Technical Report

Robert Walsh - X12435918 – BSHC_SD

Robert.Walsh@student.ncirl.ie

2016/2017

National College of Ireland

Declaration Cover Sheet for Project Submission

SECTION 1 *Student to complete*

Name: Robert Walsh
Student ID: x12435918
Supervisor: Paul Hayes

SECTION 2 Confirmation of Authorship

The acceptance of your work is subject to your signature on the following declaration:

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 assessment is entirely my own work.

Signature: _____

Date: _____

NB. If it is suspected that your assignment contains the work of others falsely represented as your own, it will be referred to the College's Disciplinary Committee. Should the Committee be satisfied that plagiarism has occurred this is likely to lead to your failing the module and possibly to your being suspended or expelled from college.

Complete the sections above and attach it to the front of one of the copies of your assignment,

What constitutes plagiarism or cheating?

The following is extracted from the college's formal statement on plagiarism as quoted in the Student Handbooks. References to "assignments" should be taken to include any piece of work submitted for assessment.

Paraphrasing refers to taking the ideas, words or work of another, putting it into your own words and crediting the source. This is acceptable academic practice provided you ensure that credit is given to the author. Plagiarism refers to copying the ideas and work of another and misrepresenting it as your own. This is completely unacceptable and is prohibited in all academic institutions. It is a serious offence and may result in a fail grade and/or disciplinary action. All sources that you use in your writing must be acknowledged and included in the reference or bibliography section. If a particular piece of writing proves difficult to paraphrase, or you want to include it in its original form, it must be enclosed in quotation marks

and credit given to the author.

When referring to the work of another author within the text of your project you must give the author's surname and the date the work was published. Full details for each source must then be given in the bibliography at the end of the project

Penalties for Plagiarism

If it is suspected that your assignment contains the work of others falsely represented as your own, it will be referred to the college's Disciplinary Committee. Where the Disciplinary Committee makes a finding that there has been plagiarism, the Disciplinary Committee may recommend

- that a student's marks shall be reduced
- that the student be deemed not to have passed the assignment
- that other forms of assessment undertaken in that academic year by the same student be declared void
- that other examinations sat by the same student at the same sitting be declared void

Further penalties are also possible including

- suspending a student college for a specified time,
- expelling a student from college,
- prohibiting a student from sitting any examination or assessment.,
- the imposition of a fine and the requirement that a student to attend additional or other lectures or courses or undertake additional academic work.

Table of Contents

Executive Summary

The main purpose for this app is to allow users to book car spaces in around the area they need to go which can be used by small private car parks belonging to a doctor's office or any appointment based practice. It will allow the user to book a parking space that coincides with the time of their appointment and to eliminate the need of driving around for 10 minutes looking for a space.

This report will focus on the requirements, design and testing of the application.

Introduction

1.1 Background

Over the last few years I was constantly bringing my family members to appointments because I was the only one who drives, dropping them off wasn't a problem just when I had to wait for them like my nanny with the doctor and my little cousin to the dentist. I could never find a parking space and if I did it would mean me arriving 20 – 30 minutes early just so they would not miss these appointments. It would always disrupt my day and the person I'm bringing because we would need to find the space first.

Some of these places I go to have small car parks and they are always filled up with people who have an appointment in a couple of hours and they have finished there and just want to leave their car there, but this in turn disrupts the other people so they are late for appointments and causes a bit of backlog for the place of business. These are free parking lots and are monitored by security.

1.2 Aims

I want this app to have a very simplistic layout and design. With my app, the person is booking the time and the parking space, so their space will always be available. They can book up to a week in advance. The opening hours will be laid out different for each location. Now the user can take their car to their appointments and not have to worry about wasting time and looking for a space because it will already be allocated for them.

1.3 Technologies

My main technology is Android Studio, which is the official IDE for any android app development, it is based on IntelliJ IDEA. This is where I will be building all the aspects of app, GUI and the code.

The other technology I am using is Firebase. Firebase lets you make an application with no server side programming so it is easier to develop. Using firebase will be easy to implement into my app as there is a lot of documentation and many videos of the process, it is also a great benefit because both technologies are owned by Google and integrate very well.

2 System

2.1 Requirements

2.1.1 Functional requirements

Login and register

- The app will allow the users to login with their usernames and password. The username and passwords will be verified against the database, when it is confirmed the user will have access to all the content on the app.
- Users must first register themselves to login into the system.

Booking

- Two Parking areas: The system will provide users with two parking areas of different locations.
- Parking availability check: User can click on spaces to view the availability. If the space is already booked for that time slot the user will be asked to choose another time or choose another car space.
- Users can book parking space for their required date and time.

My Bookings

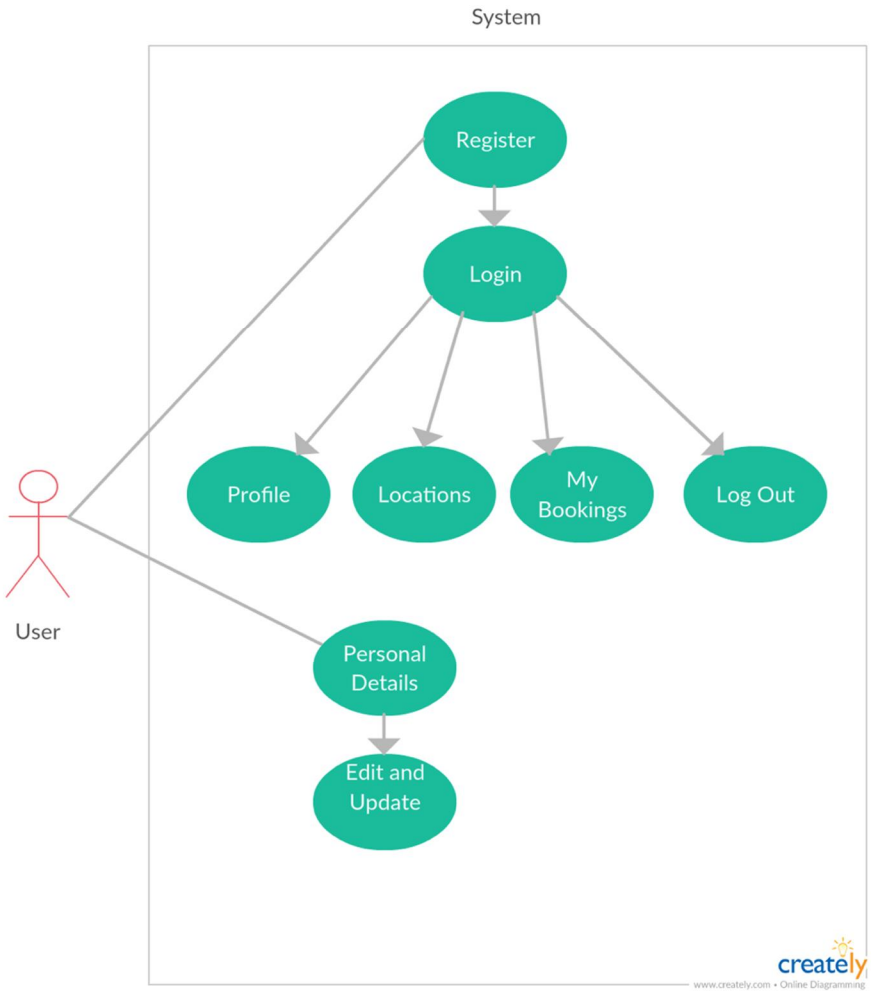
- Users can view all their bookings they have made that are coming up.
- Parking cancellation: User may even cancel their bookings by going to my bookings page of the app and pressing delete.

Profile

- Users can view their login email and change their password on the profile page.

Use Case Diagram

The Use Case Diagram provides an overview of all functional requirements.



Requirement 1 - User Registration

Description

For the user to have full access to the app they must register with the system, once they have done so they can book parking spaces and access their profile.

Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

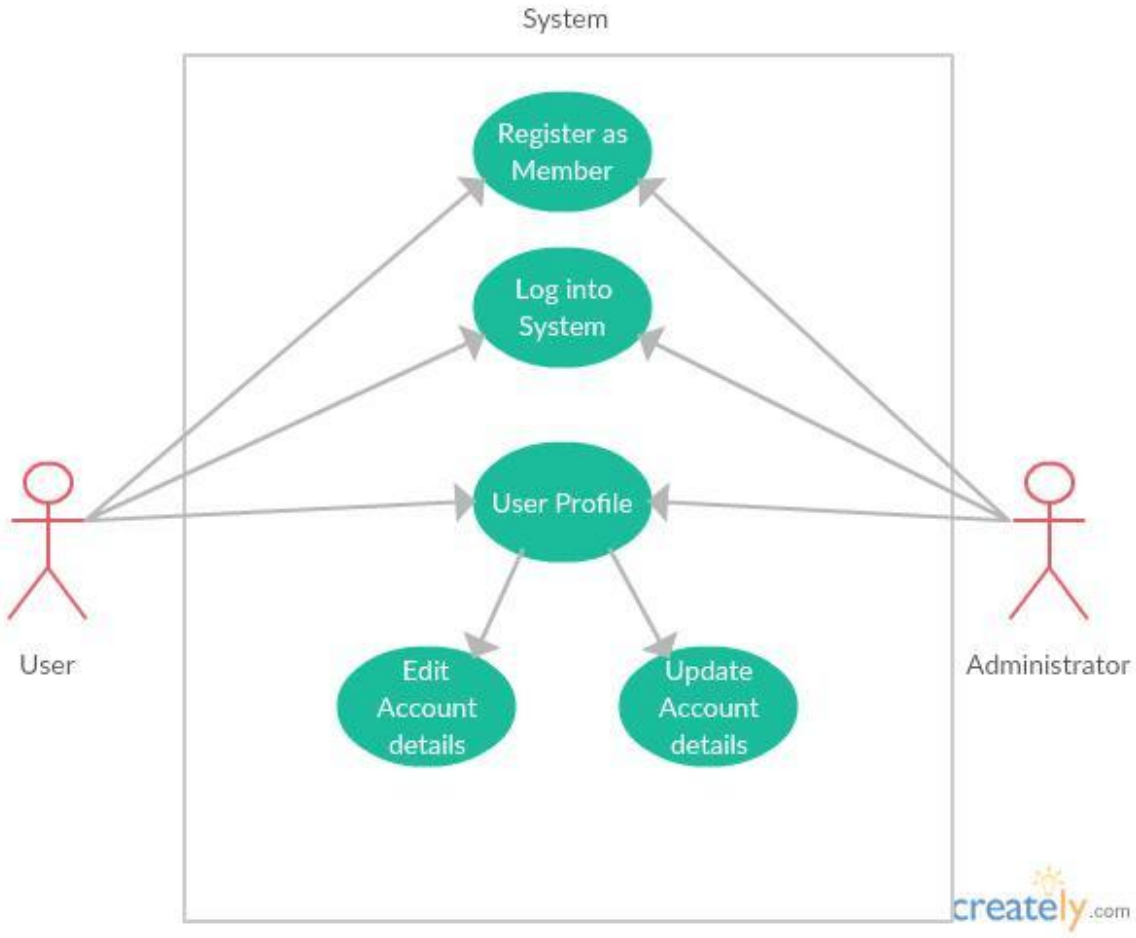
Scope

The scope of the use case is to represent sign in and registration part of the system functionality. The user can create an account or sign in to their account which they have already created at an earlier time.

Description

If the User wants to use the application they must register, if you already registered on the app, you can enter your username and password and sign in to the system. Users will be able to change details in the on the profile page.

Use Case Diagram



Flow Description

Activation

This use case starts when the user selects the register button and enters their details for registration.

Main flow

1. The system looks at the registration request
2. The User enters their details to create an account
3. The system saves the login details
4. The User is now signed up

Alternate flow

A1: Invalid Username or Password

1. The system is on the register page
2. The User entered an invalid username or password
3. The use case continues at position 2 of the main flow

Exceptional flow

E1: Email already registered in the database

4. The system found that username already in the system
5. The User must user a different email or sign in with the other one
6. The use case continues at position 2 of the main flow

Termination

The system presents that the user has completed the registration.

Post condition

The system records the user details and will sign the user in.

Requirement 2 <Manage App>

Description & Priority

The administrator can update and edit the locations of our parking lots and the amount of spaces within each parking lot as some locations might extend their parking.

Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

Scope

The scope of this use case is to show in detail the processes involved in managing the locations/spaces.

Description

This use case describes the management of the locations/spaces, the administrator holds the responsibility to keep all these up to date. Some locations might be having work done on the premises so they will not have all they space's available, we will know in advance and the administrator will block these spaces for the desired time.

Requirement 3 <Personal Profile>

Description & Priority

The user can update and edit person details.

Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

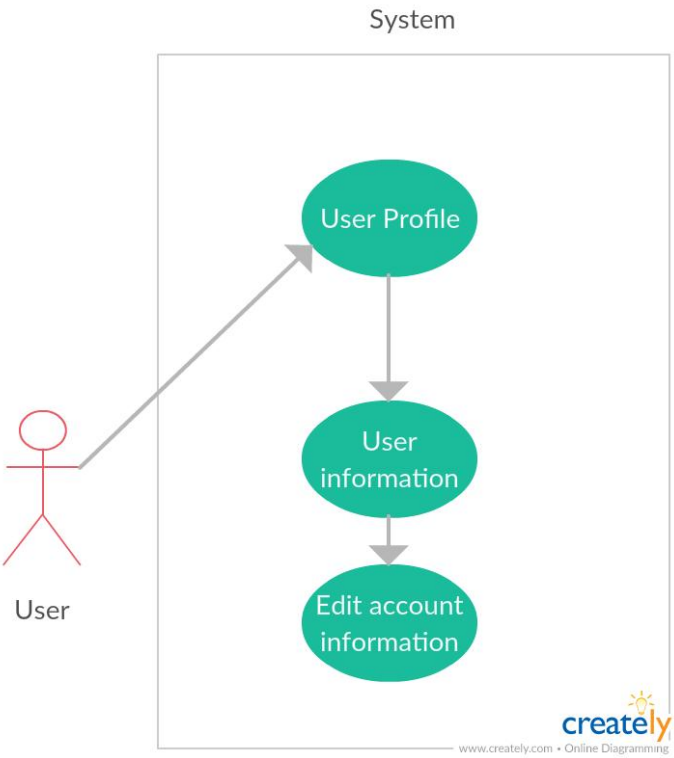
Scope

The scope of this use case is to show the users authorization to update and edit sections of their profile.

Description

This use case will describe the users profile and changes that can be made.

Use Case Diagram



Flow Description

Activation

This use case activates when the user is on the profile page

Main flow

1. The system identifies the user
2. The system displays the current user's details
3. The user edits details
4. The system looks for confirmation
5. The user agrees

Alternate flow

A1: No acceptance of changes

1. The system will not continue with the changes
2. The user is sent back to the profile
3. The use case continues at position 1 of the main flow

Exceptional flow

E1: No Internet Connection

1. The system will display message of "Network Issues"
2. The use case continues at position 1 of the main flow

Termination

The system will be redirected back to the main activity and a message will display "Connect to internet"

Post condition

The system will continue to hang.

Requirement 4 <Booking a space>

Description & Priority

The user can pick a location from the list in the app and when the user has selected a location, they will be asked to select a parking space and then the user can choose a time and date

Use Case

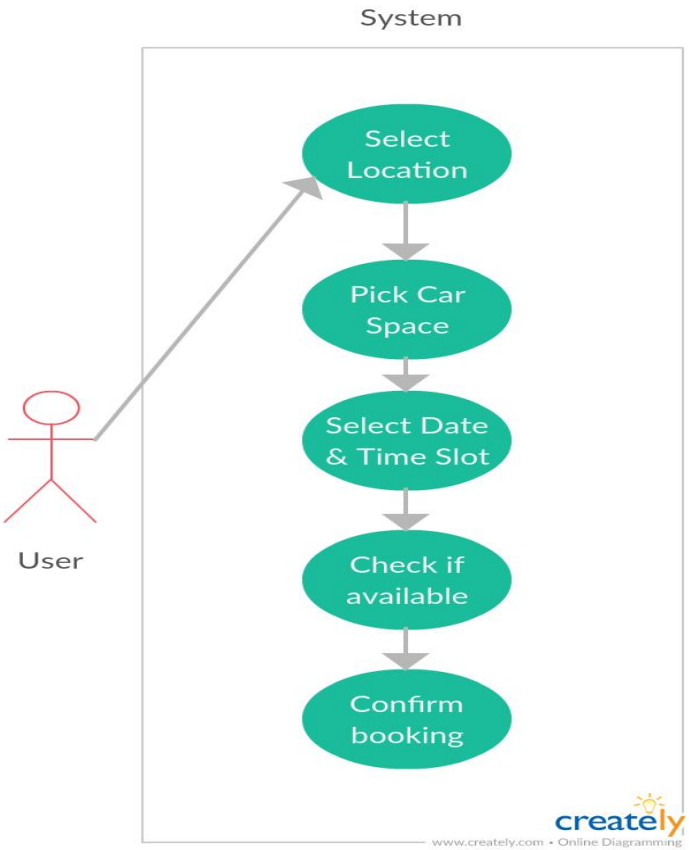
Scope

The scope of this use case is to display all the processes involved in booking a parking space in different locations.

Description

This use case shows the user's possibilities when booking a parking space. They can choose from 3 different locations and tens of spaces in each location.

Use Case Diagram



Flow Description

Activation

This use case activates when a user logins to the system and navigates to the locations activity.

Main flow

1. The system identifies the current user logged in.
2. The user must select a location from the list.
3. The system will bring the user to select a parking spot.
4. The system will create a popup for the user to pick a time and date.
5. The user will confirm the parking space if available.

Alternate flow

A1: Space not available

6. The user has selected a time and data which are taken for this parking space.
7. The system will display an error and tell the user the space is unavailable and they need to select a different space or time slot.
8. The use case continues at position 3 of the main flow.

Exceptional flow

E1: No Internet Connection

9. The system will have no access to the server database but of the not connection.
10. The user will be able to go through the process of picking the date and time slot but the cooking will not be confirmed
11. The use case continues at position 3 of the main flow

Termination

The system redirects the user to the booking page.

Post condition

The system continues to hang

2.1.2 Data requirements

We need all the information about how a task can be completed successfully in the application.

From letting people test out the application, I have received feedback about what the users would like.

Users said the following things:

- At the start of the application development, the app was going to be for large scales parking lots – but during my midpoint it was pointed out that this would not be suitable because of the size of these parking lots and you can never guarantee a free spot there because that would mean somebody refusing entry to that spot on every booking on the app.
- So, following the above feedback I had to change the mock-ups for the apps because I have a page in there with favourites and because now there will only be 2 parking locations to choose from I had to remove that and replace it with a logout button.
- Feedback also recommend I change the colour scheme because I had it a baby blue and a dark blue mix but I ditched that for a cleaner white background a dark writhing.

Users should be able to see all their upcoming bookings in the “My Bookings” page. It should display the location of the booking, date and the time slot selected.

When the user is selecting a location, the user can only pick from 2 locations and this will change in the future as more business sign up for the service.

When the user selects the date and time slot from the popup menu they should get confirmation that the booking was made successfully, so they do not have to go back and check if it was made in the bookings page.

2.1.3 User requirements

The customer wants to be able to book a parking space in the parking lot and know that it will be empty and there for them when they arrive.

The user will be greeted with a log on screen or create and account. If they already have login details, they can be entered and will be checked against our database to verify. If they are new to the app the user will be asked to create a user account and fill out their details, the details will then be added to the database and used to verify their next log on.

2.1.4 Usability requirements

This app now will only work on mobile android devices that are running 4.4 KitKat or later versions of android. It will work with different screen sizes from different manufactures.

The app has an easy navigation throughout, you can access all parts of the app from the main menu and all subpages are simple to use and find your way through.

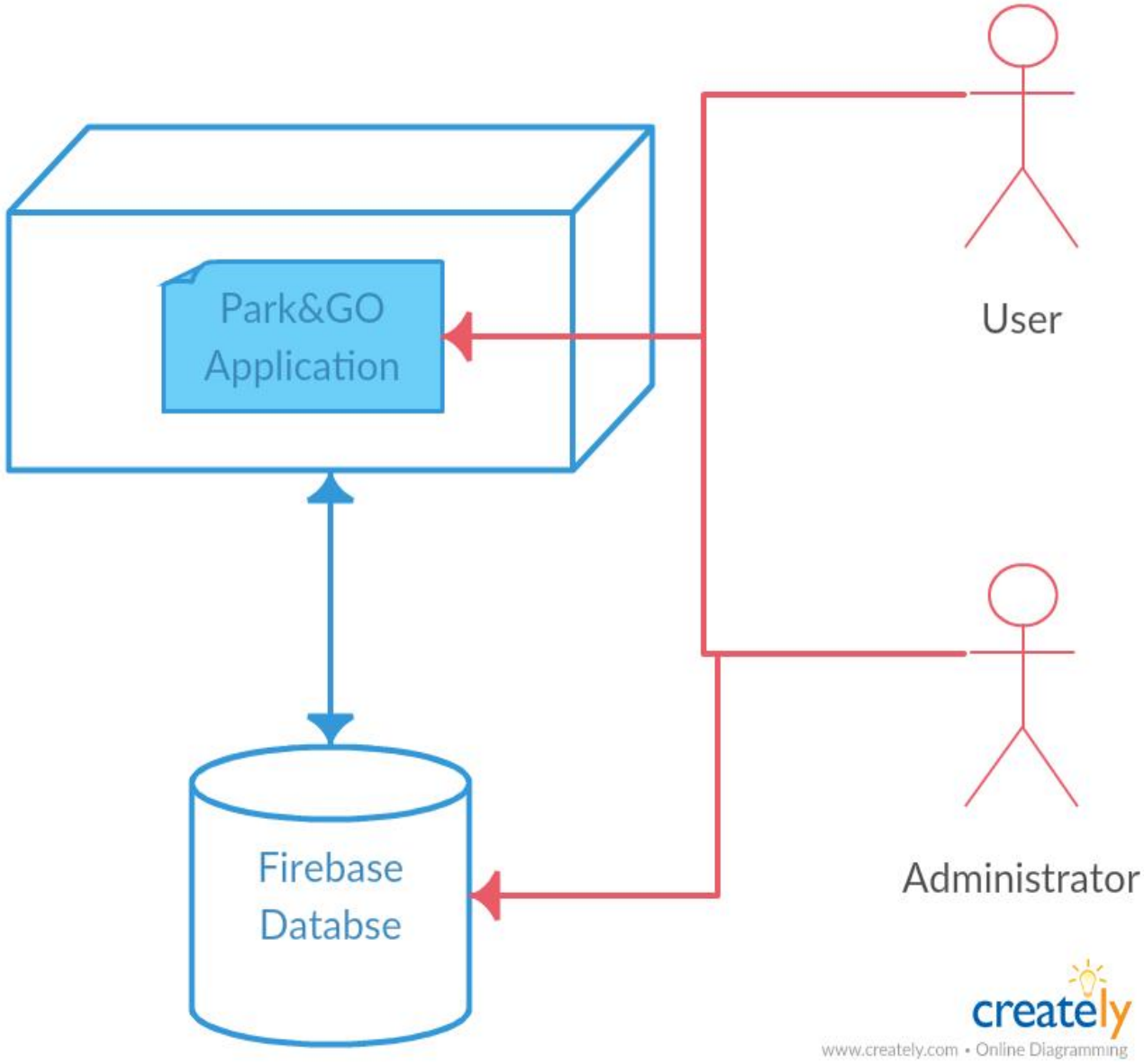
The app will have relevant content for someone who wants to book a parking space in Dublin using their mobile phone not having to look for a space when they get there.

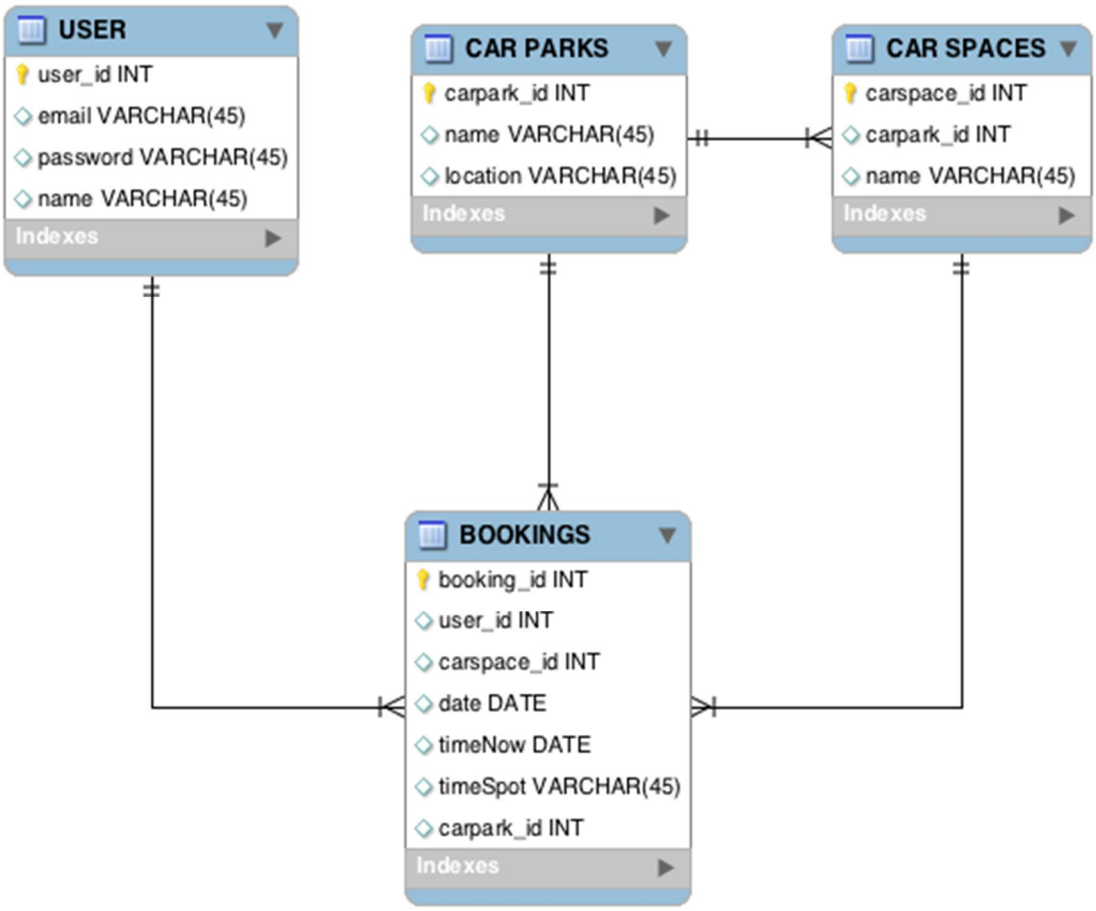
The user will not need much knowledge about using app before they use my app, it will be simple and straight forward.

3 Design and Architecture

I wanted to keep the design simple and well laid out. I went with a green and white theme that runs through the whole app. Everything is easy to understand and find in the app, it is all labelled and clearly marked.

The system architecture is straight forward, the user enters the app to look at available parking spaces by accessing the firebase database, which is holding all the records.





- A user can have several bookings which mean a single user will be able to reserve several car spaces if s/he likes to. For instance, a user can book a car space in Amy's Salon car park at 2:00 pm till 3:00 pm, but at the same, the same user can book another car space in a different location at 4:00 pm – 5:00 pm.

- A car park can have several car spaces.

- A single car space can be reserved for a user at a time. So, that means, if a car space is booked, it won't be available until its time has finished or the user cancelled the reservation.

Above is the database model I made at the start and tweaked it a little to get it right but it's the first thing I did.

Working from this, I built the database in Firebase and corresponding activity's.

3.1 Implementation

RegisterUser is one of the main method in this project, which allows registering new users into the database. This method consists in taking 3 values which are a name, email, and password from the user that wishes to create an account into the application. These values are sent and store to a remote database by implementing Firebase Authentication that provides backend services to authenticate users.

```
/**
 * When the user clicks on the register button, this method will be invoked.
 */
private void registerUser(){
    String email = mEmailEditText.getText().toString();
    String password = mPasswordEditText.getText().toString();

    // This condition verifies if the user has enter values in all the fields
    if(!TextUtils.isEmpty(email) && !TextUtils.isEmpty(password)) {
        mProgressDialog.setMessage("Registering...");
        mProgressDialog.show();

        // Gets the email and password that the user has enter, and then send them to FireBase to register that user.

        mAuth.createUserWithEmailAndPassword(email, password)
                .addOnCompleteListener(this, (task) → {
                        mProgressDialog.dismiss();
                        if(task.isSuccessful()) {
                            goToProfileActivity();
                            Toast.makeText(getApplicationContext(), "Register successfully!", Toast.LENGTH_SHORT).show();
                        } else {
                            Toast.makeText(getApplicationContext(), "An error has occurred", Toast.LENGTH_SHORT).show();
                        }
        });

    } else {
        Toast.makeText(getApplicationContext(), "Please, enter an email and password!", Toast.LENGTH_SHORT).show();
        return;
    }

}
```

login is another method that plays a huge role in this project. It allows signing in into the application and it deals with validating user credentials and establishing the identity of the user through Firebase Authentication.

```
private void logIn(){
    String email = mEmail.getText().toString();
    String password = mPassword.getText().toString();

    if(!TextUtils.isEmpty(email) && !TextUtils.isEmpty(password)) {
        mProgressDialog.setMessage("Logging in...");
        mProgressDialog.show();

        // Gets the email and password that the user has enter, and then send them to Firebase to login that user.
        mAuth.signInWithEmailAndPassword(email, password)
            .addOnCompleteListener(this, (task) → {
                    mProgressDialog.dismiss();
                if(task.isSuccessful()){
                    goToProfileActivity();
                } else {
                    Toast.makeText(getApplicationContext(), "Please Enter a valid Email and Password", Toast.LENGTH_SHORT).show();
                }
        });

    } else {
        Toast.makeText(getApplicationContext(), "Please, enter an email and password!", Toast.LENGTH_SHORT).show();
        return;
    }
}
```

setPopUpMenu is one of the most important methods in the whole project and it's invoked in the CarSpacesActivity.java file. it implements an AlertDialog to show a pop-up message to the users where they can choose a date and time slot to book a particular car space.

As well as, there is a button on such pop-up message that allows sending and storing the values that were picked by the user to Firebase database.

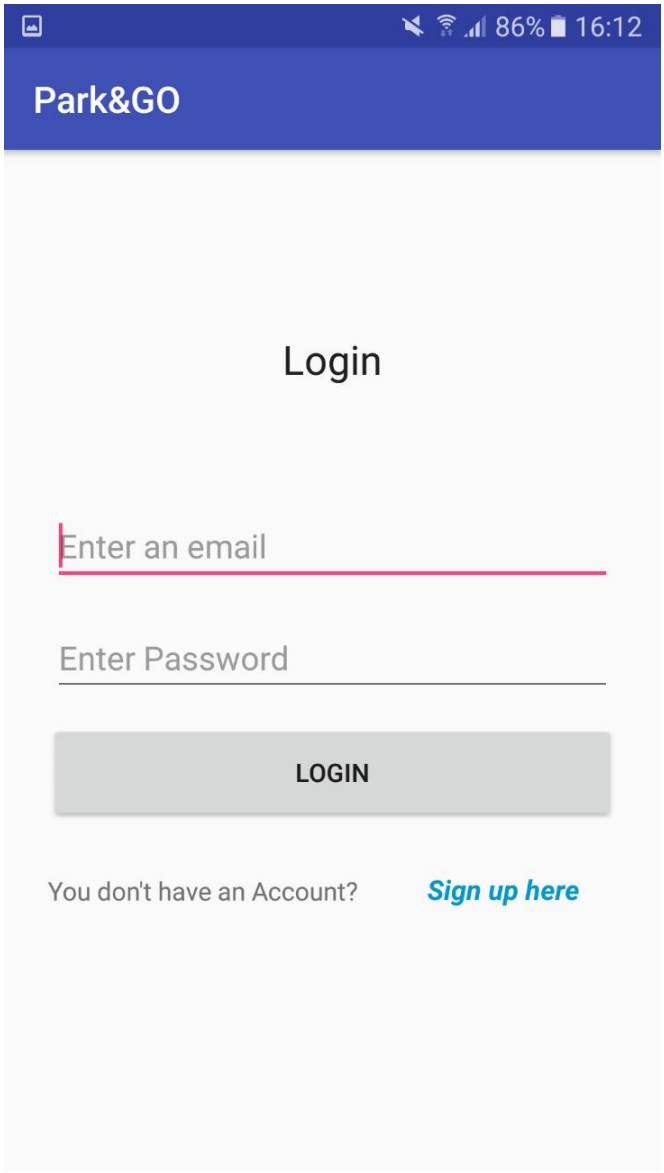
Additionally, this method is considered one of the main methods in the code because it gathers values from different tables of the database. For instance, user data, car park and car space information.

```
private void setPopUpMenu(final CarSpace carSpace) {

    initializeCalendar();

    final AlertDialog dialog = new AlertDialog.Builder(this)
            .setTitle("Please, select a date and time below.")
            .setIcon(ContextCompat.getDrawable(this, R.drawable.ic_booking))
            .setView(R.layout.dialog_layout)
            .create();

    dialog.show();

    // shows car space name
    TextView text = (TextView) dialog.findViewById(R.id.text);
    text.setText(carSpace.getName());

    Spinner timeSpot = (Spinner) dialog.findViewById(R.id.setTimeButton);

    Button dialogButton = (Button) dialog.findViewById(R.id.bookingButton);

    timeSpot.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
        public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {
            timeSlot = parent.getItemAtPosition(position).toString();
        }
        public void onNothingSelected(AdapterView<?> parent) {
        }
    });

    // Gets the date that the user has selected.
   myDateListener = (OnDateSetListener) (arg0, arg1, arg2, arg3) -> {
                    // arg1 = year ; arg2 = month ; arg3 = day
                    Toast.makeText(getApplicationContext(), "Date selected: " + arg3 + "/" + (arg2 + 1) + "/" + arg1, Toast.LENGTH_LONG).show();
                    selectedDate = convertDateToMilliseconds(arg1 + "/" + (arg2 + 1) + "/" + arg3);
            };
```

```
    dialogButton.setOnClickListener((v) -> {

            // Get time now
            Date now = Calendar.getInstance().getTime();

            // Push data to FireBase
            mDB.book(mAuth.getCurrentUser().getUid(),
                    carSpace.carParkID,
                    carSpace.getName(),
                    selectedDate,
                    timeSlot,
                    now.getTime()
            );

            // Change car space status to book
            DatabaseReference ref = mFireBaseDatabase.getReference();
            ref.child(Constants.CAR_SPACES_TABLE_NAME).child(carParkID).child(carSpace.getName()).child("isTaken").setValue(true).addOnCompleteListener((task) -> {
                    getCarSpacesFromFirebase();
            });

            dialog.dismiss();
            Toast.makeText(getApplicationContext() , carSpace.getName()+" has been booked successfully!", Toast.LENGTH_SHORT).show();
    });


}
```

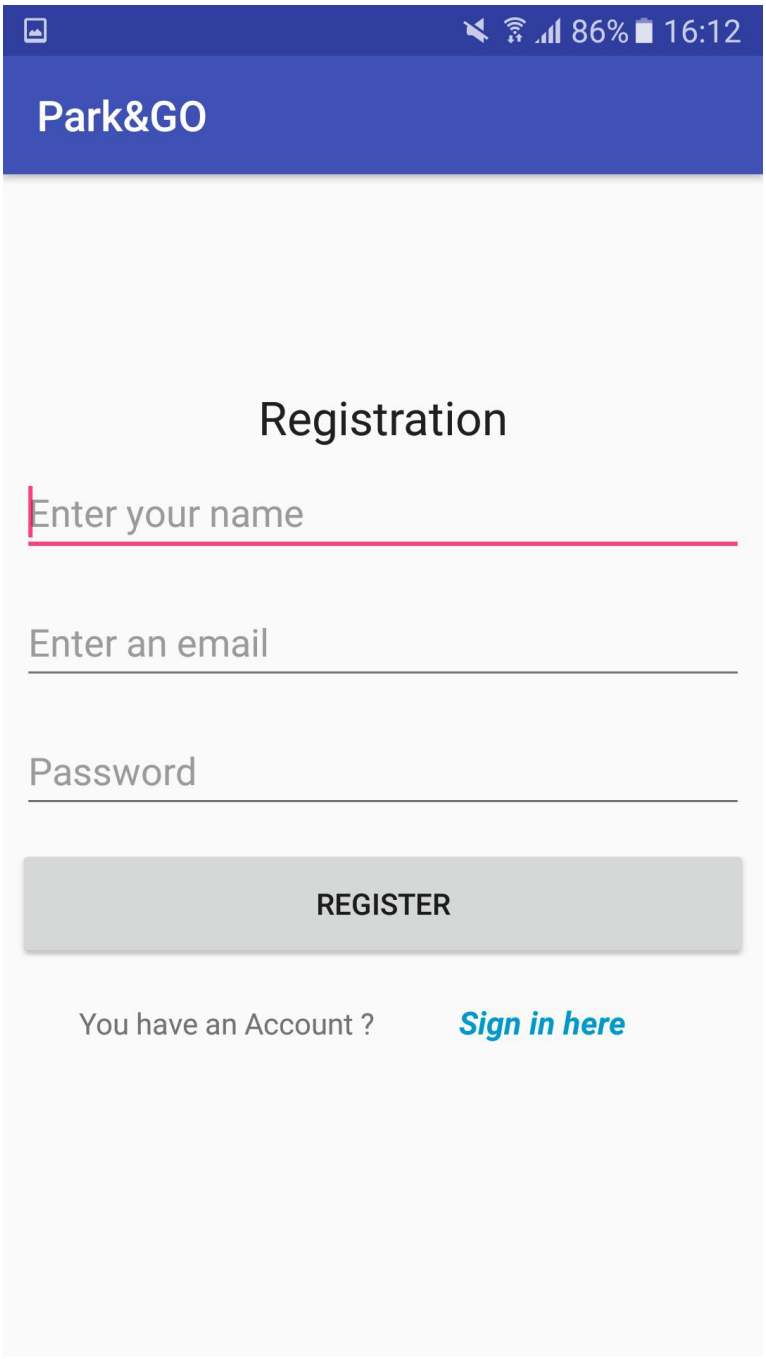
3.2 Graphical User Interface (GUI) Layout

Login Activity



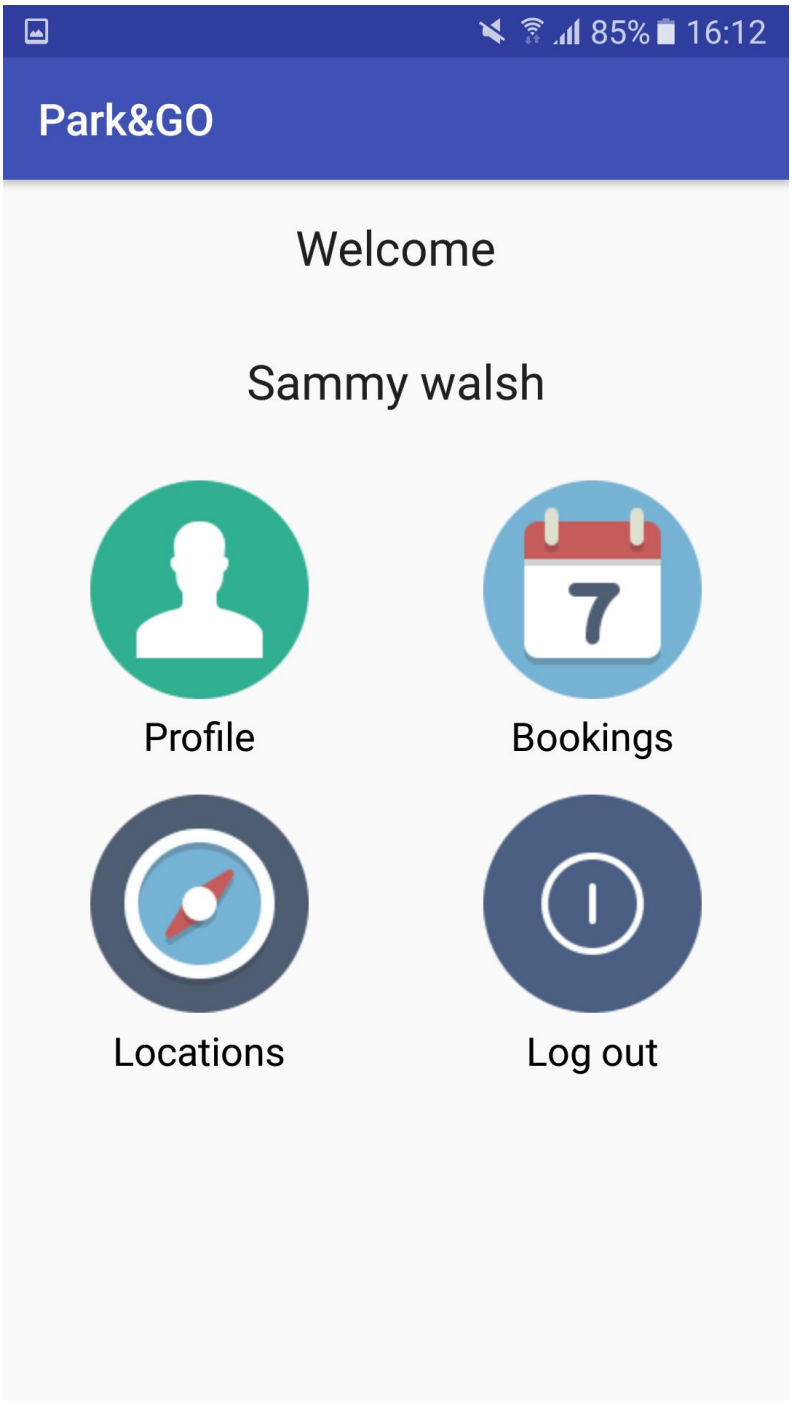
This is the mock-up of the login page. This is what will open when you are not logged in or haven't signed up yet. At the top is the app name and underneath is the login details, users will be asked to enter their username (email address) and password. If the user has not signed up yet they can sign up but clicking the link at the bottom of the page and this will redirect the user to the register page.

Register Activity



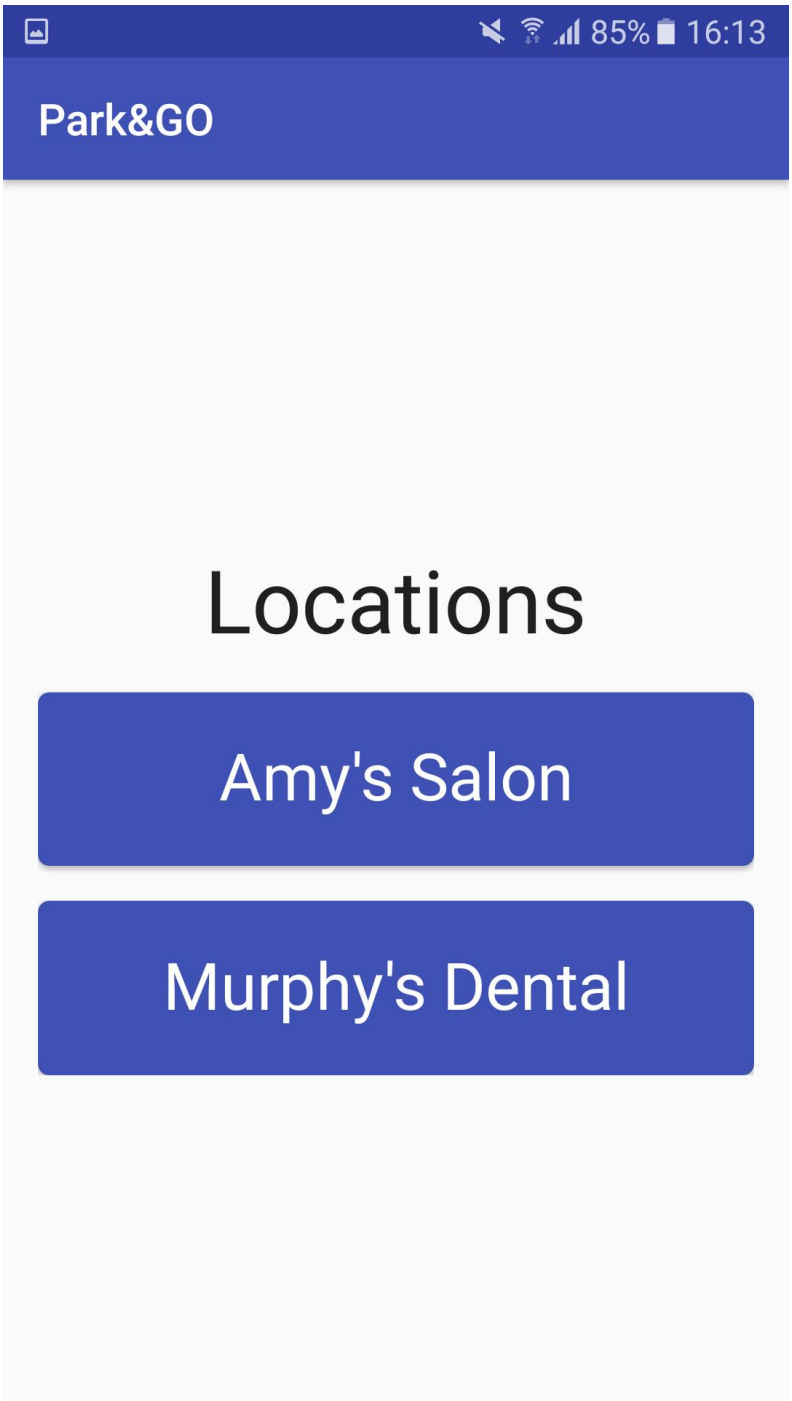
The image above is the mock-up for the register form in my app. This is where new users can create an account for the app. When the user has entered all the information in form they can continue, only if all the fields are correctly filled in. If the user has completed the form correct they will be redirect to the main activity.

Main Activity



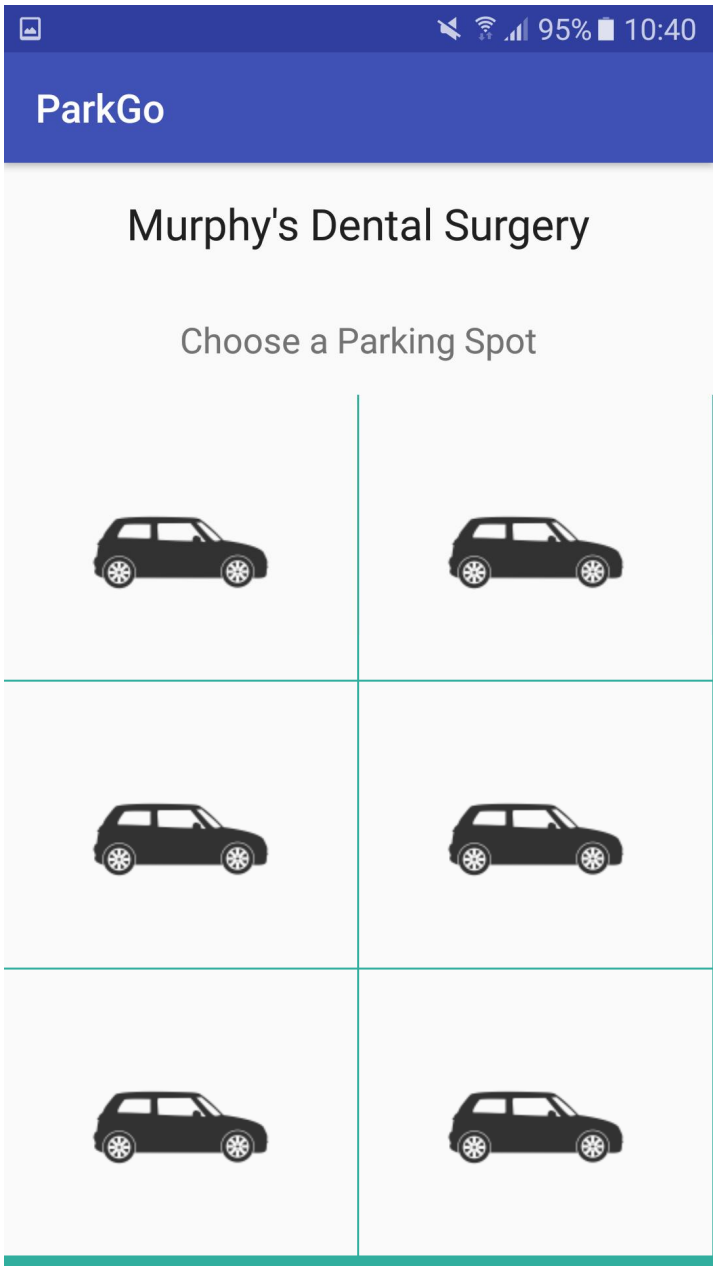
The image above refers to the main activity of the app. The user will be redirect to this activity id they currently signed in or if they have just logged in, the user can choose from four options. They can choose any one of them and will be direct to that activity. They can move between all activity's by using the controls on the android device.

Choose a location Activity



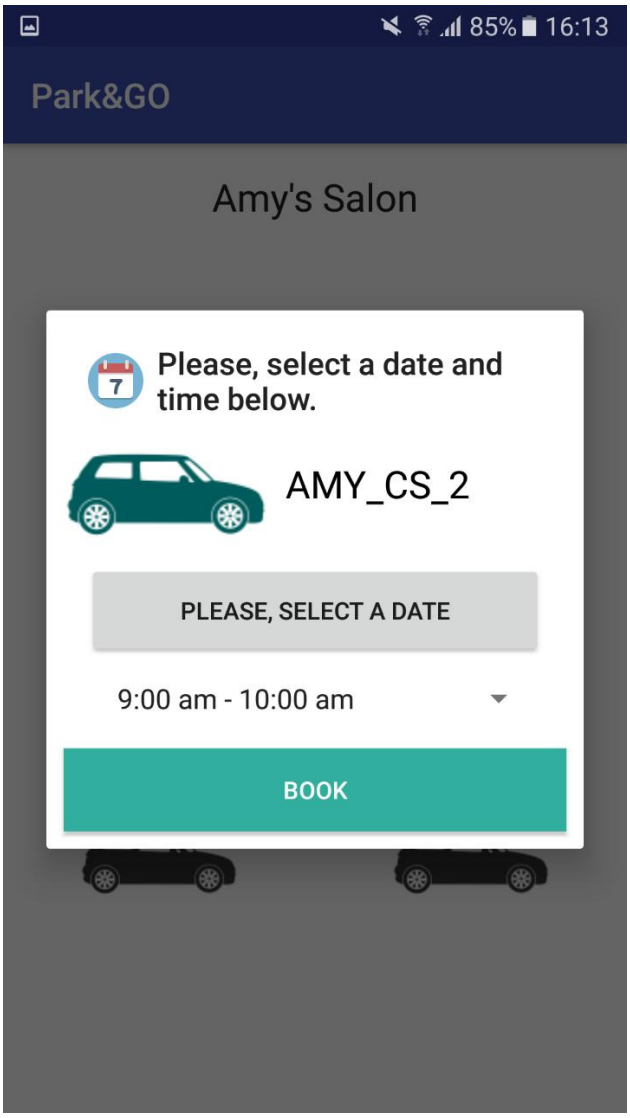
If the user selects the “Locations” option from the main activity they will be directed to this activity. The user can choose a parking location from the list provided and they will be brought to the next activity so they can pick a parking spot and date and time.

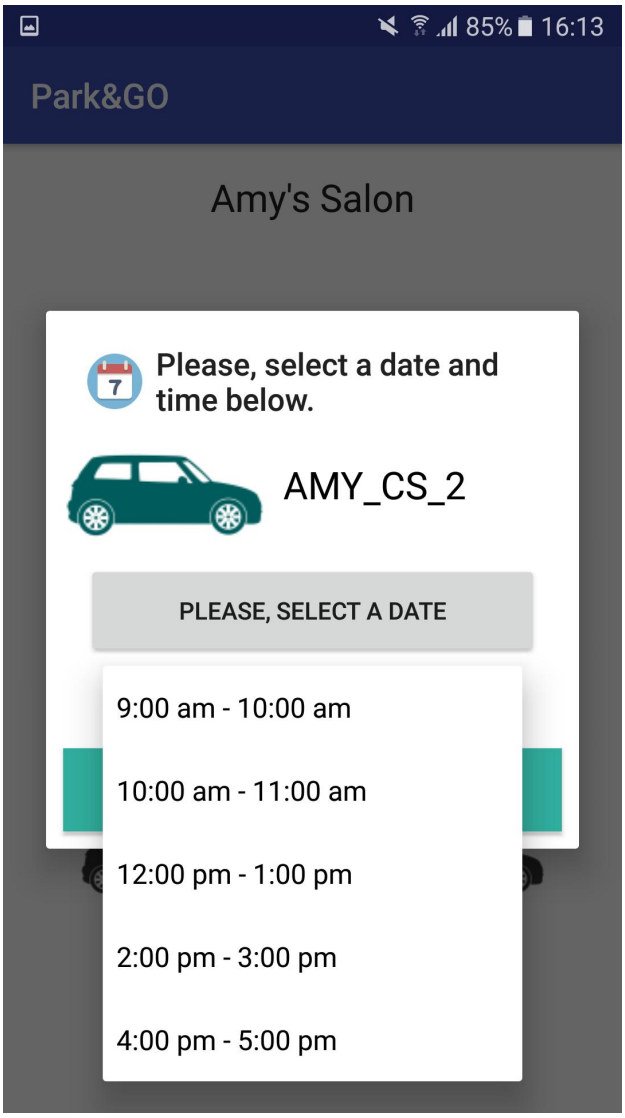
Pick a spot Activity



This page will allow the user to select a parking spot of their choice and when they select a spot a pop menu will appear so the user can choose a time slot and date.

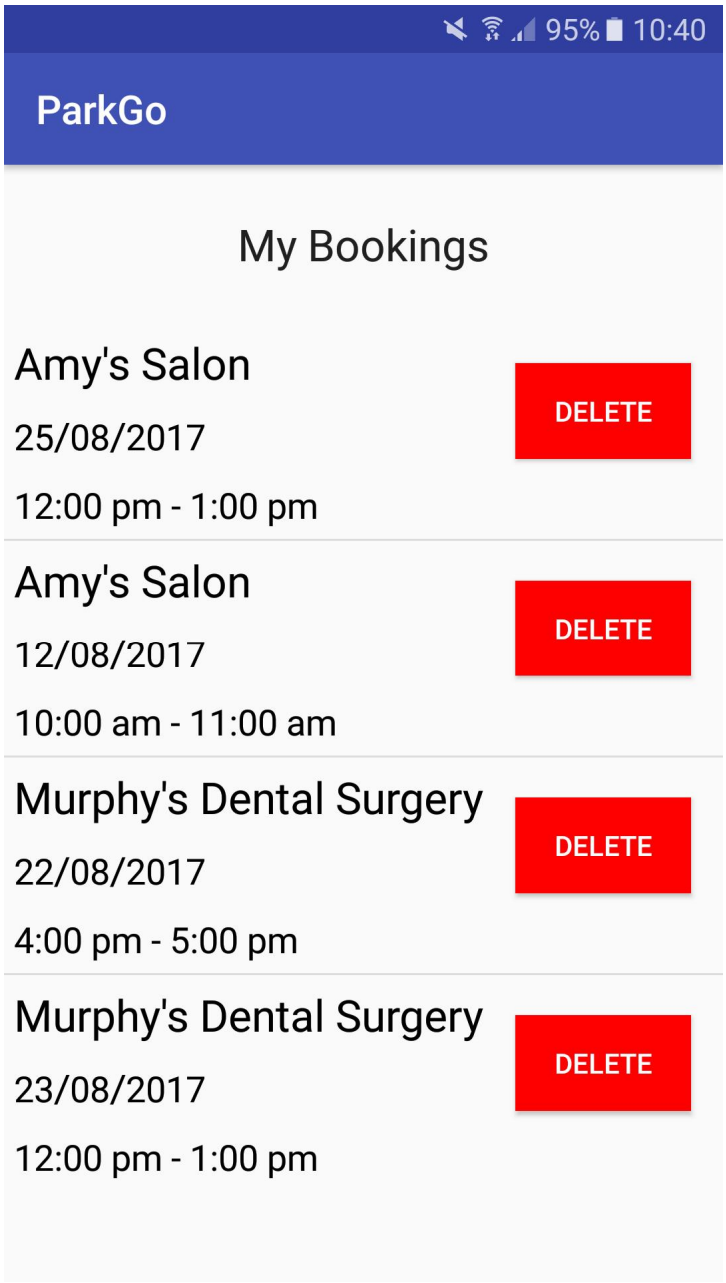
Select Date and Time Activity





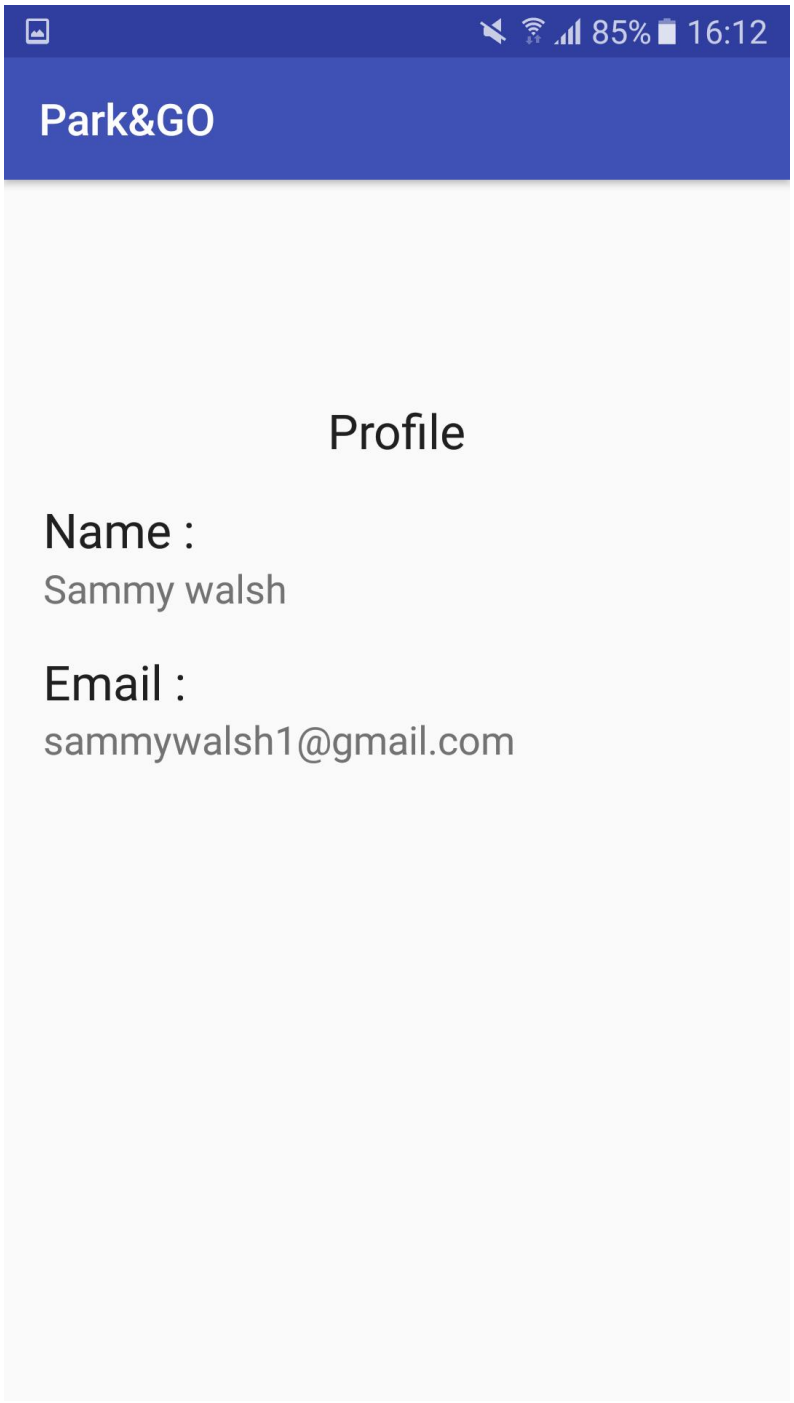
When the user has selected, a parking spot a popup menu will appear so they can choose the date they wish to book and the time slot that wish to pick.

My bookings Activity



This is the user's bookings page from the main activity, they can see all the bookings that are coming up in the future. The user can cancel the booking if they will not need the space anymore.

Profile Activity



This is the users profile page, where can see all their information and change their password.

4 Customer testing

	Test Step	Expected Outcome	Actual
1	Register for the application using a valid Email and Password	The user enters a valid email and password and then the registration be successful and the user will be brought to the homepage	User entered a valid email and password and was then redirected to the Main Activity
2	Login with an email that has already being registered	User enters their email and password on the login page and then proceeds to the homepage	User logged in with a registered email and password and continued to the Main Activity
3	Enters wrong password	User tries to login with a wrong password and is rejected	User entered wrong details and was told to enter a valid email and password
4	User views profile page	The user is now on the main activity and wants to view their profile	The user selects the profile icon form the main activity and is brought to that page

5	User Viewing bookings	User wants to view all the bookings they have coming up and maybe delete some	The user selects my bookings page from the main activity and is greeted with the 2 bookings they have made for the next week
6	User wants to book a car space	User wants to book a parking space	The user selects the locations page on the main activity and then selects a location to park. The user then selects a parking space from that parking lot and is greeted with a popup menu and is asked to choose a date and a time slot.
7	User wants to log out of the application	The user goes to the homepage and selects logout on the bottom right hand side and is logged out of the application and brought back to the login activity	The user selects the logout button and is redirected to the login page

5 Conclusions

This application was built for the users and to help them reserve parking spaces in the locations they need to go. It was designed with simplicity in mind and ease of use.

System Advantages

The advantages of the system are they users can book parking spaces and time slots before they arrive.

- Easy way to booking spaces close to your appointments in a private carpark.
- View All your current bookings coming up and can delete them to free up spaces not being used.
- Simple sign up process and ease use of app for any age.

System Disadvantages

After completion of this project I realised that when a user selected a certain spot there is no number on the booking to tell them which spot to park in when they arrive to the location to park, this must be done by the security in the car park.

User must be online to access the application because of the link to firebase.

Opportunities

It could help a lot of car parks if rolled out on a bigger scale and maybe not just for doctor's offices or small private car parks, this could be rolled out for hospital car parks and some small run car parks near the city centre.

Limitations

As I was building this application a new app came out that allows private citizens put there garden up for use and be paid through the application, it seems to have taken off as there is a lot of people putting up there drive way on the app to park.

5.1 Further development or research

If I was to continue working on this application I would love to add a few features

Pay in the App

I would let the customers book the parking space and can pay through the application so they would not need to worry about having change with them or if them forgot their wallet/purse. Use PayPal.

Integrate with the place of business schedule

The app will search calendar app for appointments and tell the user about the closest car park and check the availability of the times that would be suitable.

Google Maps

Add the google maps function to the application so when the user would like directions to the car park they will just be able to click a button and it will show the directions from google maps.

Recurring Appointments

If the user has an appoint at a certain place every Monday at 2pm they should be able to select a recurring slot.

Let users add Car parks

If a business owner would to like to sign up they can do it through the app and add their car park and how many slots they have available and the time slots.

6 Appendix

6.1 Project Proposal

Project Proposal

Android Parking Booking System

Robert Walsh,

X12435918

Robert.walsh@student.ncirl.ie

BSc (Hons) in Computing

Specialization in Software Development

18/10/2016

Objectives

I plan to have several different features in my application which will benefit users.

- Admin Login: Admin (staff) manage bookings that have been made on the given day.
- User login/registration: Users will have to register to use the service, once they do they can log in and access parking information.
- Parking Areas: Different areas will be set up for users to choose from.
- Availability Check: Users can use devices to check if a space at a location is available in real-time.
- Booking system: Users can then use the online booking system to book a space for the time that is required.
- Cost Calculator: The application will add up the price of the space for the specified time.
- Online Payment: Pay your outstanding balance from your phone using an online payment method.
- Cancellation System: Users can cancel bookings if they can no longer make it, for a partial refund.
- Email: Users will receive an email to confirm the booking.
- Feedback: Users can help improve the application by sharing feedback in a page provided.

Background

The proposed project is a parking booking system created using Android Studio. From using car parks recently around Dublin, it has come to my attention that in this technology age there should be a smarter approach available to users. It would be beneficial for an end user to be able to know what car park has spaces available without having to drive up and check, this would save a lot of time and most likely resources for a car park. This project offers a web-based reservation system in which users can see what spaces are available. Users can book a certain spot for a certain time once it is available. A simple colour scheme could be used, red for unavailable, yellow available for a certain amount of time and then green for available for use for a long period of time. Another additional feature that could be implemented would be a cancellation if something comes up and they can no longer use the space the user can cancel it and get a partial refund. I feel this will be a really good idea for another reason, users being able to book spaces using an online payment method. Instead of rooting around for cash in the car, they can simply enter their details into the app and pay that way. Once a user makes a payment they will be notified of the booking via email. They will receive confirmation of payment and a unique parking number. I will be using Android Studio to complete this project, it is an IDE (Integrated Development Environment) for Android. It can be run on all operating systems. (Windows, Mac, & Linux) Android itself powers hundreds of millions of mobile devices, it has the largest base of any mobile platform so therefore I have decided to use it, also because I have

gained some knowledge of coding in this application whilst I was studying. Android gives you a single application model that allows you to broadcast your apps to a broad range of devices, from mobile phones to tablets. I also like the fact that Android uses an Open Marketplace.

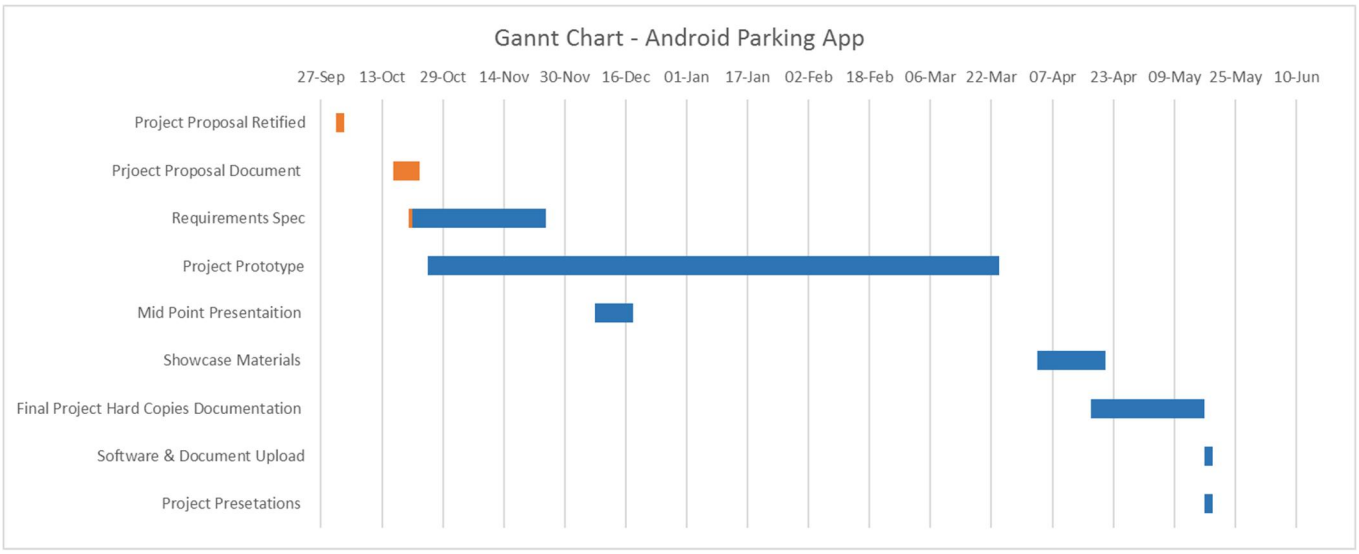
Technical Approach

- Research PHP, SQL & Java
  I will need to research applications already available that are like mine to get an idea of the approach I will need to use. I will also need to create prototypes to see if the objectives I have chosen are not only needed but if I can implement them successfully. I have previous experience using MySQL databases from my database module in college, so hopefully a lot of that will be useful to me in my project. I also have built applications before but only beginner ones in programs such as NetBeans & Android Studio.
- Build Application in Android Studio
  This is where my application will be mainly created and this is where I will launch the application from. I have a multimedia and mobile application development module this semester so this will give me a head start in using this software. We have had a couple of lab uses so far and so far, I have been more than capable of creating applications using this.
- Design Application GUI
  Android Studio will also be used to create this, I would like to have a user-friendly GUI for the user, as clear as possible so that the end user has no problems using it.
- Build Database/Live Database Connection

Special resources required

- Laptop running Windows OS/Mac
  This is where I will create my application as my laptop runs Windows OS/Mac.
- Android Mobile Phone
  To run the application for an end user.
- Android Studio
  To create the application and GUI.
- Database MySQL
  Where user's data and information will be stored (Payment Information)
- PHP
  The programming language used to connection Client/Server.
- Java
  A programming language that is used to create the application.

Project Plan



Gantt chart using Microsoft Excel with details on implementation steps and timelines

Robert Walsh 21/10/16

Student Signature Date

6.2 Monthly Journals

Reflective Journal

Student name: Robert Walsh

Programme (e.g., BSc in Computing): BSCH Software Development

Month: October

My Achievements

This month, I done research regarding the project and the software and programs I will need to use to complete the project. The main software will be using is Android Studio as I am building an Android app.

I have been thinking of how the app is going to look and how the user interface will be designed. Thinking about who this app will be used by and how technical the app will be.

My Reflection

I was out sick for almost 5 days during last month and when I did have time it was spent studying for CAs that I had and getting small projects done for modules.

I have not spent as much time as I would have liked. I have been coming in on the Monday but I don't think it is helping and I just keep talking to friends and not focusing on the project but it is good to be in for Eamon's class in the morning where he might discuss something important and I don't want to miss it. Next Monday I might go in for Eamon's class and then leave as I feel I can do better work from without the distraction from other people.

Intended Changes

Next month, I will try to spend more time focusing on the project and try to start working on the requirements during the reading week, I will need to do a lot of research as the document is the base for my project.

Supervisor Meetings

The only meeting I had with Paul Hayes was to discuss if I could take on one of his ideas.

There were meetings scheduled but they were from 5-6 on Friday and I missed the first one from being out sick and the next week I could not attend because of work.

Paul has set the meetings for Tuesday at 5-6 because more people will be able to attend as the Friday time did not suit more of the students.

Reflective Journal

Student name: Robert Walsh

Programme (e.g., BSc in Computing): BSCH Software Development

Month: November

My Achievements

This month I done a lot of research on my app and what I need going forward into next semester and how to implement the features I want in the app. I have been working very hard on the requirements spec as I only submitted half of it when the document was due. Most of the work done was all visual like setting up the GUI the way I wanted and getting all the activity's connected through the buttons.

My Reflection

I felt, it worked well to work on my project during weekday evenings or the day of a CA.

The Last month of two had being partially difficult as I have had a CA almost every week or more. So trying to work on the project became more difficult during this time as I didn't have much time to pay attention to the project. We have other projects that need a lot of attention so hopefully I can get a lot done over the Christmas break before we start back for second semester.

The hardest part of my project will be getting the database connected and building it so it suites my app.

Intended Changes

Next month, I will try to focus more on the final year project and spend more time on it. I am learning to manage time better now rather than the start of the semester.

I realised that I need to talk to my mentor more and they reason I have not being meeting with Paul is I am not sure I have enough time or stuff done on the project to go over with.

Reflective Journal

Student name: Robert Walsh

Programme (e.g., BSc in Computing): BSCH Software Development

Month: December

My Achievements

This Last month has been tough, it was going well with other modules and the projects for them. I was working on my midpoint presentation and slowly getting through to it and also working hard on the project to get all the GUIs I was working on, to mock-up the application for the project. My uncle had died who meant a lot me in and we were close as he would always college me from school when I was younger and look after me.

This brought a lot of my study to a halt, I found it hard to finish a lot of the projects I was working on as I was really affected by this, I tried the best I could to finish the projects for the first semester and I did end up getting them done but I was so drained on the Christmas and new year between working part time and also trying to study for the exams I had in January.

My Reflection

I'm looking back and thinking I didn't do a lot and there was a justification for it as I was dealing with a lot, I had never been a stressed out person until final year of college and now I felt like I was dealing with so much with all the projects and person stuff.

Intended Changes

One thing that has always worked for me is setting goals and that is my intensions for the next few months, trying to hit small goals so I will feel less stressed.

Reflective Journal

Student name: Robert Walsh

Programme (e.g., BSc in Computing): BSCH Software Development

Month: January – March

My Achievements

I don't have much achievements to talk about over these 3 months, I haven't done much about my final year project and to be honest I haven't been in college a lot either.

My Reflection

The reasons for the above are that after the exams had finished I was still feeling stressed and rundown from work and college, so I tried to take it easy and maybe pick up in February and give myself a break and I had now been let go from work, 4 of my close family members worked in the store that closed down and many friends so I was worried about how they were going to move on.

Early February I started to get back in the swing of things in terms of college and wanted to get cracking on my assignments and projects, that soon came to an end as I found out I failed on of my exams and this had demotivated me so much, only a few days after this I was told me nanny was seriously ill and that we should go and see her, I spent nearly a week up and down to the hospital before she passed away. My nanny was my idol as she was not given a lot in life but she made the very best out of it and raised all of us so well.

This is when I really started to feel down and out, I didn't attend college for the months of February and march and I didn't do much college work at home either I was totally over it.

Intended Changes

I knew I had to get my act together and go and do some work if I wanted to get some good marks and finish the projects I had

Reflective Journal

Student name: Robert Walsh

Programme (e.g., BSc in Computing): BSCH Software Development

Month: APR - MAY

My Achievements

I started working more on stuff but I was still feeling down and stressed, I knew I needed more time on my project so I applied for a deferral until August and I got it because of everything that happened in the last 6 months.

At this stage I was mainly focused on my other modules as I had like 3 projects, which I think I way too much to have side by side with a final year project and in second semester, lots of other colleges give their students the second semester off just to work on their projects but I felt over worked and rundown again. It was a lot of pressure to handle and also having to look for a job at the same time and worry about interviews and college results and the personal issues I was dealing with at the time.

My Reflection

I had to take a lot of time for myself and take a lot of breaks because at the end of the day I wasn't going to run myself into the ground over college and I wanted to help my mental health because it's something that the college want you to work on and I didn't want it to affect me all the time.

Intended Changes

The months are flying by at this point and I haven't done a lot for my project so I know that I have to get moving if I want to pass and graduate this year.

Reflective Journal

Student name: Robert Walsh

Programme (e.g., BSc in Computing): BSCH Software Development

Month: JUNE - JULY

My Achievements

These are the two months where I made all the progress for my project. I was offered a job in SAP as a support associate and I was so happy as I have worked there before and found it a great place to work.

Knowing I have the job I really wanted to get stuck into the project,

First I started off by reading all the things I had written down over the last 8 months and trying to put it together to make my project plan and see what direction I was going in, at first it was hard to get started but once I did it felt so much better I was working on it all day and night and after work.

I started with the database model to work that out as it would be the most important part. I built the model and got started on the application. I am using firebase as it integrates with android really well.

Net was the user login and register functions to get started, firebase has these functions built into it called authentication so I followed the steps in the guide on the website to connect the app to the database and then watched videos on how to set up the registration.

After the registration and login was working and completed I got working on the main activity, this is the users homepage where they will be shown some icons and page links to go to certain pages, I started with the profile page as this was the easiest because there was not a lot of code in it, only to display the users name and email and an icon at the top.

I next moved on to the logout link on the bottom right so when the user wanted to logout of the app and return to the login page the only have to click on this logo.

The next two were the hardest pages to create as these had a lot of code and different elements, first was the booking pages, it will show 2 locations and the user can select one and then move on to select a parking spot and then onto a date and time slot.

The other page was to view the bookings the current user has made, so it would pull this information from firebase and display the information of the booking on the pages and the user can view it and delete it if necessary.

My Reflection

I was very difficult, I asked a lot of questions on forums to understand functions and also I done a lot of ready and going back over course material to get more ideas on how to get a certain part of the