: For question two the participant stated how they love openings packs as they find it exciting and gives them a chance at getting cards they want or getting a really expensive card. She also stated how she would like to get in to the card game but finds it difficult to find the cards needed to build a competitive deck.

Q3: For this question the participant explained how she preferred to purchase collector tins and collection boxes as they are affordable in price which is understandable. She also mentioned how booster boxes are better value for money as they come at a discounted rate when compared to going in to a store and purchasing 3 or 4 packs at a time.

Q4: The features the participant mentioned included a live support feature as she found that majority of other card web stores lacked a dedicated live support feature. She also mentioned her frustrations

with how long it took to get a reply from customer support and how it could take days even weeks to get a reply back. She also said how giveaways would get her to engage more with the website and that it would show that company values their customer base and gives back to the community. A raffle feature is also a feature the participant would like to see as she found that many websites she used did not offer or have a raffle feature while it was prominent on social media pages such as Facebook and Instagram.

Q5: Again, for this question the participant just talked about how important live support is and also how better Smyth's live support is compared to the other websites they used because of their call in support feature.

Requirements for interview two:

- Implement a dedicated live support system for the web application.
- Products such as single cards we sell must be as described as customers can be unsatisfied by receiving cards that are not the quality of what they are sold.
- Feature for user to request high quality picture of the card they want. (Picture should show front of the card, back of the card, corners and edges to ensure quality)
- Competitive pricing to stay relevant in the market.
- Feature that shows users what cards are most popularly used in competitive play.
- Implement giveaways to attract and engage with customers.
- Implement a raffle feature.

2.2.3   Interview Three – Web Developer

Web Developer Interview Questions

The reason behind interviewing a web developer was to understand the minimum requirements needed when developing the collectible cards web application. What I wanted to achieve from this interview was to understand how difficult it would be to develop and implement the features I had planned for the web application.

Q1) What are the minimum requirements to run a web application store?

- The first one being a programming language so that you could develop both the front and back end of the website.
- HTML will be used so that you can create the individual web pages for the web application and you also use it to design the layout and navigation for the web pages. CSS will then be used so that we can style the individual web pages and then JavaScript will be used for any required complex actions or interactions with the user.
- The back end then consists of PHP which will allow you to interact with databases as it can be used to access and modify any data within the database. Also, rather than using HTML you can also use Java as it changes the information on web pages to be more dynamic.
- The next requirement needed would be to host your actual web application. This can be done with a web server like Apache.

Q2) Is it possible to add third party services onto the web application such as payment gateways when they purchase product?

- Yes, payment gateways are completely possible to implement in a web application. All you require for this feature would be to adding the API of the payment gateway in the application of your choice.

Sub question: Ok so for example a popular payment method people use is PayPal. Would their API be available online for anyone to use? Or would you need permission or request it from them?

- As far as I'm aware, the API for PayPal is readily available online for anyone to use and I believe is in their PayPal developer section on the website.

Q3) How difficult would it be to design a database that stores customers' orders for this web application?

- It wouldn't be difficult at all. All you require is a DBMS such as MYSQL that has the ability to store and create tables inside a database. The tables would then contain columns such as the order id, customer id, the total amount customer has spent and the date the purchase was made on.

Q4) How can we implement a live broadcasting stream such as Twitch streaming directly from the web application?

- For implementing a live broadcasting stream directly on to your website, it is actually quite similar to how you would implement a payment gateway.
- All you would need to do is add a streaming API, so in your case Twitch or YouTube API on to your website. Both should be easily accessible online. After you implement the API all you need to do is to display the stream on your web application is to utilise the providers video player or embed code to easily display the live stream.

Q5) What programming languages would be required to develop a web application?

- It really depends on the requirements but for most web applications you would use a combination of HTML, CSS, JavaScript, PHP and Java.

Q6) So one of the ideas for this web application is to sell customers a "live box break opening" where a customer would make a purchase of a sealed product e.g. a booster pack. Would it be possible to link a customer's order to the livestream broadcast archive to the exact time stamp their product was opened?

- Yes, this is completely possible to do. The first step that would need to be taken is to store the customer's order information and also the time stamp of when you open the customer's order live on stream.
- The next step then is to link the order timestamp on the database to the timestamp of the live stream archive whenever the customer's order was opened live on stream.

Interview Three Conclusion:

Q1: So for this question the web developer mentioned the minimum requirements that would be needed to run the functioning web application. We would need HTML, CSS and Javascript to run the front end of the web application while also using PHP for the back end so we can interact with databases. Also mentioned that Apache or Microsoft IIS will be needed to host the web application.

Q2: For this question the web developer mentioned how to implement payment gateways for the web application by using the provider's API. I then asked him are these APIs free and readily available online (PayPal to be exact) and the developer said that it was available on the PayPal developer section of the website.

Q3: For question three I asked how difficult it would be to design a database so we could store customers' orders for the web application. He mentioned that we could use the DBMS MYSQL to store customers' orders.

Q4: Here, the developer mentioned how setting up a live broadcasting stream from a streaming platform such as Twitch is quite easy to implement into our web application. The steps required would be similar to the steps we would when implementing the payment gateway, which is to use Twitch's streaming API on the website and then either use the providers video player or embed the code on to our web application.

Q5: The answers given for this question were already answered in question 1 where we asked the minimum requirements for the web application.

Q6: For this question the web developer specifies the steps I would need to take to implement a timestamp link for the customer's order so that they can go to the exact timestamp of the broadcast archive to view their products being opened.

Requirements for interview three:

- HTML, CSS, JavaScript, and PHP for the development of web application.
- Apache as the web server to host the web application.
- PayPal API.
- Master card API.
- Revolut API.
- Implement YouTube and Twitch API to broadcast livestreams directly from our website.

2.3 Brainstorm results

During the brainstorming session myself and the other 3 participants discussed any features and requirements needed upon the development of the web application. The brainstorming session brought many ideas and also any issues that could be met for this project. All 4 of us agreed to give a minimum of 3 requirements needed for the web. The brainstorming session was fairly easy to do, as all of the members that participated have a significant amount of experience within the card collecting community. One of the participants didn't really have any experience with the Pokémon card collecting in itself, they did however have a good chunk of experience from other collectible card games such as Yu-Gi-Oh and Magic the gathering so the requirements they suggested could still be applied within the context of the Collectible Card Stores as many card games operate very similar with each other.

Gamers World Manager requirements:

1.	A shopping cart should be added to the web application. This is so users can see what items they are buying with a click of a button. Adding and removing items should also be quick and easy to do.
2.	Multiple shipping options should be available. (Registered, priority, international)
3.	Order tracking should be available for customers.

Gamers World Employee:

1.	Have a user reviews and rating section on the web application.
2.	Be optimized for multiple devices such as desktops, phones and tablets.
3.	User login. User should be able to create account, sign in and log out.

Project Manager (Myself):

1.	Implement a Twitch and YouTube API to stream our live box breaks for customers.
2.	Add a featured cards or most popular items on the homepage.
3.	Offer prebuilt competitive decks for our customers.
4.	Raffle feature where we raffle cards and products weekly.
5.	Display current market trends for single cards.
6.	Implement a live support system for customers.
7.	Implement payments API (PayPal, Visa, Revolut)
8.	Beginner friendly section. This section will just briefly explain each type of rarity for Pokémon cards.
9.	Description of our products.
10.	Users can rate products out 1-5 stars.

Pokémon Collector

1.	Filter / sort by feature that allows customer to filter by card type, card rarity, price, illustrator.
2.	Security and privacy for customer data and information.
3.	Different payment options should be available. (Visa, PayPal, Revolut)
4.	Have custom playmats or custom made cards available for customers to purchase.
5.	Have a card grading system for all single cards for sale. E.g. Near-mint, Mint, Excellent. Also have example pictures for what you define as that condition.
6.	Allow customers to make a wish-list basket.

Brainstorming results:

I found the brainstorming session we had to be a success. All the participants suggested different requirements and features for the web application, which I consider most of them if not all of them to be useful. The requirements gathered during this brainstorming session is:

- Shopping cart
- Multiple shipping options
- Order tracking
- Reviews and rating page
- Optimization for different devices
- User login
- Twitch and Youtube API
- Featured cards section
- Prebuilt competitive decks
- Raffle feature
- Display market trends
- Live support chat
- PayPal, Visa, Revolut API
- Beginner friendly section
- Filter / sort by feature
- Security and privacy for customer data and information
- Custom playmats
- Card grading system
- Wish list basket
- Product review
- Product description
- Inventory Management

2.4 MoSCoW Analysis

For the MoSCoW analysis we will use it for the development of the collectible cards web application. We use it so that we can prioritise all the requirements gathered from each elicitation techniques conducted throughout the project. These requirements were gathered through the various elicitation techniques I carried throughout the project such as:

- Surveys conducted with 83 participants. (Survey was distributed in a Pokémon discord group, PokemonTCG forum page and Gamers World customers)
- Interview with Gamers World Manager
- Interview with a Pokémon Collector
- Interview with a Web Developer

The reason it is important to conduct a MoSCoW analysis is so that it can *"help clarify and prioritize features or requirements for a given project"* (Paulvanzandt, 2022) The clarification and prioritization of the requirements can then help it easier for stakeholders to view and understand what the requirements needed for the Collectible Cards web application are.

The MoSCoW Analysis prioritizes requirements from:

Must Have – These are requirements that are needed in order for the project to be completed successfully.

Should Have – These are requirements that do not impact the current project but can be implemented in the future stages of the project instead, as they are not necessary for the project completion.

Could Have – The could have requirements include any requirements that wouldn't have much of an impact on a project at all if it gets left out.

Won't Have – The last category of requirements is the won't haves. These are requirements that the project manager sees as non-priority as they believe it does not benefit the project overall or does not fit within the projects time frame.

MoSCoW Analysis

Must
FR1: User registration
FR2:Product search
FR3: Product basket
FR4: Checkout
FR5: Customer support
FR6: Secure payment processing
FR7: Order tracking
FR8: Order management
NF1: Easy to navigate
NF2: Inventory Management
FR9: PayPal API
FR10: Visa MasterCard API
FR11: Revolut API
FR12: Bank Transfer API
NF3: Competitive pricing
NF4: Wide variety
NF6: Multiple shipping options (standard, registered, express)
NF8: Sealed product

Should
FR13: Customer feedback
FR14: Filter section by set
FR15: Filter section by card rarity
FR16: Filter section by card illustrator
FR17: Box Break page – customers can purchase sealed product at cheaper price
FR18: Box break purchase product page
NF5: Market towards age demographic of 18-34 years old
FR19: Loyalty reward scheme
FR20: Raffle feature
FR21: Product wish list
FR22: Product ratings and review
FR23: Product description
FR24: Product recommendation
FR27: Accessories page
NF7: Ship worldwide
NF9: Single cards

Could
FR25: Beginner friendly / new users section
NF10: Prepare web application traffic on new product releases
FR26: Social Media links

Wont
1: Physical store
2: Other users can list and sell items
3: Product giveaways
4: Custom cards / playmats.

## 2.5 Proto type - Wireframes

2.5.1 – Home Page
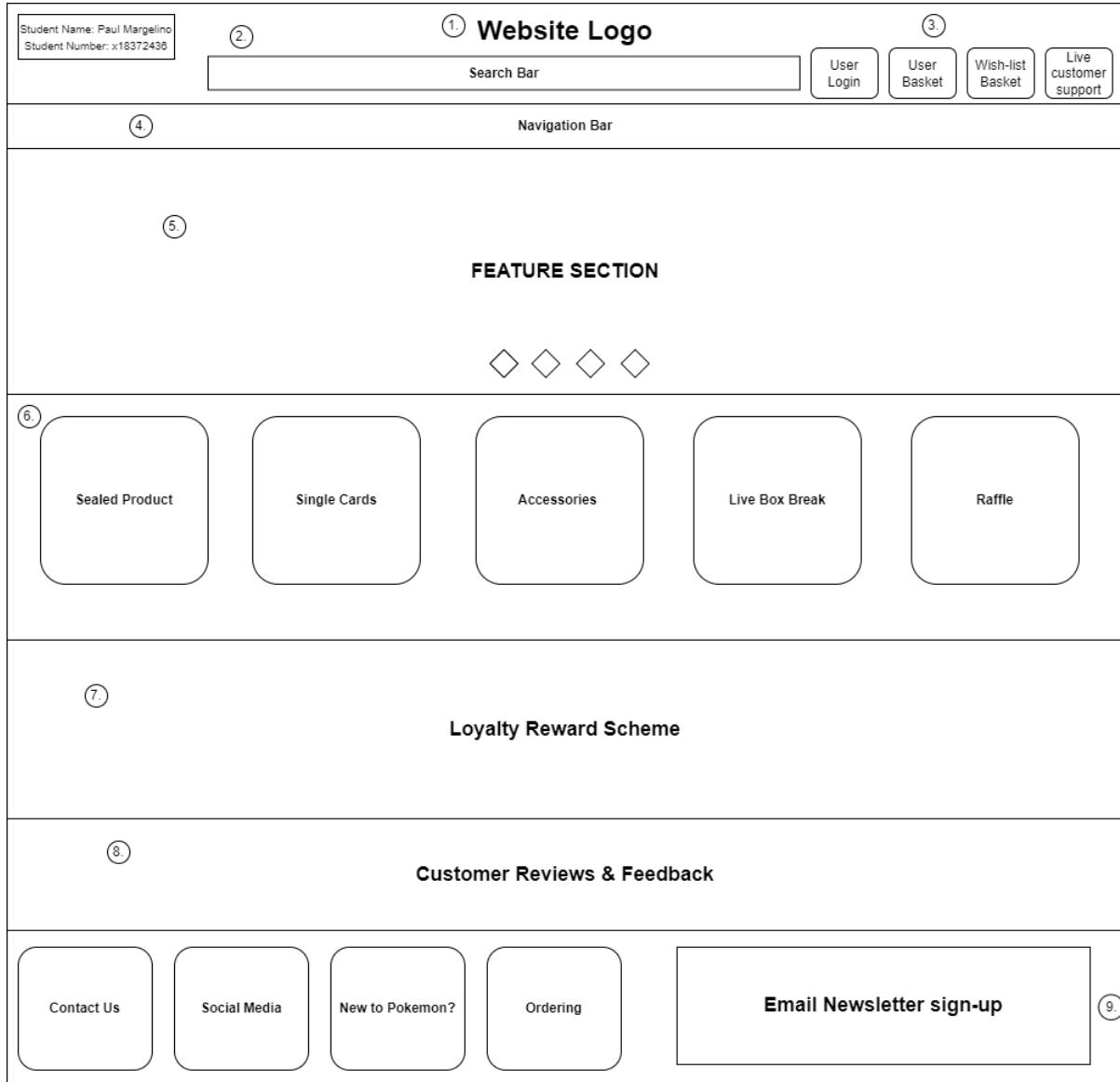
This is the wireframe concept for the home page of the web application. This will be page one and will be what customers see when they click the link for the collectible cards web application.

1. Section 1 represents the website logo / name. It is at the top of the page so users can identify they are viewing the correct web application and easily identify the Collectible Cards company.

2. Section 2 represents a search bar. When users click on it, they can use the search function which will search any products available on the website.
3. Section 3 is the user section. This section involves any interactions the user would like to make on the web application. They can click the first button that links them to the login or create an account page on the website. User can click the second button which links them to the basket page, where they can add or remove products in their basket. User can click the third button which links them to the wish list page, where they can add or remove products in their wish list. The last button the user can click links them to the live customer support page. Here, the user will be in queue and can chat directly to one of our live customer support agents.
4. Section 4 is the navigation bar. This section contains drop downs for sealed product, single cards and accessories. Sealed product and single cards drop down contains links of all available sets collectible cards currently sells and the user can click the link to be directed to the specific page. The accessories drop down contains links to card sleeves, playmats, deck boxes and binders.
5. Section 5 contains the feature section. It is an automatic slideshow where it shows the latest products, hottest products, latest winner for the weekly raffle and a preview of the live box break feature on the web application. Slideshow is automatic, but user can also click buttons below within the section to scroll through the slideshow.
6. Section 6 has 5 containers. Each container links customers to their respective pages.
7. Section 7 contains the loyalty reward scheme which has a brief description of how the loyalty and rewards scheme works, and all the rewards you can get from the scheme.
8. Section 8 will contain the customer reviews and feedback. It will be an automated slideshow that previews recent customer feedbacks. Upon clicking, it will link the user to the customer feedback page where they can view all the customer feedback and reviews.
9. Section 9 contains the contact us, social media, new to Pokémon? and orders link. These are links which link the user to their respective pages. Section 9 also includes the email newsletter signup, where the user can input their email and sign up for our weekly newsletter that previews products coming out.

2.5.2 Sealed Product / Single Cards / Pre-built decks / Accessories page
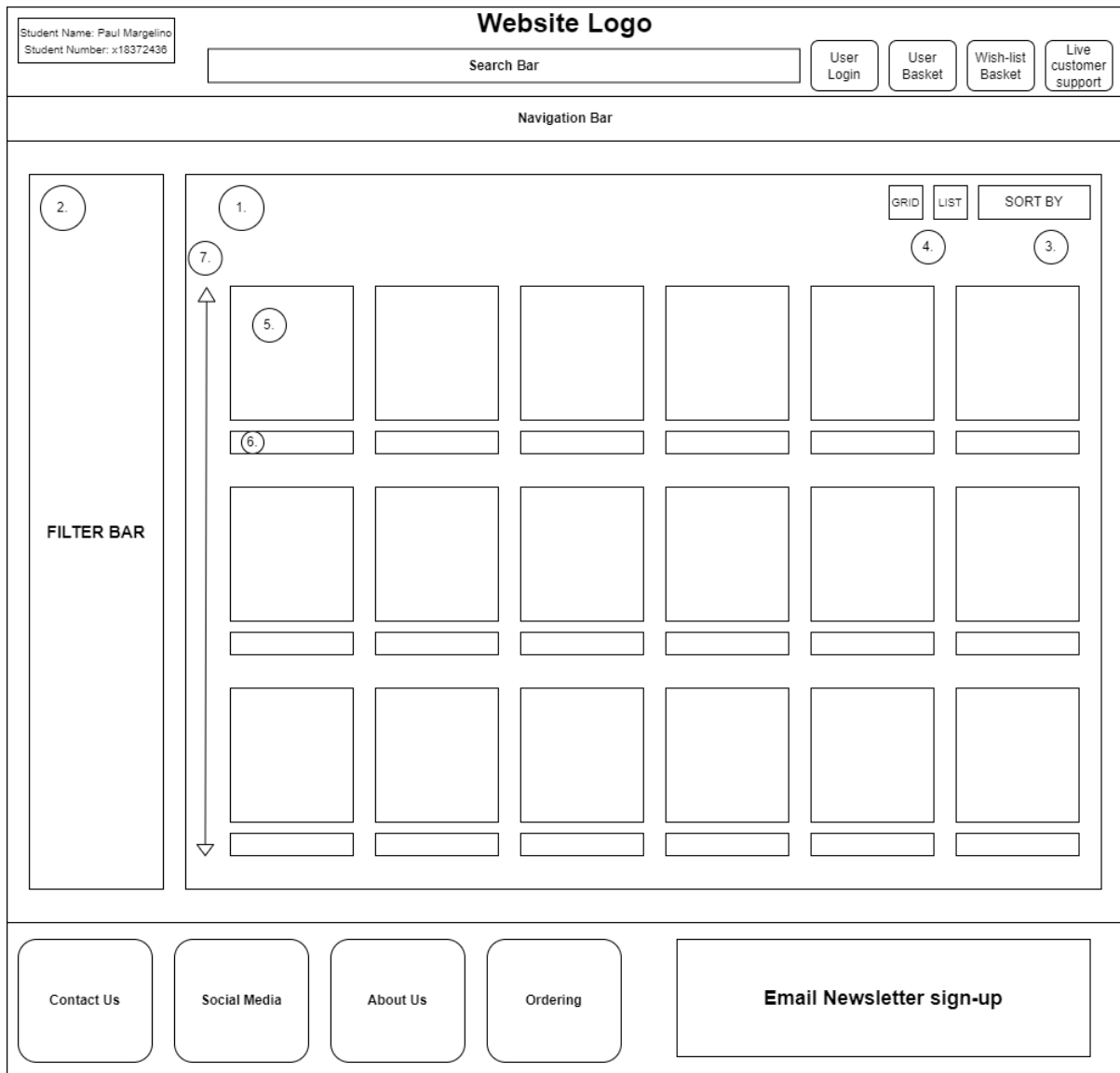
This page will be the sealed product / single cards / pre-built decks / accessories page. I will be utilizing the same layout and format for all the product pages, hence why the sealed product, single cards, pre-built decks and accessories page all fall in to the same page style.

1. Section 1 will be a container which has all the respective type of product for sale on the website.
2. Section 2 will be the filter bar for the product page.

   For the singles card page – User can filter by card set, card rarity, illustrator of card and condition of the card.

For sealed product page - user can filter by card set and the sealed product type (booster packs, booster boxes, collector boxes, collector tins)

For pre-built decks page – User can filter by format deck can be played in. (There are 2 formats the Pokémon trading card game is played in, Standard and Expanded)

For accessories page - user can filter by type of accessory and by brand.

3. Section 3 is the sort by drop down list. User can sort by release date, alphabetical, price from low to high or price from high to low.
4. Section 4 contains two interactive buttons. These buttons are the grid format and list format. Clicking grid will change layout of product container to a grid style, while clicking list will change the layout of the product container to a list style.
5. Section 5 contains a clear, high quality of the product.
6. Section 6 will contain the product's name and price.
7. Section 7 will be a simple scroll bar where users can scroll up and down in the product container.

2.5.3 Live Box Break Page
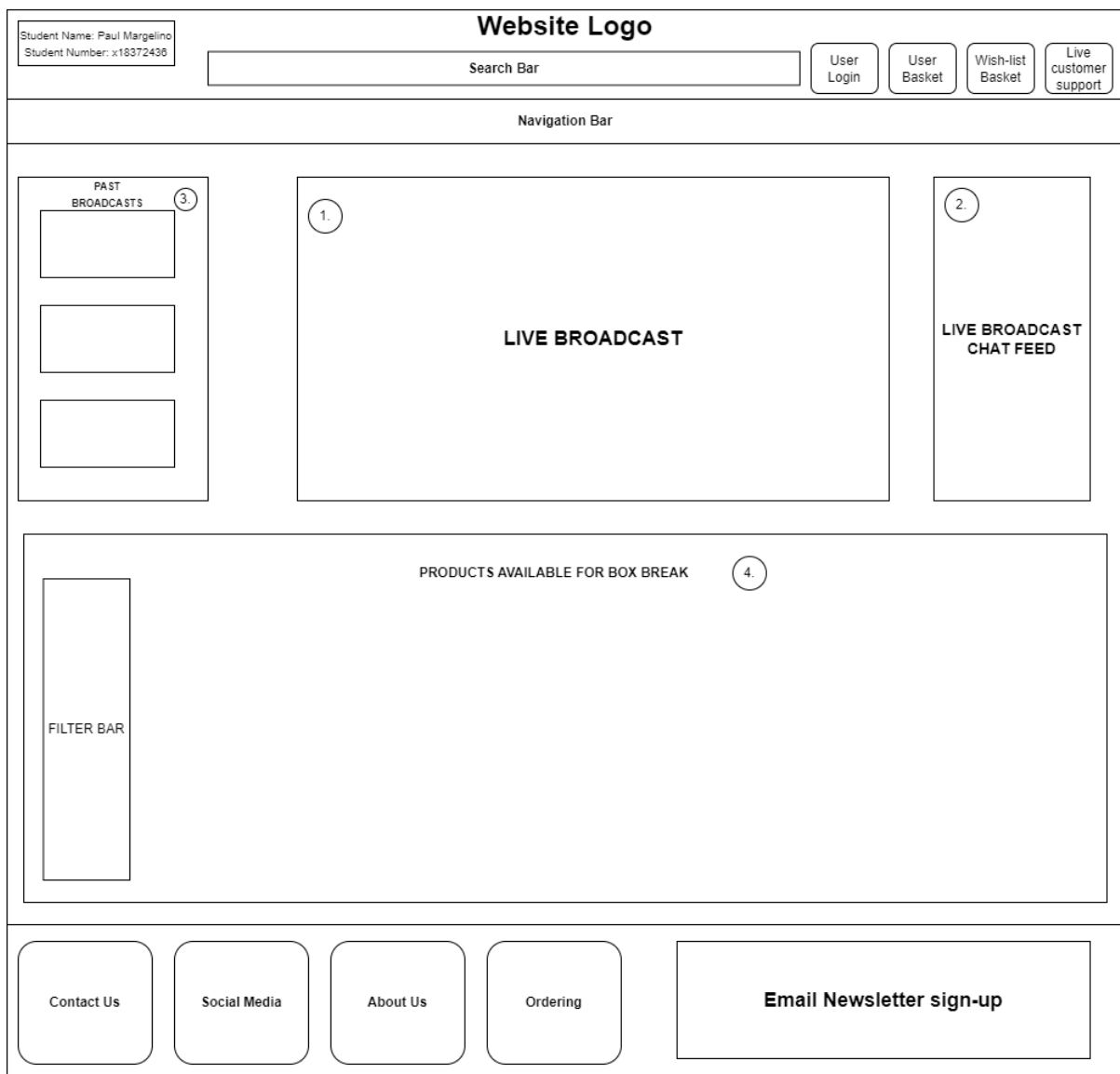
This page will be the box break page. This will be the page users will be linked to if they click the "box break" on the home page of the web application.

1. Section 1 will be a direct live broadcast stream from our Twitch and YouTube channel. This feature will be implemented through the use of the respective APIs of Twitch and YouTube and will be put on the web page through embed code.
2. Section 2 will be linked with our live broadcast chat feed from the Twitch and YouTube streams. Same action will be taken with section 1 which is the utilization of APIs and embed code.
3. Section 3 will consist of the past broadcast stream archives. These will be videos rather than an actual livestream. If user clicks the video it will ask link them to the Twitch broadcast stream that took place on the respective date of the video.
4. Section 4 will contain all the products available for the box break. This section will be similar to the products page albeit it will be smaller and will only contain sealed product. This section will also contain a filter bar, which operates exactly like the ones for the product page.

2.5.4 Raffle Page

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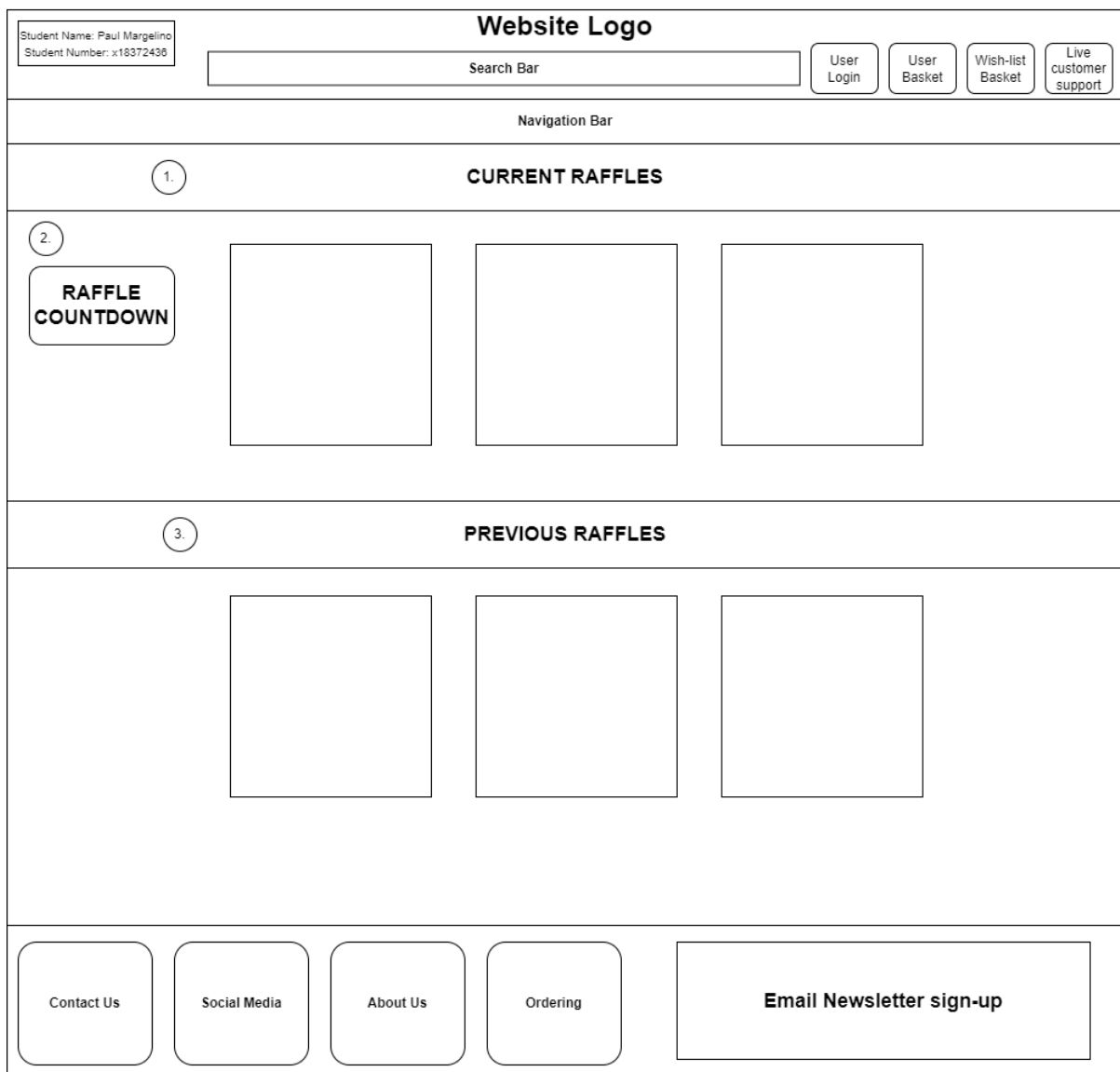
This is the raffle page; the page users will be directly linked to if they click the raffle section on the home page.

1. Section 1 will be showcasing all the current raffles available for users to enter. It will show a high quality image of the item being raffled. There will only be a maximum of 3 raffles available per week.
2. Section 2 will be a countdown clock created with the use of JavaScript where it will be counting down 1 week. Once countdown is over, users will not able to purchase any raffle tickets.
3. Section 3 will show the previous raffle from the week before. It will show a high quality image of the item that was raffled, and will contain the name of the winner of the raffle.
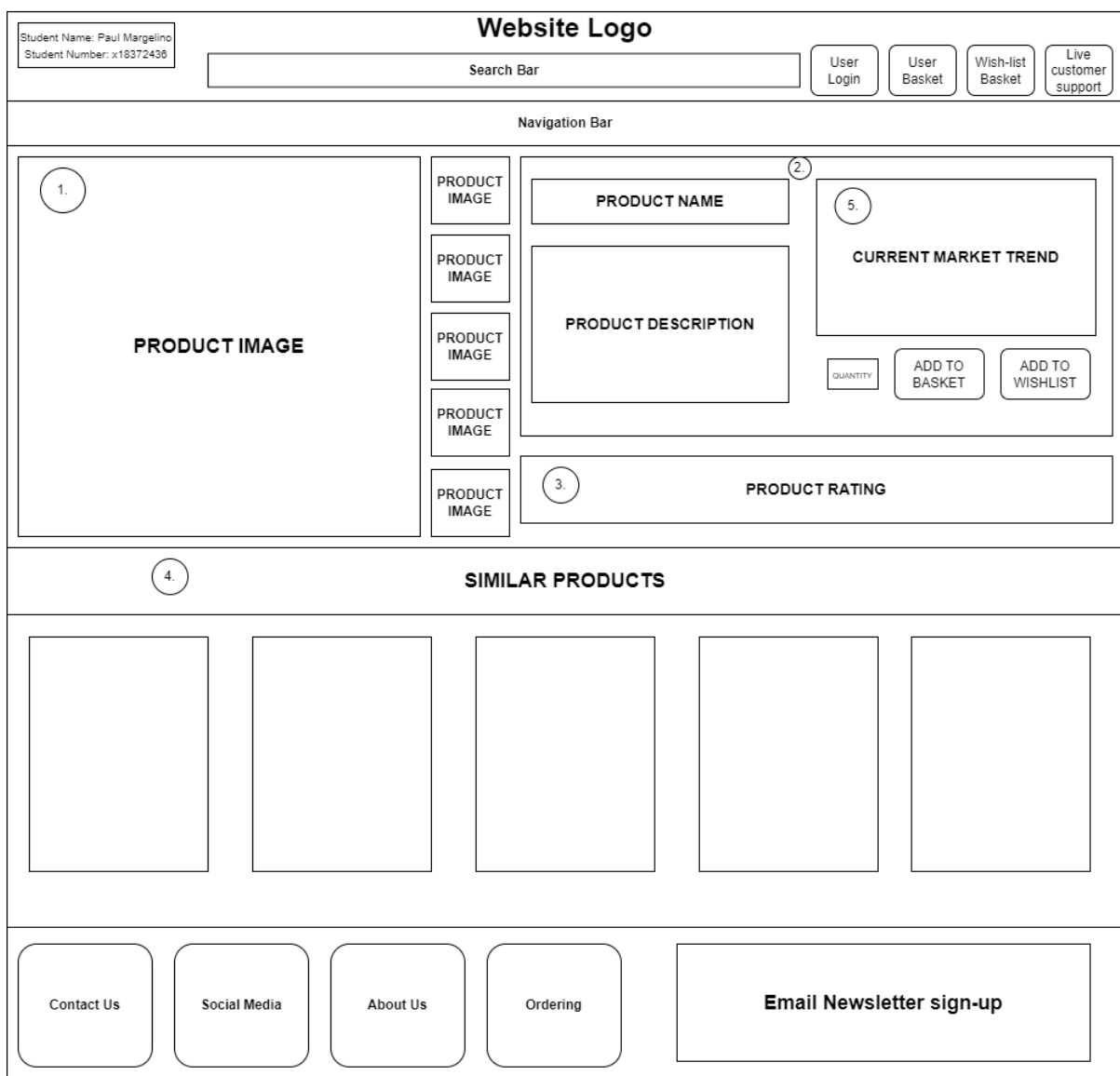
2.5.5 Purchase Product Page
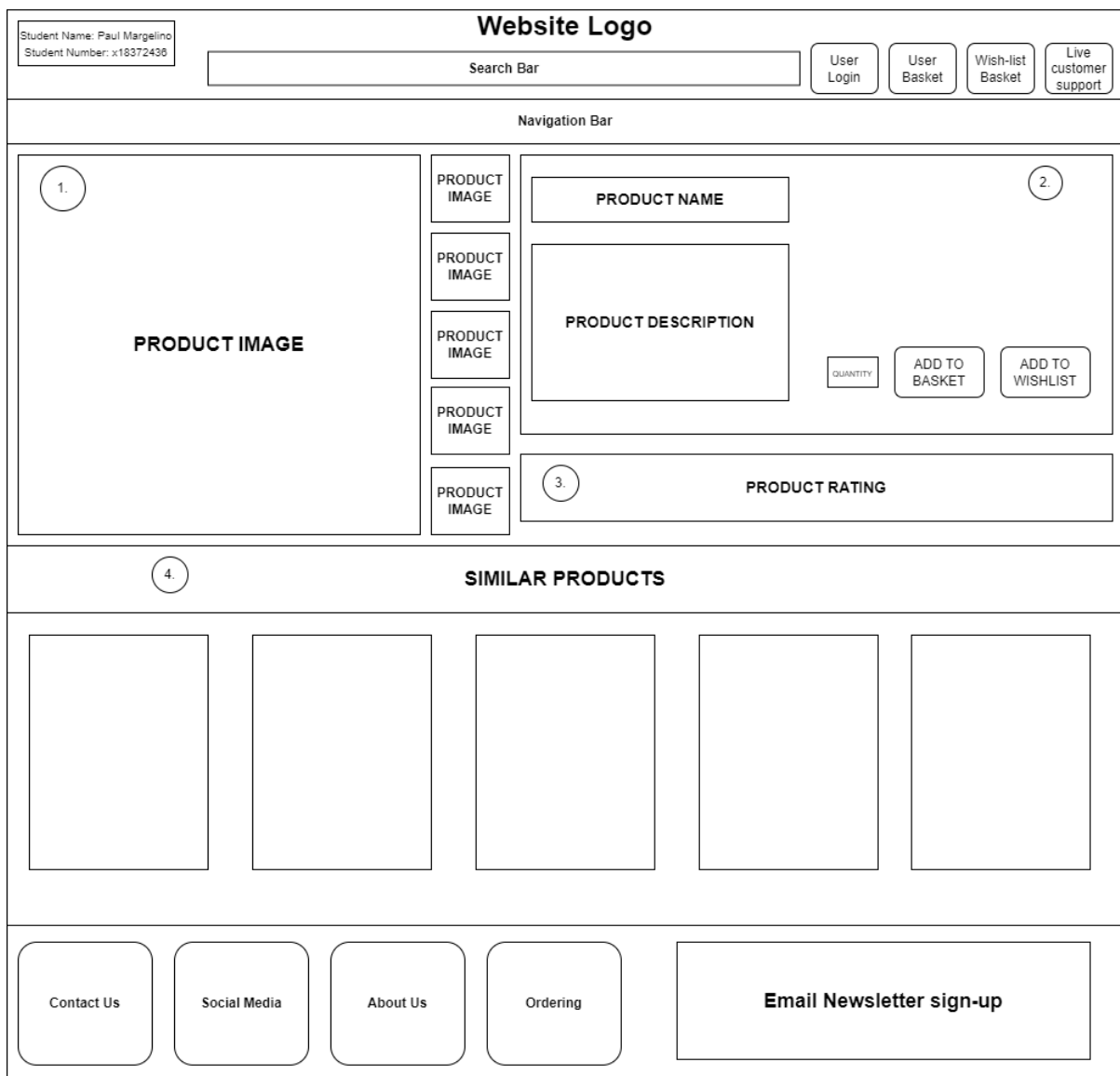
This will be the purchase product page. This is the page users will be linked to when they click a product on the product page. This will be the layout for the sealed products and accessories pages although the single cards will be similar but will contain another feature that will be shown in the next diagram.

1. Section 1 of the page will just showcase the product image. The product image will be accompanied by 5 other product images beside it to the right. These product images when

hovered on will fade the current product image to the respective product image that is currently being hovered. Each product image will contain different angles of the product and also a product contents image showing the user what is exactly inside the product.

2. Section 2 will contain the product name and product description. It will also contain a quantity button where users can increase or decrease the amount they would like to purchase. It will also contain two buttons where users can add it to their basket or add it to their wish list.

3. Section 3 will be the product rating section. Users can rate the product 1-5 stars and the current rating will also be displayed based on the averages of the user input.

4. Section 4 will contain similar products to the one currently being shown. Upon clicking a product in this section, it will bring the user to its respective purchase product page.

2.5.6 Purchase Single Cards Page

This will be the purchase single cards page. It is very similar in terms of layout to the purchase product page, however this time it contains an added current market trend section where it will show a graph of the current market trend of the single card. This graph will be based on the data of previous sales

from secondary markets, such as eBay, Adverts and Card Market. It will also contain a quality drop down where users can select which quality they would like to purchase the card in.

1. Section 1 of the page will just showcase the single card image. The single card image will be accompanied by 5 other images beside it to the right. These images when hovered on will fade the current image to the respective image that is currently being hovered. Each card image will contain different angles of the card, alongside close ups of the front and back of the card.
2. Section 2 will contain the card name and card description. It will also contain a quantity button where users can increase or decrease the amount they would like to purchase. It will also contain two buttons where users can add it to their basket or add it to their wish list. Single cards will have the option to choose the quality they purchase the card in. The card quality ranges from Mint, Near mint, Excellent, Good, Not very good, Bad and Poor quality.
3. Section 3 will be the product rating section. Users can rate the product 1-5 stars and the current rating will also be displayed based on the averages of the user input.
4. Section 4 will contain similar products to the one currently being shown. Upon clicking a product in this section, it will bring the user to its respective purchase product page.

5. Section 5 will contain a current market trend for the single card shown. This graph will be based on secondary market sales. The reason I chose to add this graph only to the single cards page is due to the fact that sealed products are usually stable in price and are sold at MSRP value. For single cards however, prices for them are often volatile and can see price spikes. This due to many factors such as:

   - If card is from an older set, it is no longer being printed. This means the card is low in supply and if enough people want the card, the price will spike up. (supply & demand)
   - Card is being used in competitive play.
   - An influencer or celebrity has hyped up the product on social media and the card suddenly becomes popular.

2.5.7 Purchase Box Break Page
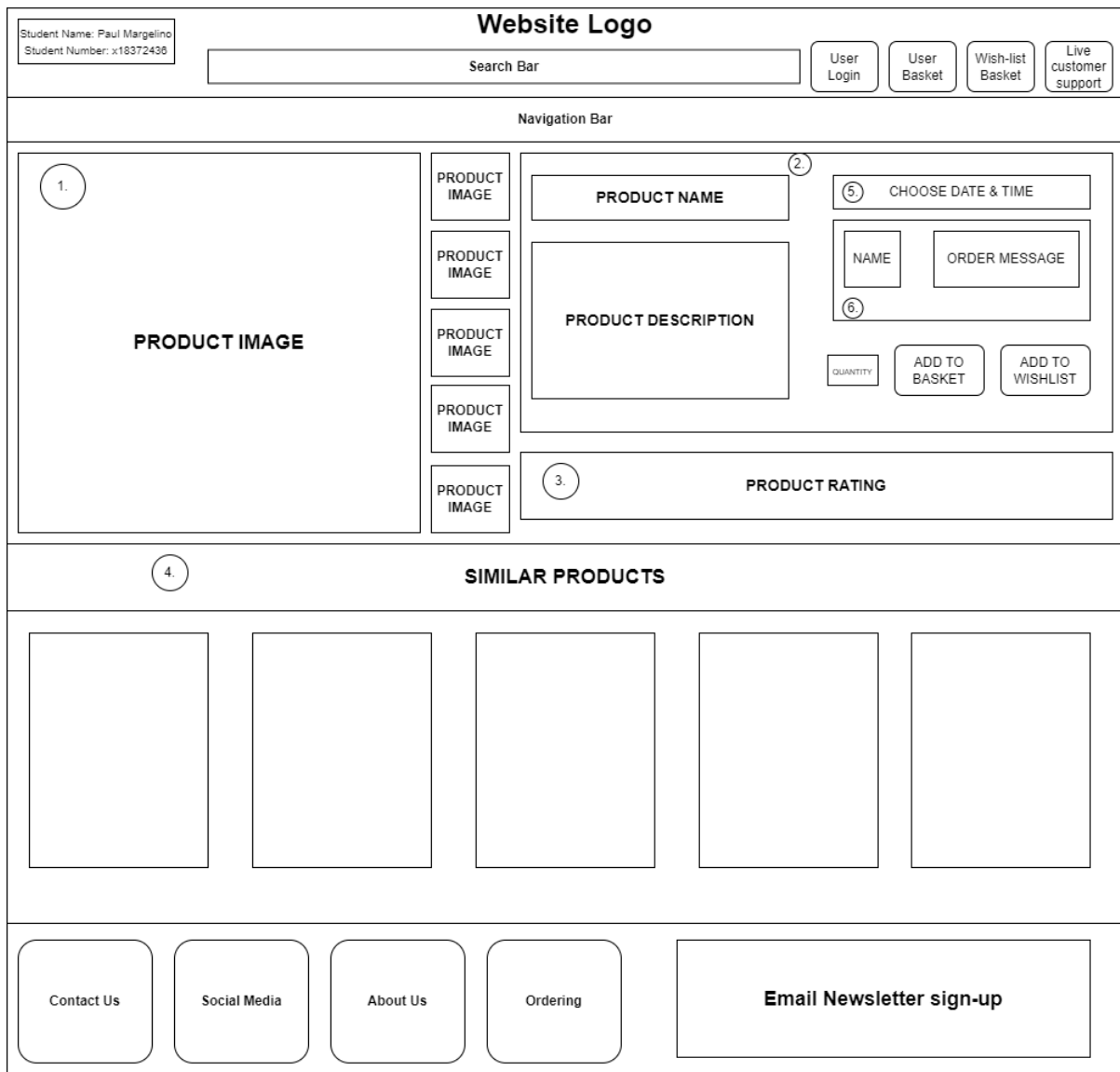
This will be the purchase box break page. This will be the page users will be directly linked to when they choose and click a product from the box break page. The page will have the same layout and features as the purchase product and purchase single pages, but with a few additional features due to how the box break system works for the web application.

1. Section 1 of the page will just showcase the product image. The product image will be accompanied by 5 other product images beside it to the right. These product images when hovered on will fade the current product image to the respective product image that is currently being hovered. Each product image will contain different angles of the product and also a product contents image showing the user what is exactly inside the product.

2. Section 2 will contain the product name and product description. It will also contain a quantity button where users can increase or decrease the amount they would like to purchase. It will also contain two buttons where users can add it to their basket or add it to their wish list.

3. Section 3 will be the product rating section. Users can rate the product 1-5 stars and the current rating will also be displayed based on the averages of the user input.

4. Section 4 will contain similar products to the one currently being shown. Upon clicking a product in this section, it will bring the user to its respective purchase product page.
5. Section 5 for the box break purchase page will contain a drop down list of the current available times the product can be opened live on stream. User will then select the time and date of when they want the product to be opened.
6. Section 6 will be a section where users **must** input a name and order message. User can input any name and message as long as it is not profanity or breaks Twitch and YouTube's terms of service as the name and order message will be shown live on stream. Names and messages will be double checked by the people running the box break to make sure it doesn't break terms of service. Example name and message could be: Name: Paul Order message: Hello from Ireland! I love watching your streams!

2.5.8 User Login Page
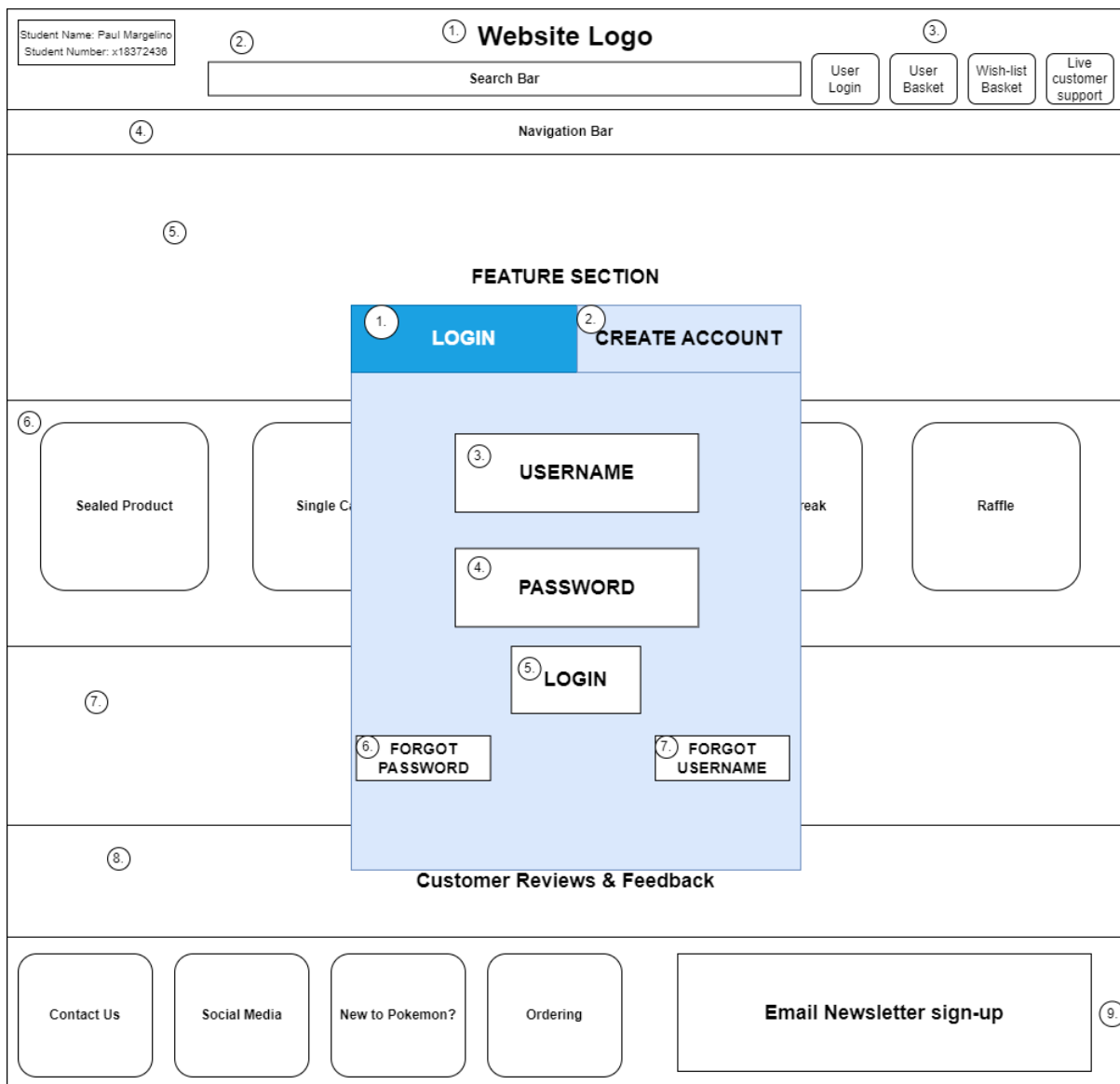
Rather than linking the user to a new page for the user login or sign up feature, I decided to go for a small pop up page instead. This will be the popup page that will pop up on the current web page when user clicks the user login button. I chose to make this page a small popup page so users can login or

sign up anywhere at any time on our pages without having to leave the current page they're on, which will be more convenient. This pop up page will be implemented on to all the web pages.

1. This section contains the login button. When clicked it will present the current format displayed from the diagram above.
2. This section contains the create account button. When clicked it will present the format for the create account page which will be shown in the next heading, the create account page.
3. Section 3 will receive a user input. This is where users will input their login username for the web application.
4. Section 4 will receive a user input. This is where users will input their login password for the web application.
5. Section 5 will be the login button. When clicked, the user will login to the web application.
6. Section 6 will be the forgot password button. Upon clicking it will take them to the forgot password pop up page.
7. Section 7 will be the forgot username button. Upon clicking it will take them to the forgot username pop up page.

2.5.9 Create Account Page
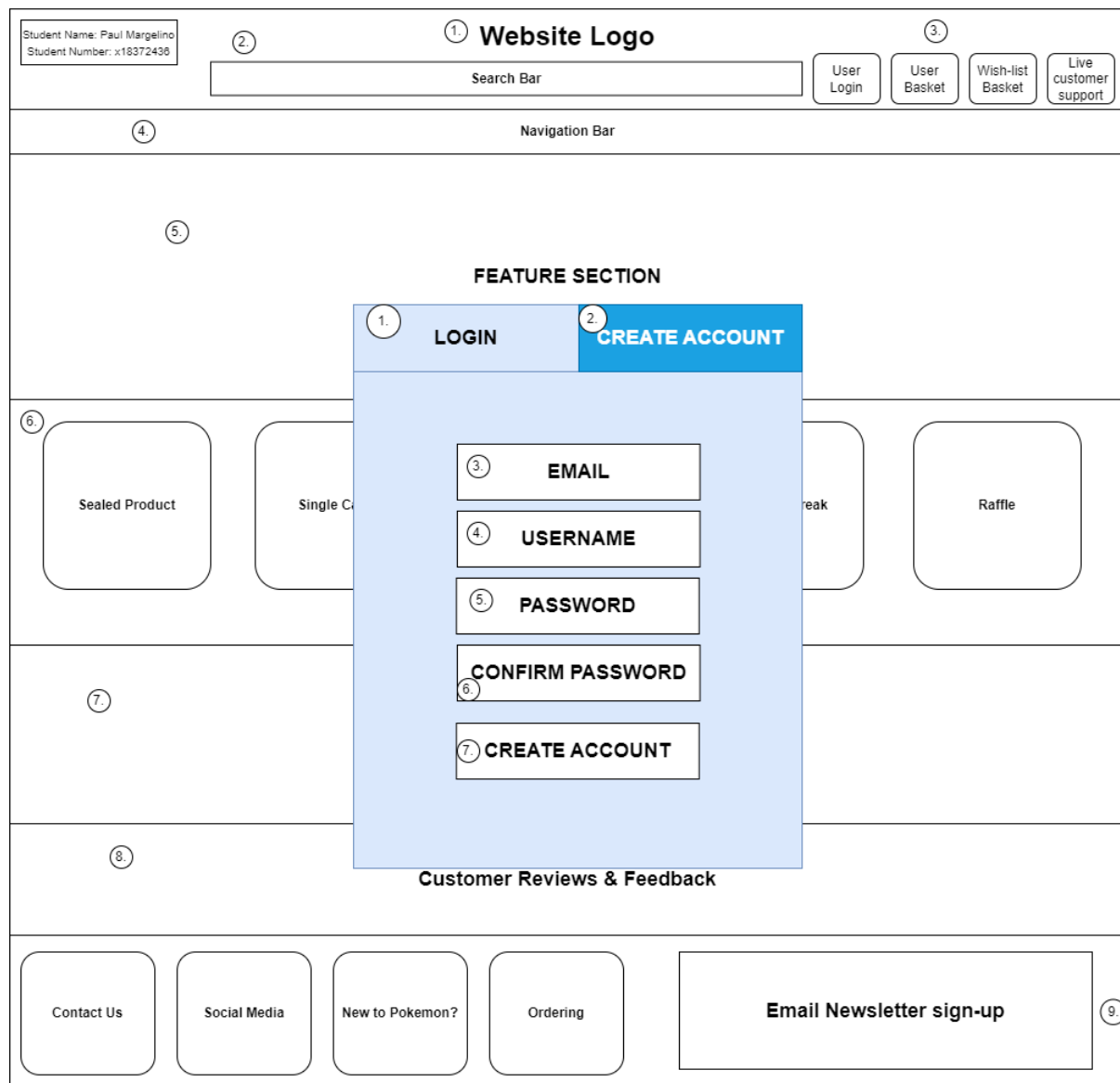
1. This section contains the login button. When clicked it will present the login pop up page from the previous heading.
2. This section contains the create account button. When clicked it will present current page presented in the diagram above.
3. Section 3 will ask user to input email they wish to associate with the account. Email required so they can access account if they have forgotten password or username.
4. Section 4 will ask a user to input a username of their choice. If username is already used by another account, it will prompt user to choose a different user name.
5. Section 5 will ask user to input a password for their new account. Password will have minimum requirements that include: minimum of 6 values, must contain symbol, number and capital letter.
6. Section 5 will be a confirm password input where user will input the same password they chose from section 4. User will be prompt with a password does not match if passwords do not match.
7. Section 6 will be a create account button. Can only be clicked once criteria of all value fields on the pop up page will be filled.
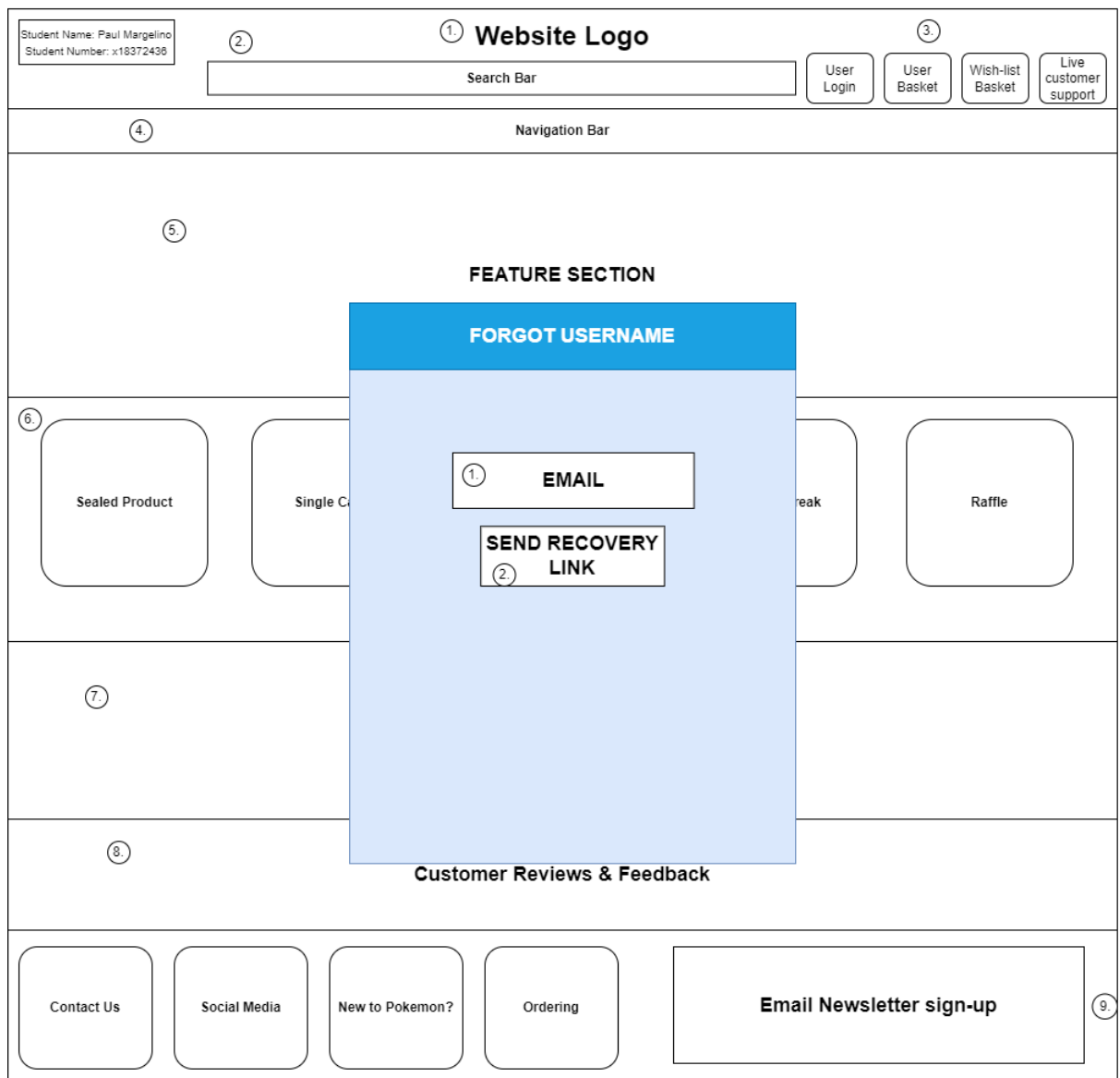
2.5.10 Forgot Password Page
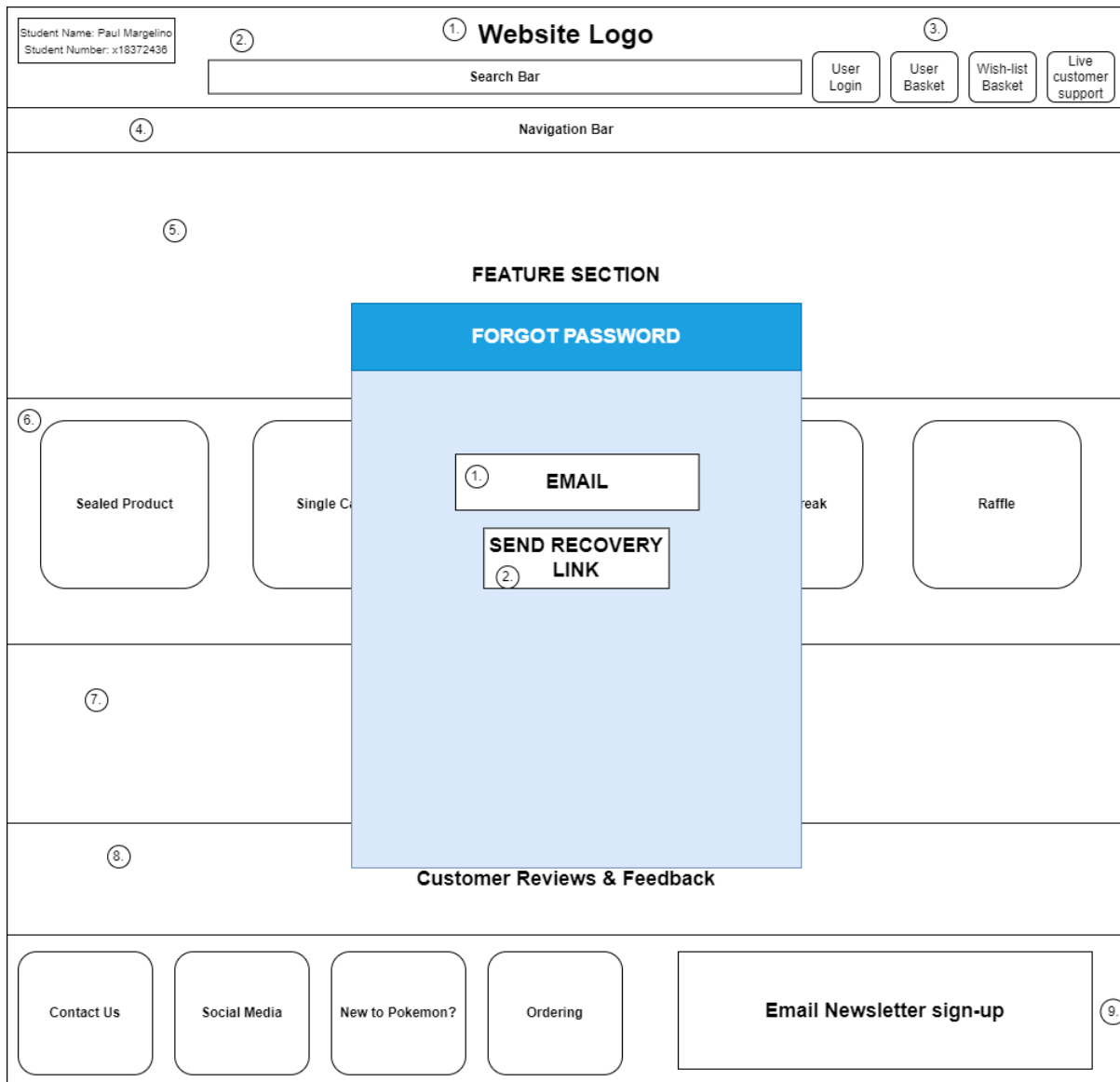
This will be the pop up web page users will see when they click the forgot password link on the login page.

1. Section 1 is where users will input the email associated with their account.
2. Section 2 will be a button to send a recovery link to the email entered.
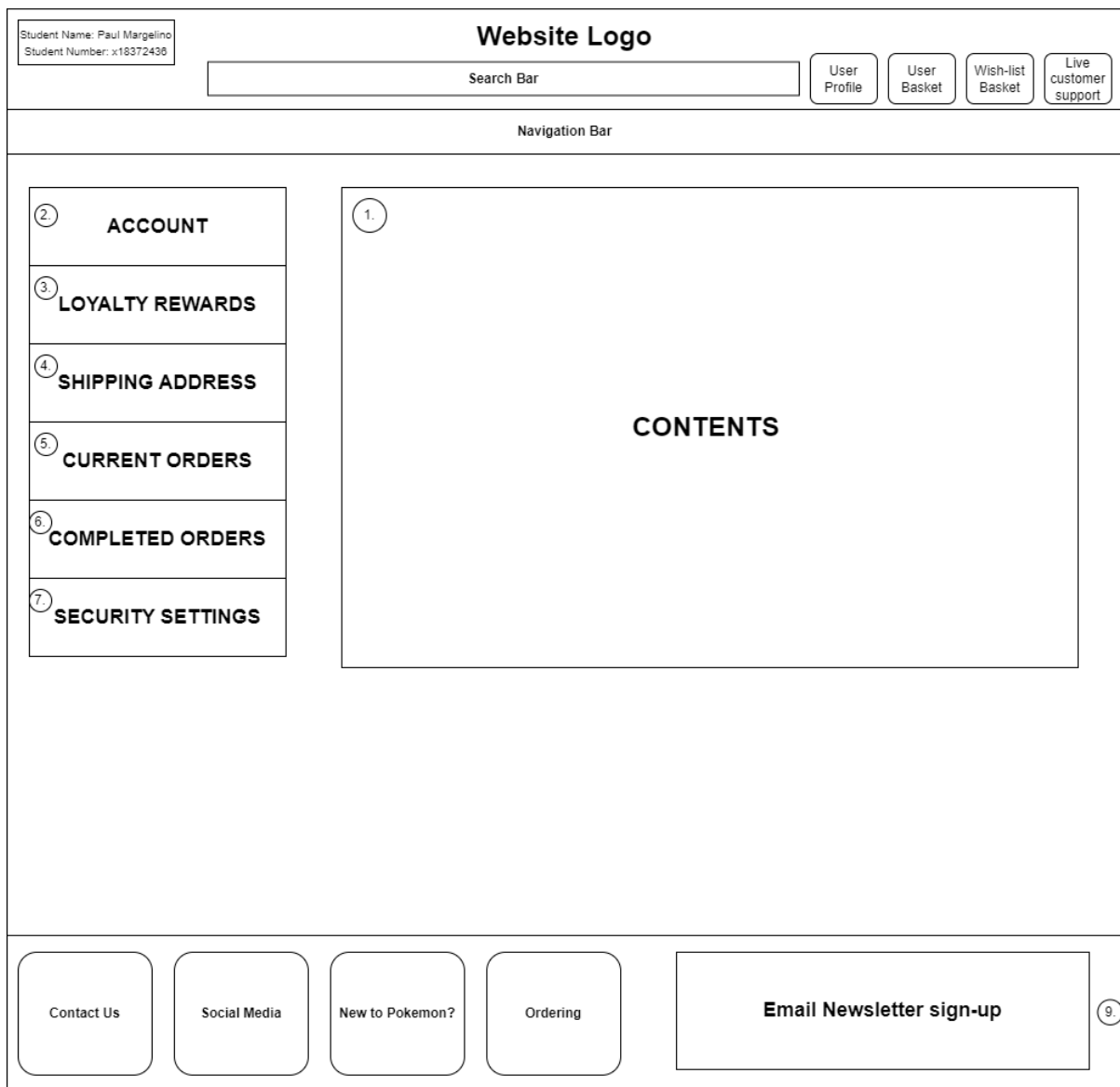
2.5.11 Forgot Login Page

This will be the pop up web page users will see when they click the forgot username link on the login page.

1. Section 1 is where users will input the email associated with their account.
2. Section 2 will be a button to send a recovery link to the email entered.

2.5.12 User Profile Page

Once the user has created an account on the website, the user login button will change to a user profile button instead which you can see on the diagram above. When user button is clicked, it will take user on to this page.

1. Section 1 represents a contents section on the page. This section will change depending on what button is clicked on the left hand side of the web page.
2. Section 2 will be the Account button. When clicked, it will display on the contents section of the page the users name, email address, and password.
3. Section 3 will be the loyalty rewards button. When clicked, the contents page will display the current loyalty rewards status of the user.
4. Section 4 is the shipping address button. The contents section will display all current shipping addresses associated with the user. User can switch between their preferred address if they have multiple addresses registered on the website.

5. Section 5 represents the current orders button. The contents section will show the current status of any active orders the user has.
6. Section 6 will be the completed orders button. Upon clicking, it will display all the details of the finished orders user has completed. These orders be of delivered status. User can also click an order and input feedback and rating for the web application.
7. The last section will be the security button. When user clicks the security button the contents page will present the user with an option to reset their password, change their email or change their username

2.5.13 User Basket Page
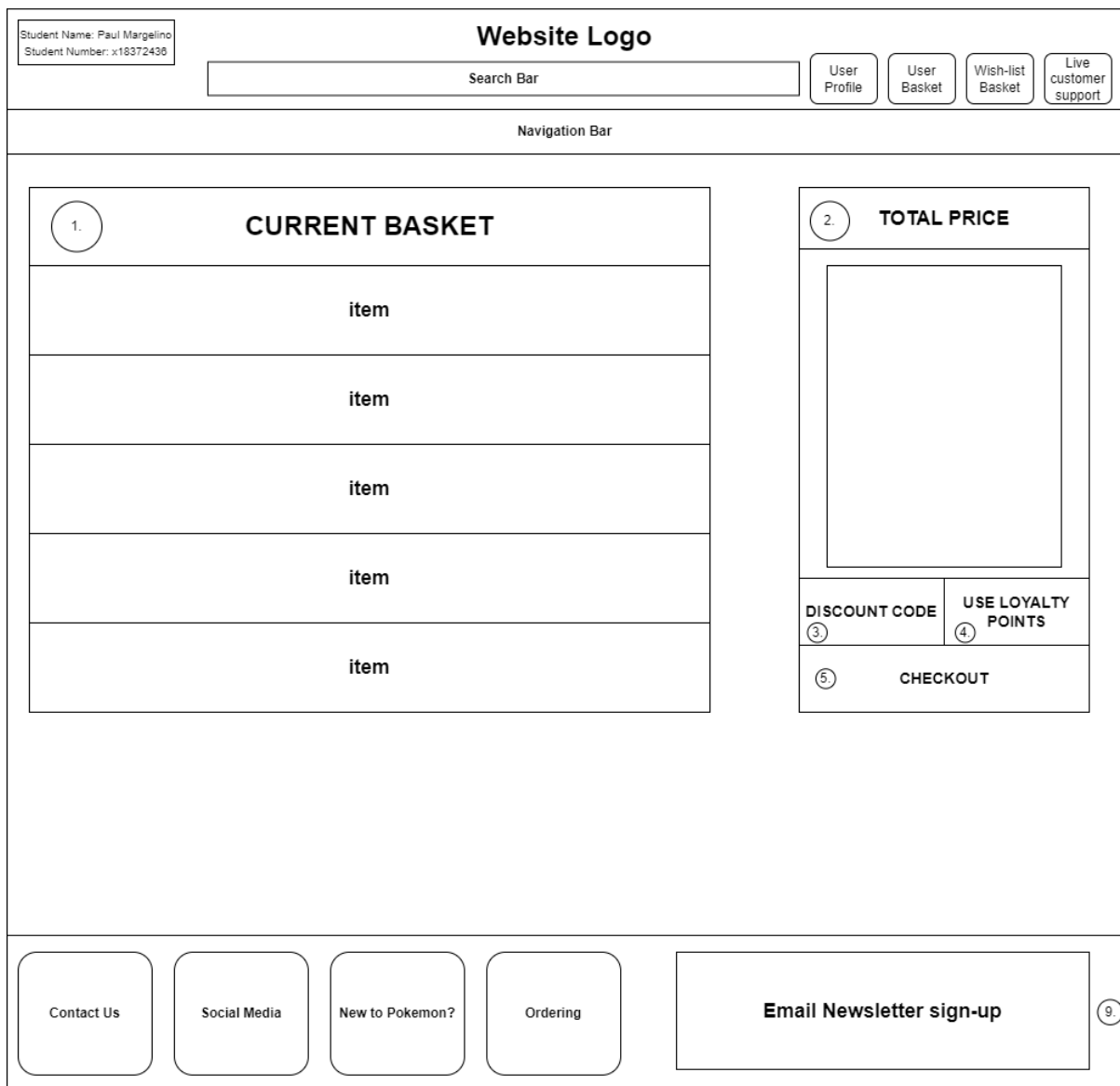
This page will be the user basket page. Once the user clicks user basket button, they will be linked on to this page.

1. Section 1 represents the current basket section. This will contain all the items the user has put in their basket. User will have the option to increase quantity of item or decrease / remove item from their basket.

2. Section 2 is the total price section. Will contain all the current items in the basket with their displayed price. On the bottom of this section it will have a total price of all products, with VAT and shipping included for the price.
3. Section 3 is the discount section. This is where users can input any discounts codes they have associated with the website.
4. Section 4 is the use loyalty points section. Users here can use their loyalty points to gain a percentage discount, depending on their loyalty level.
5. Section 5 is the checkout button. Upon clicking the button, user will be linked to the checkout page.

2.5.14 Checkout Page

This page will be the checkout page. Once the user is happy with their basket they will be taken to this page upon clicking the checkout button.

1. This section is the before you buy section. This section will just feature recommended items or discounted items before the user purchases their items. They can click on an item in this section, and it will add automatically to the basket section on the left.
2. The second section will be the basket section. Here, users can still remove any items they may not want last minute. Also if the user has accidentally clicked an item on the before you buy section they still have the ability to remove that item.
3. Section 3 contains the customer details section. User must input first name, last name, email address, phone number, shipping address and zipping code. First name, last name, email and shipping address inputs are all necessary but phone number and zipping code is optional.
4. Section 4 will be the payments method. User can select between different payment methods and upon clicking the desired payment method, they will be redirected to the third party payment site through the use of their respective APIs.

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2.5.14 New to Pokémon? Page
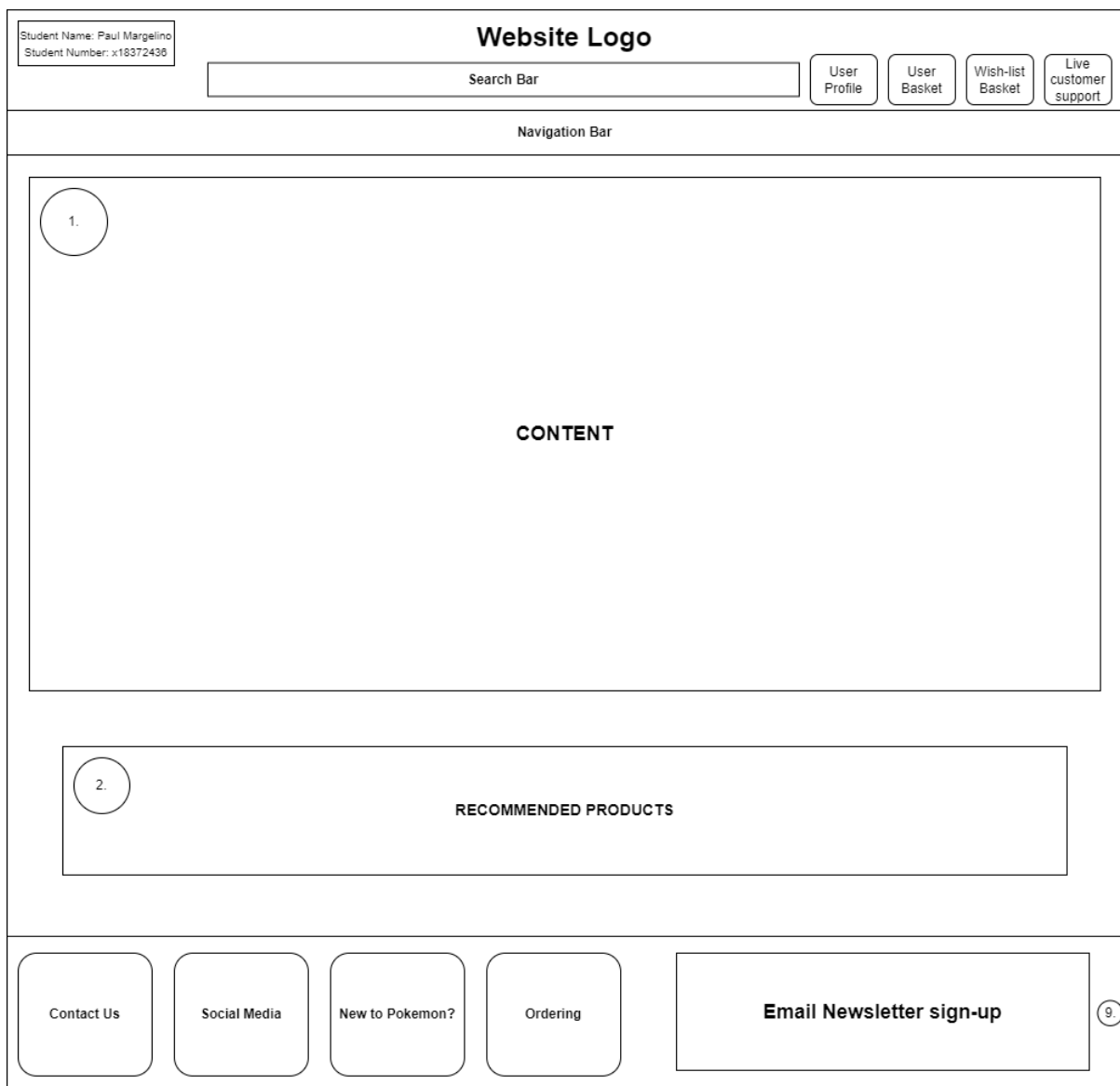
This page will be the new to Pokémon page, which is the page users will be directed to upon clicking the New to Pokémon? button.

1. Section 1 will contain contents that include a brief summary of the of the hobby. This section will be of blog post style, where users can read the history of the hobby, interesting facts about the hobby and also a tutorial on how to get started.
2. Section 2 will be a recommended section where users will be recommended products that are suitable to new collectors looking to get in to the hobby.

2.5.15 Ordering Page

Website Logo

Search Bar

User Profile | User Basket | Wish-list Basket | Live customer support

Navigation Bar

1. **ORDER ID**

2. CHECK ORDER

3. **CONTENTS**

Contact Us | Social Media | New to Pokemon? | Ordering | **Email Newsletter sign-up** 9.

This page will be presented upon clicking the ordering button. This page is where users can check on current orders as long as they have their order ID with them, which is provided with all orders via email.

1. Section 1 is the input for users to put in their Order ID.
2. Section 2 is a button users click once user has input Order ID.
3. Section 3 is the section where the order information will be displayed.

2.5.16 Live Customer Support Page / Contact Us Page.
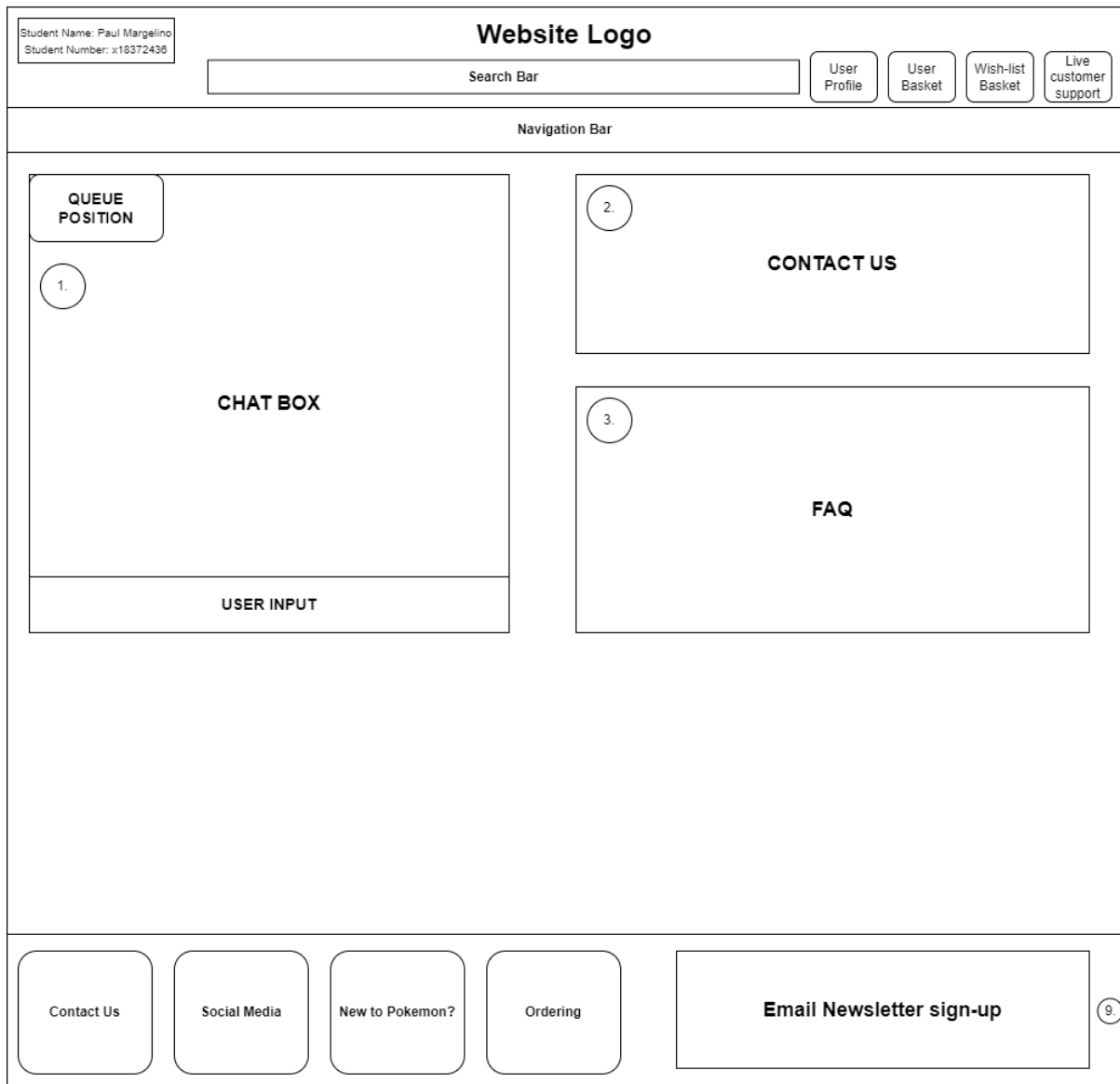
This page will be the page where users will be linked to upon clicking both the live customer support button or the contact us button.

1. Section 1 will be the live customer support chat box. User can input any questions they need help with urgently here. These questions could include orders that have been marked arrived but not delivered, getting double charged for an order or product did not come as described.
2. Alternatively, if the question is not urgent, users can contact us via email in section 2. This section will contain an email address input, the name of user input and a message box. This section will allow the users who don't have any urgent questions or need immediate help to contact us via email.

3. Section 3 will be the FAQ or frequently asked questions section. This section will just contain some frequently asked questions from users with the respective answers attached.

2.6   Wireframes feedback

As mentioned from the requirements elicitations planning and gathering section in this project, I conducted a prototype showcase via discord call with 3 other participants where I showed them all the wireframes diagram and asked them for feedback once the showcase was over.

Member from Pokémon Cards Ireland discord server:

The participant commented how they really liked design of the home page. He said the home page is important as this is what users will see for the first time upon visiting the website, and they are introduced instantly to a lot of content to consume. Participant also said they liked how they could get access to all the other pages of the website just from the home page.

Business Analyst:

The business analyst said the web application layout was clear and easy to understand. He didn't see any navigation issues users could potentially face during the browsing of the web application. Also mentioned that the Box Break page had a neat and eye catching layout, which was a feature he expected to be quite hectic and messy before being shown the prototype.

Gamers World Manager:

This participant said that it was good to show the user reviews and feedback from the home page. Commented that this section would instantly engage with users as they can instantly read feedback from customers who had previous experiences with the web application. Participant also said the basket page was well made.

2.7   UML Use Case Diagram
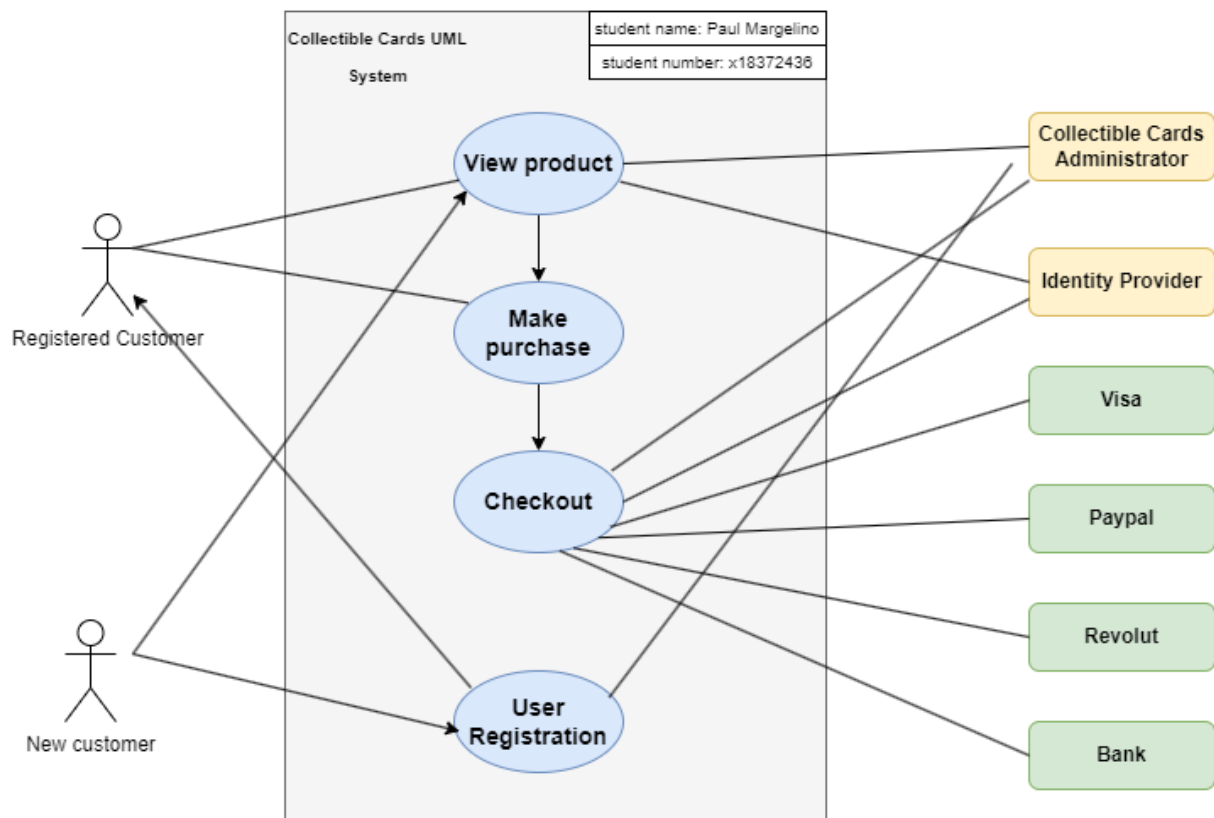
The UML use case diagram above represents the use case for the collectible cards web application. The use case can be defined as the user browsing the web application, finding a product they like and then purchasing it via third party services such as PayPal, Revolut and Visa.

Inside of the Collectible Cards system, we can see all the processes that takes within the web application.

On the left we can see the all participants outside of the system which include web customers, new customers and registered customers. These are participants that will be using and engaging with our system. These participants have no rights or roles within the system and fall in to the user group.

On the right side we can see the other participants involved within the system. They are linked with the respective roles they carry out within the system which can be seen by the arrows that link them to the system section.

3. IEEE Requirement Specification

3.1 Introduction

Purpose of IEEE Requirements Specification:

The main reason to why an IEEE requirements specification process should be conducted for this project is so that all the required functional and non-functional requirements we have collected are all easily identifiable and applicable to the development of the Collectible Cards web application.

It can also be used as a guideline to what exactly the finished product is for Collectible cards, which can then be analysed and reviewed by stakeholders to see if it meets their needs and expectations.

Scope:

I believe that Ireland and the majority of Europe deserve a functioning and reliable web application card store such as Collectible Cards. Due to the recent events of Brexit, many of the large online retail stores that used to be popular for customers from Ireland and Europe have now been considered as a less attractive option, due to newly added import duties and taxes applied on products going in and out of the United Kingdom.

I also believe the Collectible Cards web application will bring a lot more innovation and engagement towards its customers, mostly from the Box Break feature. This Box Break feature simply offers customers sealed product at a cheaper price because we will open their products live on stream. They will only keep the holographic cards they get from the booster packs, and we will keep the junk cards that no one wants! (these cards are only worth 0.05 – 10 cents on the secondary market)

Customers become engaged from this feature, as majority of them will want to watch it live on stream, which will also bring traffic towards our social media pages such as YouTube and Twitch. Shipping will also be cheaper with the box break option by nature, as rather than shipping out big bulky parcels containing sealed product, we can just ship the customers the holographic cards in a protective case and a bubble mailer envelope.

Collectible cards will also present a raffle feature for our customers. Raffles will be held every week, where 3 products or single cards of different value will be raffled. The values will range from 10-25 euros, 25-50 euros and 50-100 euros.

Also, Collectible Cards will implement a graph beside the single cards description so users can view the current market trend of the single card they are looking at, which will be based off the secondary market trends.

3.2 Functional Requirements

Functional Requirements 1

Identification Code:	FR1
Title:	User registration
Description:	User must be able to register and create an account within the web application.
Location:	This function is accessible throughout the entire web application.
Priority:	Must have.

Functional Requirements 2

Identification Code:	FR2
Title:	Product Search
Description:	Search bar at the top of web application. User can input a product name or single card name and drop down results will show.
Location:	This function is accessible throughout the entire web application.
Priority:	Must have.

Functional Requirements 3

Identification Code:	FR3
Title:	Product basket
Description:	Product basket feature where user can add or remove products. They can also apply discount codes or use any loyalty points they have. This is the step before the user checks out.
Location:	This function is accessible throughout the entire web application.
Priority:	Must have.

Functional Requirements 4

Identification Code:	FR4
Title:	Checkout
Description:	The checkout page is a feature that allows the user to checkout their basket. At the checkout page, user will enter name, email and desired shipping address. Checkout page will have a payments section allowing users to choose the desired payment method. Once payment method is decided they will be linked to the third party site to enter payment details.
Location:	This function is accessible after user has confirmed their basket.
Priority:	Must have.

Functional Requirements 5

Identification Code:	FR5
Title:	Customer Support
Description:	Customer support page will feature a live customer support chat where user can chat to a live customer agent if they need help urgently or their question is not on the FAQ section of the website. User will also have the contact us option beside the live chat, where they can input name, email address and message and then send email to Collectible Cards support email.
Location:	This function is accessible throughout the entire web application.
Priority:	Must have.

Functional Requirements 6

Identification Code:	FR6
Title:	Secure payment processing
Description:	This involves the payment process after the checkout page. Will involve third party site of users selected payment option.
Location:	This function is accessible after the checkout phase is complete.
Priority:	Must have.

Functional Requirements 7

Identification Code:	FR7
Title:	Order tracking
Description:	User will be able to track their orders with a tracking number. User will input tracking number and then click button that says track now and on the right user will be provided with tracking details and status of the order.
Location:	This function is accessible throughout the entire web application and also in the user profile section.
Priority:	Must have.

Functional Requirements 8

Identification Code:	FR8
Title:	Order management
Description:	Order management will be divided in two sections, current orders and finished orders.
Location:	This function is accessible through the user profile page.
Priority:	Must have.

Functional Requirements 9

Identification Code:	FR9
Title:	PayPal API
Description:	API that needs to be implemented in the web application in order for the web application to receive PayPal payments.
Location:	This function is used if user selects PayPal as payment option.
Priority:	Must have.

Functional Requirements 10

Identification Code:	FR10
Title:	Visa MasterCard API
Description:	API that needs to be implemented in the web application in order for the web application to receive Visa MasterCard payments.
Location:	This function is used if user selects Visa as payment option.
Priority:	Must have.

Functional Requirements 11

Identification Code:	FR11
Title:	Revolut API
Description:	API that needs to be implemented in the web application in order for the web application to receive Revolut payments.
Location:	This function is used if user selects Revolut as payment option.
Priority:	Must have.

Functional Requirements 12

Identification Code:	FR12
Title:	Bank Transfer API
Description:	API that needs to be implemented in the web application in order for the web application to receive Bank Transfer payments.
Location:	This function is used if user selects Bank Transfer as payment option.
Priority:	Must have.

Functional Requirements 13

Identification Code:	FR13
Title:	Customer Feedback
Description:	Customer Feedback section where customers can leave feedback with their orders.
Location:	This function is located at the home page and then also has its own dedicated customer feedback page.
Priority:	Should have.

Functional Requirements 14

Identification Code:	FR14
Title:	Filter Section by set
Description:	This is a filter bar that allows user to filter cards or products by their respective card sets.
Location:	This function is located in the sealed product page and in the single cards page.
Priority:	Should have.

Functional Requirements 15

Identification Code:	FR15
Title:	Filter Section by card rarity
Description:	This is a filter bar that allows user to filter cards by their respective rarity. (Common, uncommon, rare, ultra-rare, secret rare)
Location:	This function is located in the single cards page.
Priority:	Should have.

Functional Requirements 16

Identification Code:	FR16
Title:	Filter Section by card illustrator
Description:	This is a filter bar that allows user to filter cards by their respective card illustrator. (5Ban graphics, Mitsuhiro Arita)
Location:	This function is located in the single cards page.
Priority:	Should have.

Functional Requirements 17

Identification Code:	FR17
Title:	Box break page.
Description:	This is a feature that has its own dedicated page on the web application. When clicked, user will be able to see a live broadcast stream from our Twitch / YouTube channels. Below the stream user can then purchase box break items such as booster packs and booster boxes. These items are at a discounted price but user will only keep the holographic rare from each pack.
Location:	This function is located in the box break page.
Priority:	Should have.

Functional Requirements 18	
Identification Code:	FR18
Title:	Box break product page
Description:	This will be the page users will be directed to after clicking a product on the box break page. Here user will be shown product image, product name and product description. User can select a drop down to choose what date and time the cards will be opened at. User can also change the quantity of the product they want and then add to basket.
Location:	This function is located after clicking a product on the box break page.
Priority:	Should have.

Functional Requirements 19	
Identification Code:	FR19
Title:	Loyalty reward scheme
Description:	This feature will involve the user receiving Collectible Cards currency called "Collectible Coins" upon purchasing a product. The more expensive the purchased product is; the more coins' user will get. User can then use these coins to get a discount on their basket.
Location:	This function is located in the basket page so users can apply their rewards scheme. User profile page where user can track their loyalty reward scheme. Home page where users can read a brief description of the loyalty reward scheme.
Priority:	Should have.

Functional Requirements 20	
Identification Code:	FR20
Title:	Raffle Feature
Description:	This feature is located on the raffle page. Users can enter a weekly raffle of 3 products / single cards.
Location:	This function is located in the raffles page.
Priority:	Should have.

Functional Requirements 21	
Identification Code:	FR20
Title:	Product wish list
Description:	Function works similarly to the basket feature. User can add or remove items to their wish list. Option to then transfer items to the basket. User will also receive email if product in their wish list is on sale or at a discounted price.
Location:	This function is located throughout the entire website.
Priority:	Should have.

Functional Requirements 22	
Identification Code:	FR22
Title:	Product ratings and review
Description:	Function will show any product ratings and reviews on the purchase product page.
Location:	This function is located in the purchase product page for all items.
Priority:	Should have.

Functional Requirements 23	
Identification Code:	FR23
Title:	Product description
Description:	This function is the product description and is just a brief description of the product.
Location:	This function is located on the purchase product page.
Priority:	Should have.

Functional Requirements 24	
Identification Code:	FR24
Title:	Product recommendation
Description:	This is the recommended product function which will recommend the user similar products to the product they are currently viewing.
Location:	This function is located on the purchase product page.
Priority:	Should have.

Functional Requirements 25	
Identification Code:	FR25
Title:	Beginner friendly / new user section
Description:	This function will just give the user a brief overview and explanation of the Pokemon collection hobby and the card game. It will a blog post style and it will also show the user card quality guidelines. Will also show the user the latest cards out and the best sets to buy for beginners.
Location:	This function is located on the beginner friendly / new user section
Priority:	Could have.

Functional Requirements 26	
Identification Code:	FR26
Title:	Social Media Links
Description:	This function links the user to all our social media pages.
Location:	This function is located on the bottom of the home page.
Priority:	Could have.

Functional Requirements 27	
Identification Code:	FR27
Title:	Accessories Page
Description:	This function is where users can purchase accessories for their cards. These accessories include card sleeves, card protectors, deck boxes, playmats and card binders.
Location:	This function is located on the product page.
Priority:	Should have.

3.3 Non Functional Requirements

Non-Functional Requirements 1	
Identification Code:	NF1
Title:	Easy to navigate
Description:	It is essential for the web application to be easy to navigate so that the users can get from point A to point B without any difficulties or issues.

Non-Functional Requirements 2	
Identification Code:	NF2
Title:	Inventory management
Description:	Inventory management is important for the Collectible Cards web application as purchasing overstock can lead to a loss in profits and also take space in the physical storage room.

Non-Functional Requirements 3	
Identification Code:	NF3
Title:	Competitive pricing
Description:	Collectible Cards must offer competitive pricing to both maintain and attract new customers.

Non-Functional Requirements 4	
Identification Code:	NF4
Title:	Wide variety
Description:	Collectible Cards should also offer a wide variety and selection of cards and product for users.

Non-Functional Requirements 5	
Identification Code:	NF5
Title:	Market towards age demographic
Description:	Collectible Cards should market towards the age demographic of 18-34 year olds as we have collected data from a survey to tailor and develop this web application towards this target market.

Non-Functional Requirements 6	
Identification Code:	NF6
Title:	Multiple shipping options
Description:	Collectible Cards should offer multiple shipping options such as standard shipping, registered shipping and express shipping.

Non-Functional Requirements 7	
Identification Code:	NF7
Title:	Worldwide shipping
Description:	Even though Collectible Cards will be based in Ireland and will be dedicated for both Irish and European customers, worldwide shipping should still be available.

Non-Functional Requirements 8	
Identification Code:	NF8
Title:	Sealed product
Description:	Collectible Cards will mainly sell sealed product and also sell sealed product through its box break feature.

Non-Functional Requirements 9	
Identification Code:	NF9
Title:	Single Cards
Description:	Collectible Cards will also sell single cards to customers.

Non-Functional Requirements 10	
Identification Code:	NF10
Title:	Prepare web application traffic
Description:	Collectible Cards should be prepared for website traffic during release days of new products and sets for cards.

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5. Appendix

5.1 Project Proposal

This project set outs to achieve a web application that allows users to buy both sealed product and individual collectible cards for the Pokémon trading card game. I also plan on implementing a live pack opening service (called a box break) where users can purchase packs to be opened live on our streaming platforms such as YouTube and Twitch. This web application will focus on being Ireland and European based, as from my understanding and research of the market the geographical location of Ireland and Europe as a whole is very under saturated at the moment in terms of options to buy single Pokémon cards, live pack openings and being a reliable source of being able to buy individual, single trading cards. The only other options customers have been middle man e-commerce stores such as EBay and Card market and personally I think this is due to the recent events of Brexit. The European union as a whole have faced issues such as:

- *Online customers have to pay VAT and custom duties when purchasing from the UK, in scale with how much the value of the goods are*
- *Business importing and exporting goods to the UK now have to registered for Customs.*
- *EU consumer protection legislation no longer apply when buying from the UK. Instead the consumer's rights go under the UK law.*

(Commission, 2022)

Ever since Brexit many customers have faced issues from purchasing from UK based sources of online trading card shops such as Chaos Cards and Magic Mad House. My main goal with the project is to offer a reliable, trustworthy store for consumers based in the European union, without the additional custom duties and VAT that the rest of the UK stores have.

I also plan on bringing in alternative ways to purchase cards such as live booster box and booster packs openings. The main concept for this idea is that the user will choose the pack they want to purchase and the amount. We will then take the consumers information such as name and order number, and then open it live on YouTube or Twitch. This will not only save the user money as they will be getting the sealed product at a discounted price (they will be only keep the holographic cards from the booster packs while we keep the common cards) but it will also save the user money from shipping as we will only have to ship the card(s) in a sealed bubble mailer compared to sending a big parcel. Also, by live streaming, it will also bring another source of income from ad revenue from Twitch and YouTube.

5.1.2 Background

I chose to undertake a project within the trading card game industry for a few reasons.

The first reason would be that I, myself have a huge interest in trading cards, especially Pokémon. Ever since I was a kid I enjoyed the collecting aspect of it, but not so much the gambling aspect (hence why I want to try and implement the box break feature where users will spend less and get the valued card from the packs). I also have great understanding and knowledge on the market from my experience buying and selling cards since the age of 16. Throughout the years I've been able to identify cards that would be in demand and offer a nostalgic value to collectors in the future and have been slowly investing in cards myself.

Another reason I chose a web application store is because I have a good bit of experience from buying and selling cards through my EBay and adverts store. I have over 100 positive feedbacks on eBay and 60 feedbacks on Adverts. The only flaw I found when selling on these middle man e-commerce websites was that eBay took a small percentage of sales you made, however this is understandable as they are providing a service after all. You could also say engaging in a start-up e-commerce would introduce you to new issues such as building a customer base and competition with other start-up companies.

5.1.3 Technical Approach

The primary methodology we will follow for this business would be to engage in strategic market research. Strategic market research could be defined as a business strategy that can assist the business in making educated business decisions. We will approach strategic market analysis by using:

SWOT Analysis

Swot analysis is a market analysis tool that takes in to account strengths, weaknesses, opportunities and threats facing the business (Bush, 2020) Some of the strengths our business will have is an under saturated market due to recent geo political events (Brexit, many UK card stores at a severe disadvantage due to custom duties, import duties) and a market that is currently booming and growing even during a market recession. From my research we can see that between the years 2021 and 2022, Pokemon cards have sold a total of 21.29% more cards. During the 2020/2021 period they have sold a lifetime of 34.1 billion cards, while the period 2022/2022 they have sold 43.2 billion cards. (PokeGuardian, 2022) The weaknesses we face will be the common weakness every start-up company encounters, which is building a customer base and customer loyalty. To combat this, we will be heavily investing in advertising by paid search advertisement and also social media advertisement. We could also include some subtle advertising in our booster pack and booster box live openings. You may ask, would it not just be customers watching products they bought off you being opened? But that is far from the case. Many people within the trading card community love to just sit for hours upon hours watching Youtubers and live streamers open booster boxes and packs as a form of content. There are numerous Pokemon pack opening Youtubers out their such as LeonHart (1.76 million subscribers) and PokeRev (1.4 million subscribers) who rake in hundreds and thousands of views and thousands of live concurrent viewers every day. Now obviously, it would also take time to build a community and fan base like this, but if we do this well and have it cohesive with our business the profits could sky rocket. The income we get from both streaming and content creation and also our e-commerce store can lead to possible expansions within the future.

Identifying stakeholders

We can identify stakeholders by methods such as brainstorming who will be directly affected by the work we do. For this project, I have categorized our stakeholders into 2 categories.

1) **Internal Stakeholders**

   These stakeholders will be involved within the company. The individuals involved within the internal stakeholders are the following:

   project team, project manager, finance manager and content manager.

2) **External Stakeholders**

   The external stakeholders for this project will include:

   Customers, suppliers and external clients.

Requirements elicitation techniques we will consider:

Surveys

Surveys will be one of the main elicitation techniques used for this project. Surveys will help in the gathering of requirements from stakeholders such as customers. I plan on gathering data based on survey participants age group, the products participants are most likely to buy, are the participants happy with the cards they pull from sealed product, how much are participants most likely to spend on sealed product and what features participants would like to see on the Collectible Cards web application.

Interviews

Interviews is another elicitation technique which could help with the requirements gathering for the web application. Interviews can allow us to gain insight from the participant on what they think is the ideal web application store. Interviews can also be used to ask a web developer what requirements are needed in order to develop the web application.

Prototyping

The last elicitation technique we will consider is prototyping. Prototyping will allow us as a business to see the visualization aspect of the website before being fully developed. By having a prototype, we are able to receive some crucial feedback on our idea and end goal of the project. We can then use this feedback to ensure that the end product is the best version. Prototyping also engages stakeholder participation more in terms of requirements elicitation.

Observations

Observations can be used to observe participants using other web applications similar to collectible cards. The information gathered from observation can then be used to help and develop the web application.

5.1.4 Technologies and resources required

The technologies are resources required for this project include:

- Google surveys
- Discord
- Microsoft Teams
- Wire frames
- Elicitation technique books and online journals
- IEEE requirements document template

6 Reflective Diaries

Student Name: Paul Margelino

Student Number: x18372436

6.1 September

Achievements: The achievements for this month involved coming up with a project idea. For the first few weeks of the course I was very uncertain of what topic I should base my project on as I always found it difficult with the creative and innovative process of things. I was also very doubtful of myself and very hesitant when it comes to decision making, and I always end up thinking of one idea and then scrapping it down in place for another idea. Anyways, the project pitch deadline was due for the module and I just decided to base my project on an interest and hobby I've had ever since I was kid, which was Pokémon cards web application store. I proposed the pitch to Frances which got approved but she also asked a few questions such as:

- What happens to the boring and unwanted cards?
- How does your idea fit with websites already available?
- Any ethical concerns or conflict of interest?

I answered and discussed some of these questions with Frances and she later accepted my project pitch.

Reflection: For this month It was definitely a rough start in the module as I couldn't really come up with an idea for the project. After some time thinking I eventually came up with a project pitch which got approved.

Intended Changes: My plan for the next diary entry will hopefully be able to start planning out all the elicitation techniques I need to carry out for the project as these techniques will not be easy and take a long time to complete.

6.2 October

Achievements: For this month I managed to plan out some of the elicitation techniques and requirements gathering for the project. It will be a long and challenging task to complete as I will need to go in to Gamers World to ask permission to hand out surveys and also ask if the manager would be free so that I could conduct a face to face interview with him. These tasks will be quite challenging in terms of time and actually finding participants for my requirements gathering and research analysis.

Reflection: For this month I'm glad that I got to plan out part of the elicitation techniques and requirements gathering. By planning, it will give me a roadmap basically for the project which will help me breakdown the project into smaller chunks and complete smaller multiple tasks throughout the semester.

6.3 November

Achievements: For one of the weeks this month we had a Technology Management seminar with Emer Thornbury where she had a word press work shop. During this work shop, Emer showed us the basics and foundation of WordPress alongside deploying Word Press on to Award Space. During this month I have also been working on my midpoint presentation for the module and have been busy working on CAs for other modules.

Reflection: For this month I learned a lot from Emers WordPress workshop and took notes down in case I forgot how work or use any features on Word Press. It has also been stressful working on both the midpoint presentation, the monthly reflective journal and also CA's for my other classes too.

Intended changes: For the next diary entry I feel it will be a stressful one and not much work will be done on the project due to CA's and TABAs coming up for December. I will also have to work on the midpoint presentation due that month as well.

6.4 December

Achievements: Not much has been achieved this month except completing the midpoint presentation and documentation which was finally submitted and completed. This month I also had a meeting with Eugene where we further discussed about the requirements gathering and elicitation techniques that will be carried out for the project.