National College of Ireland

Academic Year 2020/2021

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Contents

Executive Summary

My Wish application idea arose in the background of the current covid-19 pandemic situation when people across the globe would be mercilessly affected by the virus without having the chance to say a word for the last time with their loved one. The application intends to use the storage capabilities of your smartphone and store your wishes and thoughts for your loved ones. Ultimately, these will be shared clearly and accessible to the people you love. **My wish** intends to be an easy-to-use application by anyone with basic smartphone skills.

1. Introduction

1.1. Background

There were many times when I asked myself what if something would happen to me suddenly, and I never got the chance to say goodbye to the loved ones? The thought that I would not get the chance to tell my partner and parents what I ever felt for them, was daunting. This question is somehow a paradox, while alive you would not tell your real feelings, but in the situation of a sudden unfortunate event your chance is gone.

When covid-19 hit the world mercilessly, some of the affected people would pass into coma in relatively short time, and then the worst would happen. We were all witnessing over media and news about the unprecedent situation and the whole world suffering after losing the loved ones without hearing a last word or farewell.

After considering these 2 situations then was the moment when came my idea of an application that could help people leave some last words before the leave this world, expected or unexpected.

1.2. Aims

Users

With today's technology and ease of media storage on any smartphone, My Wish application aims to store your last wishes and words to your loved ones through your personal smartphone. The use of the application should be accessible and easy to use by any smart phone user.

When?

In the situation of a tragic event, these wishes should be released to the designated person by the user. There are multiple wishes and multiple beneficiaries.

How?

The application will have implemented a daily check-in system for the user. With the purpose to check on the user's wellbeing.

1.3. Technology

The technology intended to use for storing a user's last wishes are the features available to any smartphone: Camera, Microphone and simple text writing.

Hardware
- ✓ Samsung S8
- ✓ Laptop: Dell

Software

Android Studio will be the main tool to build my application. It is an Integrated Development Environment (IDE) for building Android applications. Android Operating System is the leading mobile system controlling 72.92% of the mobile OS market.

The application will be written in **Java** programming language.

Firebase platform will save the users data in the cloud through its APIs and Firebase will handle our database and queries and making them available across devices.
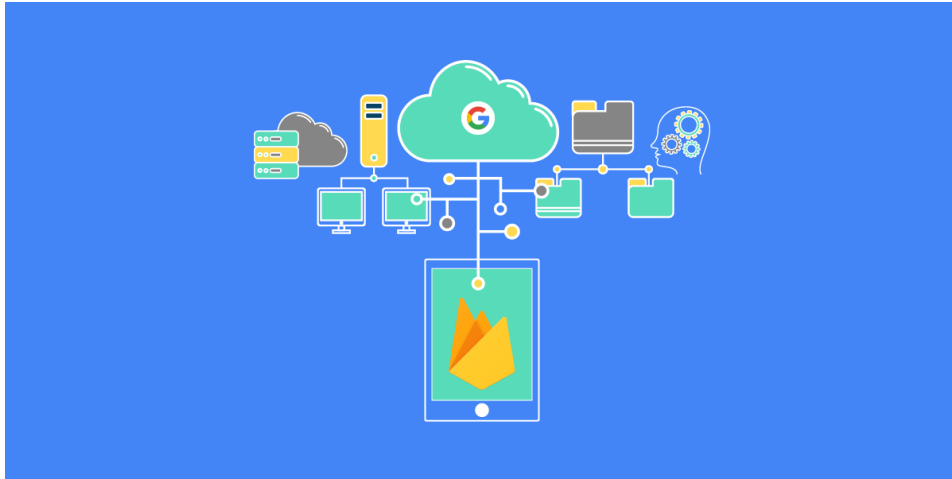
2. System

The mobile application is intending to be made available through download from Play store, and available on any device running Android OS: Tablet, phablet, Google Chromebook.

2.1. User and Functional Requirement

- Check-in function
- Wishes
- Recordings
- Beneficiaries

2.1.1. User Requirements Definition

User requirements for the proposed application was collected through discussions with possible users and stakeholders, a variety of elicitation techniques was used for the collection of the requirements. Below we have a list of requirements requested by the users:

Profile

- Users want the ability to store easy texts, video or audio messages inside the application
- Users want to have a variety of check-in methods : 2FA, PIN, Password
- Users want to choose different timeframes for the check-in system: 24hrs, 48hrs, or more
- As a user, I want to be able to reset my password in case I forget the old one
- As a user I want to edit, create and delete stored wishes

2.1.2. Use Case Diagram
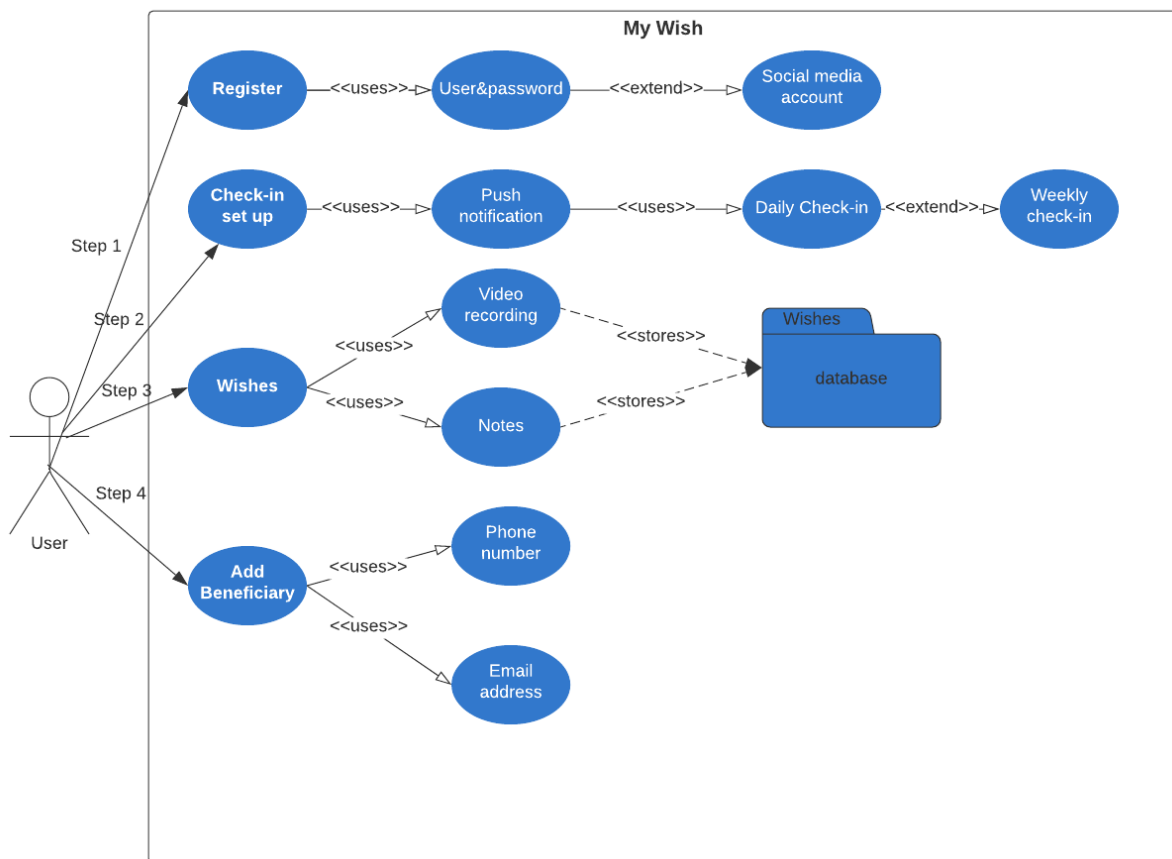
2.1.2.1. Requirement 1 <Name of requirement in a few words>

Functional requirement	
1. Add Wish	User should be able to add wishes and save them

2. Add beneficiary	User should save phone number or email of the beneficiary
3. Set check-in	User should be able to set the check-in notification at desired time interval

2.1.2.2. Description & Priority

2.1.2.3. Use Case

2.1.3. Data Requirements

Users

PK	user_id
	username
	email
	password
	user_type

Wish

PK	wish_id
	content
	wish_type
	user_id
	date_time

Beneficiary

PK	subscriber_id
FK	user_id
FK	wish_id
	date_time

Check in

PK	Check-in_id
FK	subscriber_id
	notification_date_time
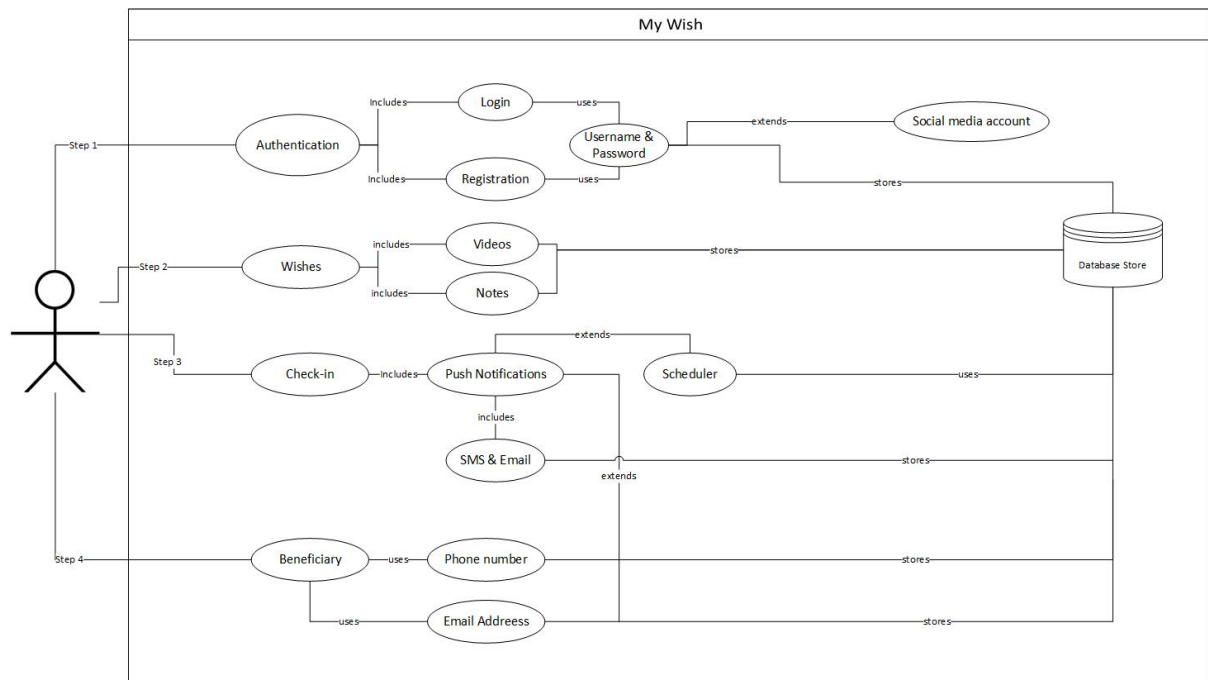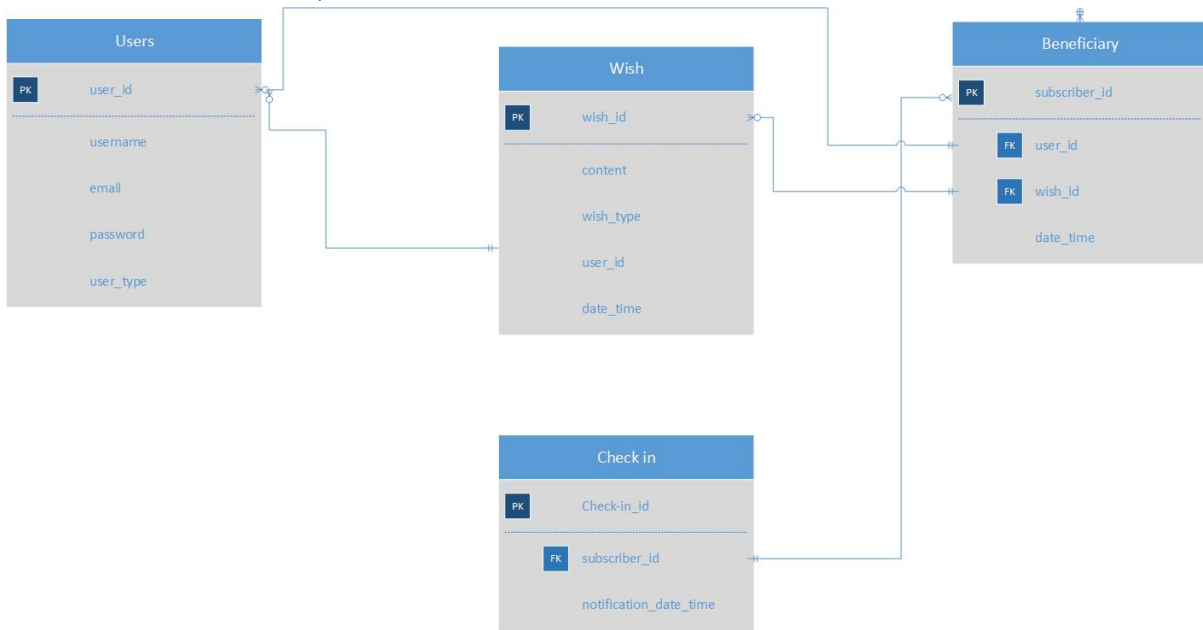
2.1.4. User Requirements

➢ Android based OS smartphone
➢ My Wish downloaded from Play store
➢ Register & Log in in the app
➢ Add in check-in requirement: PIN, Password, Fingertip
➢ Add wishes
➢ Add beneficiary

Add Wish → Saves to DB → Checks for Subscribers → Generates Notification

Add Beneficiary → Saves to DB → Added to Subscriber List
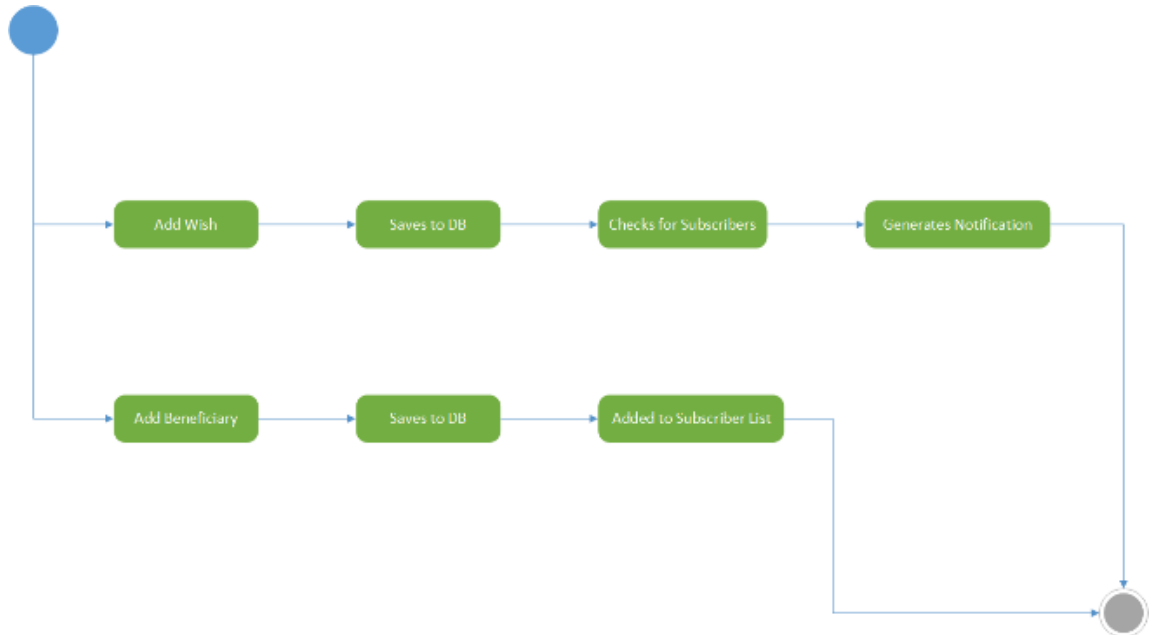
2.1.5. Environmental Requirements
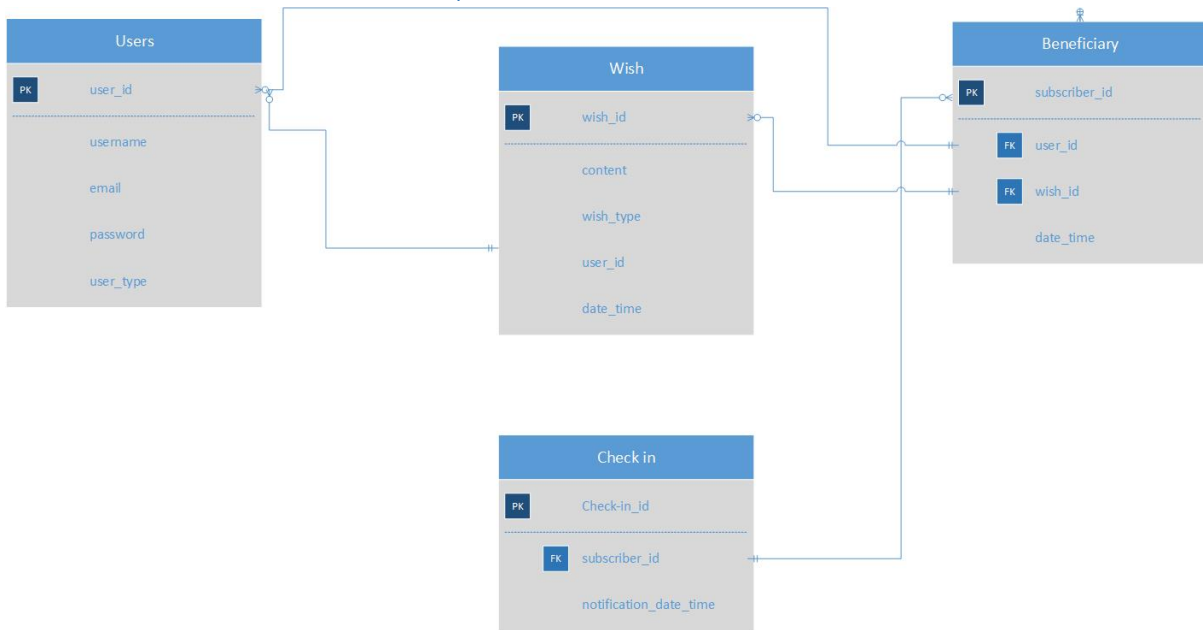
2.1.6. Usability Requirements

2.2. Design & Architecture
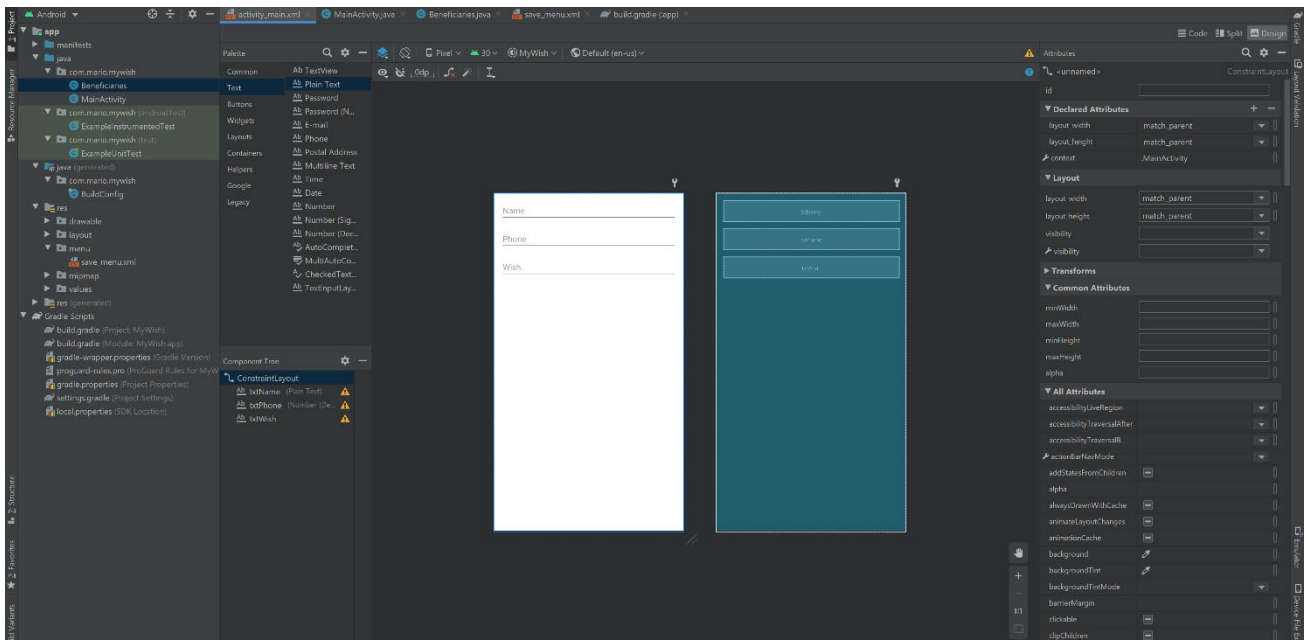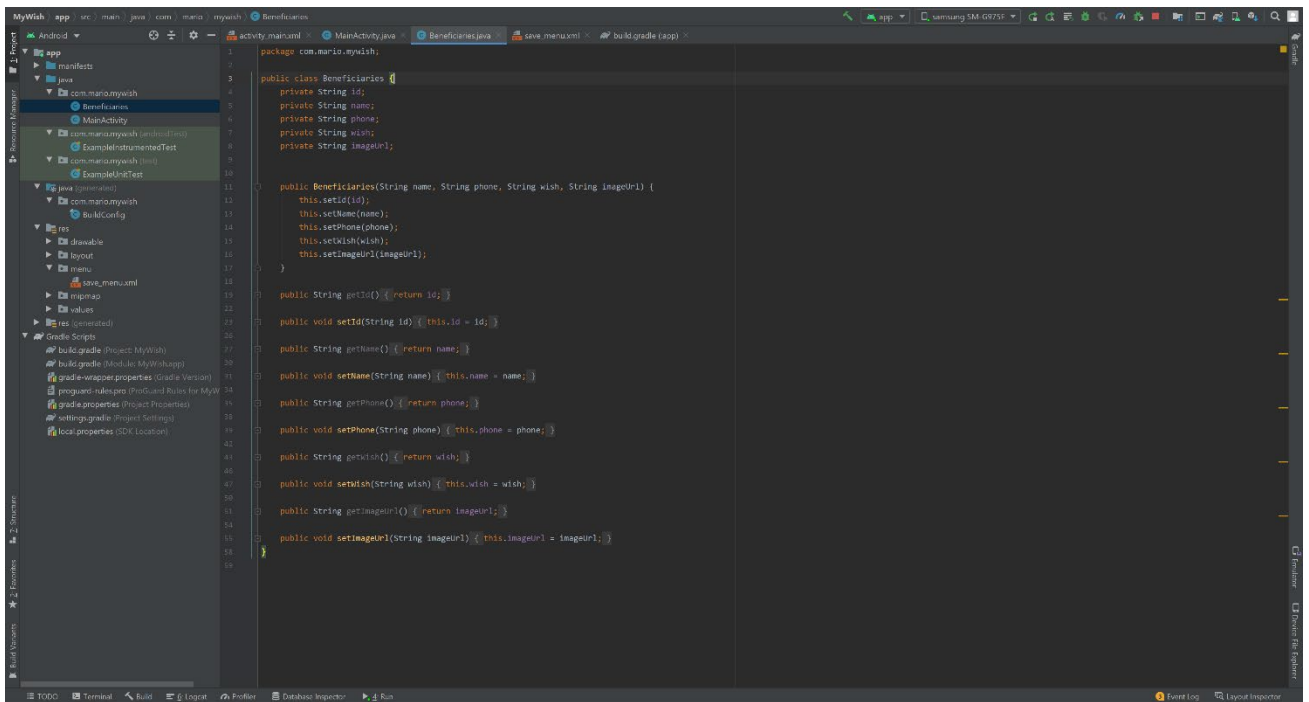
2.3. Implementation

Describe the main algorithms/classes/functions used in the code. Consider to show and explain interesting code snippets where appropriate.

2.4. Graphical User Interface (GUI)

Provide screenshots of key screens and explain what can be seen in each one.

3. Conclusions

4. Further Development or Research

With additional time and resources, which direction would this project take?

5. References

Please include references throughout your document where appropriate. See here for a guide on referencing from the NCI library.

6. Appendices

This section should contain information that is supplementary to the main body of the report.

PROJECT PROPOSAL:

My Wish

BSHCSDE4

BSc (Hons) in Computing – Software Development

Academic Year 2020/2021

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6.2. Objectives

The object of this project is to make people more aware about an unforeseen and sudden pass away.

When it comes to unexpected death, it is your family and friends left behind who suffer most. Apart from their broken heart, probably they never had the chance to know what you truly feel for them or they wish they know your last wishes.

With most of the people owning a smart phone these days, an easy to use application will allow them to store their last wishes in digital format.

In an unfortunate situation these wishes will be sent to the persons chosen by the user of the application.

6.3. Background

The idea for this application came in the context of the current covid-19 pandemic virus. There were situations when the victims of the virus would pass away within a short time. We could see all over the media their loved one grieving and saying that everything happened so fast and they never get the chance to hear from them for a last time.

Then was the moment when I was thinking that with the current technology and smart phones it is easy to leave a last note for your loved ones.

Upon research on the internet I could find a website which is similar to my idea, lastwish.com. The website has the feature to saves your last wishes and thoughts as text, once you add your wishes and the beneficiaries, the beneficiaries are being emailed and let know that you are thinking about them – I do believe that this feature of notifying in advance the beneficiaries it fades away the concept of leaving a last note.

6.4. Technical Approach

My Wish application will store notes and visual media like photos and videos. These will be stored in the cloud so they can be later accessed through a hyperlink.

A check-in service will be implemented to assure that the user is safe.

Beneficiaries of the data stored will be added in case something goes wrong.

Check-In.

The check-in will be performed through a 2FA (two-factor authentication): password or PIN, and fingerprint.

If check-in is missed, another check-in is prompted at half of time that was initially set. If 2nd check-in is missed again time is halved until little time is remained.

In a situation when the user is not able to confirm the check-in from various reasons (coma, phone broken, no access to phone and internet) beneficiaries will be contacted by text or email.

Beneficiaries.

When user is not able to confirm the check-in, beneficiaries designated by the user will be receiving an email or text, in which they will be asked to reply with the current situation of the user. I think the implementation of a chatbot will be used given the different scenarios in which the user won't be able to conform the check-in.

Multiple beneficiaries can be designated by the user for different wishes.

Last situation.

In the worst situation scenario, when the beneficiary has confirmed it, a link will be generated and send to the beneficiary. Through this link will access the notes or visual media left by the user.

Again, multiple beneficiaries can be assigned by the user, but the wish object could differ. Some would receive notes, some visual media.

6.5. Special Resources Required

The application will be developed and build in **Android Studio** IDE (Integrated Development Environment). Android Studio provides the fast tools for building applications on all types of android device.

Developer.android.com will be the starting point of learning android development. It has sample codes available, which will help me with a jump-start for my project .

Once I will have a good starting point, I will use codelabs.developers.google.com for guided tutorials and hand-on coding experience. The codelabs available on the platform will assist me adding the desired features for my application.

More resources I will be reading:

Boisy G. Pitre 2016, Swift for Beginners: Develop and Design, 2nd Ed., Peachpit Press [ISBN: 978-013428977] Paul Deitel (Author), Harvey Deitel (Author), Alexander Wald (Author) 2016, Android 6 for Programmers: An App-Driven Approach , 3rd Ed., Deitel Developer Series), Pearson Education, [ISBN: 978-013428936] Edward Sazonov, Michael R Neuman 2014, , Wearable Sensors: Fundamentals, Implementation and Applications, Academic Press [ISBN: 978-012418662]

6.6. Project Plan

I have planned my Project through the year in Gantt. All the important milestones have been added and more will be added on the go, or any other changes.

Ta Mc	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
📌	⊿ 1 Project proposal	7 days	Sat 10/31/20	Sun 11/8/20			
📌?	1.1 Objectives						
📌?	1.2 Background						
📌?	1.3 Technical Approac						
📌?	1.4 Special resources Required						
📌	2 Project Ehics Form	7 days	Fri 10/30/20	Sun 11/8/20			
📌	⊿ 3 Learning	26 days	Mon 11/9/20	Mon 12/14/20			
📌?	3.1. Java (Core Java)						
📌?	3.2 XML						
📌?	3.3 API						
📌?	3.4 Databases (Firebase, SQLIte)						
📌	⊿ 4 Create Prototype	5 days	Tue 12/8/20	Mon 12/14/20			
📌?	4.1 Using Android Studio IDE						
🖥	⊿ 5 Mid Point Implementation	1 day	Fri 11/6/20	Fri 11/6/20			
📌?	5.1 Documentation						
📌?	5.2 Video Presentatio						
📌	6. Break & Exams	16 days	Wed 12/23/2(	Wed 1/13/21			
📌	⊿ 7. Coding Camp	76 days	Fri 1/15/21	Fri 4/30/21			
📌?	7.1 More Java						
📌?	7.2 More tutorials						
📌	⊿ 8. Final Implementation	7 days	Sun 5/2/21	Sun 5/9/21			
📌?	8.1 Documention						
📌	9.Video Presentation	7 days	Sun 5/9/21	Sun 5/16/21			

New Tasks : Manually Scheduled
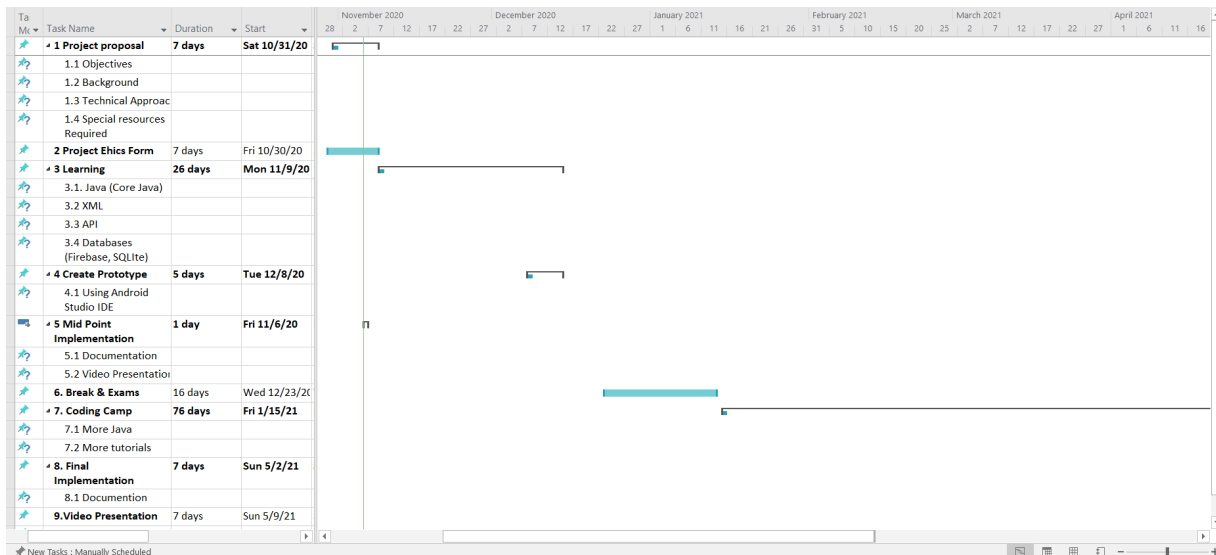
6.7.   Technical Details

The development of the application will be made in Android Studio after reviewing Core Java, OOP concepts.

Login & **Sign up** – These main functionalities will be used Using Restful Web Services (Java + MySQL)

Video & Photo storage – given the nature of sensitive data stored, the data will be saved in a cloud environment. Either Azure or AWS. It is known that all major cloud storage providers are storing your data in an encrypted form.

Check-in – This functionality will be developed throughout android notifications system. This class will allow the application to schedule notifications at some point in the future.

Hopefully I will be able to find documentation about adding a 2FA check-in method into the main check-in class.

Beneficiaries notifications – To send verification message to the beneficiary, SmsManager API will be used and hopefully it can be linked with a chatbot API.

6.8.   Evaluation

The Android Studio IDE makes easy the testing of the code and application. I will setup a JUnit that runs on my local JVM or an instrumented test that runs on a device. I will extend my test capabilities by integrating test frameworks such as **Mockito.**

To make thing