



# Industry Project

Third Year Work Placement

Public Services Card Project

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## Introduction:

The project I have been assigned to complete is a booking system for the Department of Social Protection's Public Services Card which is available to every citizen in the Republic of Ireland. To date, there is no online booking system for appointments to receive this card. This is something that my manager said needs to be addressed sooner rather than later and asked me if I could create a prototype for this system as part of my third year work placement. I proposed this idea to the college which was accepted and now a prototype has been built. In this document I will outline information about the Public Services Card, diagrams of use cases, the design specification, and the user manual.

## Public Services Card (PSC):

The Department of Social Protection (DSP) introduced the Public Services Card (PSC) in 2012 to replace the Social Services Card which had been used prior. Public Services Cards are free to gain and have a number of services on them. These cards act as a unique identifier which allows the DSP to identify the customer when using services which are essential to everyday life. Nowadays PSC's are issued when a person is issued a PPS number. As I said previously, appointments cannot be made online when trying to apply for a PSC. This leads to a serious amount of unneeded hassle for the user.

There are two ways in which a person can gain a PSC. The first is by a postal registration. This will play a small part of the functionality of this project but the second way will play a more important role. The second way is by meeting a staff member in a PSC centre and bringing the correct documents which are needed to allow applications to be processed. Applications usually take around one week to be processed, afterwards the card is then issued by post. Meeting face to face will play an important role in this project. There are a number of locations in which the public can avail of these cards. I will make sure to include this in the web application which is being developed so the public is informed.

## User Requirement Specification:

Due to the short amount of time this system was constructed in, I used an agile methodology approach with test driven development at the heart of the coding process. Traditional documentation is limited as it was all carried out at the end of the development cycle. With the short time frame, work started immediately. I had not time to carry out an interview or questionnaire. Instead I had a brief meeting with a manager within the DSP. In this short meeting, three core users were identified. These are the customer, the staff member, and the manager. These users have been implemented in the system. I researched similar system to that I designed. I tried to implement similar parts which I thought suited the scope of my system.

### Customer:

The main aim of this system is for the Customer to have the ability to register for the services that we are providing. In this case, make an appointment with a DSP member of staff in order to gain a Public Services Card. This is the core functionality of the system.

Customers want to be able to register and log into the system and then have the ability to choose a time and date suitable to their needs to go for an appointment with the DSP to gain their card. This part is mission critical as this is the core functionality of the project. If this cannot be done then I have not reached my goal. I can now say that this is completed.

Once a Customer has completed these stages and made an appointment convenient to themselves, if something arises, there is no problem. With less than four clicks, the user can reschedule their appointment and the DSP has the new record instantly. This allows for other Customers now to gain this appointment date and time which improves efficiency.

If the Customer has made an appointment and changes their mind about getting a Public Services Card, they can easily cancel their appointment resulting in the same as above, a free slot for other Customers availing of this service to gain. This also improves efficiency greatly as no time slots will be left unfilled resulting in more Customers gaining their cards in less time.

If Customers are not sure of where the building is in which their appointment is taking place, quickly find it on our Google Map which is integrated on our system. From here Customers can quickly find out information about the building. Information such as its address and phone number which is conveniently displayed in table format which makes it easier to read.

Customers are able to download an application form which is displayed as a PDF. This allows the Customer the ability to print off an application form and send it to the DSP along with the correct documents needed for processing. This is known as Postal Registration in the DSP and is another way for Customers registering for our services. When this form is completed correctly, it takes around ten days until the Public Services Card is delivered to that customer. This is not a critical feature but would be a nice addition to the systems functionality but it has been completed and now Customers may download the application by navigating to the Home View and clicking on the button which reads "Postal Application". This immediately starts the download for the Customer.

### Staff:

Staff members have a very similar view to Customers. However their appointments view is quite different as it displays their appointments for the work day. From here they know their schedule for any given day with what Customer's as well. This is a nice feature of the system as it is directed at the staff member who is logged in.

Staff members also have the power to cancel appointments also. This is added in just in case a Customer cannot get access to the system. In this case the Customer rings the office of where they are due to have an appointment, explains the situation, from this then the manager can go into the system and cancel the appointment for the Customer. For those on the go without internet access, this may prove quite useful.

### Manager:

Managers have the most power on the system as they are essentially the administrators. They're view is similar to both the Customer and the member of staff. However they have a number of other views. A Manager can go into the Staff view and add a new member of staff who has gained employment within the DSP's Public Services Centres. They may also remove staff members from the system if needs be. They are the only users of the system who have the ability to complete this task. Staff members and Customers cannot do this and do not know about this section as it is not displayed on the navigation bar.

Managers may also add a new building if one has been built for the DSP. The Manager must specify the name of the building, the address, and the phone number. Once this has been added, Customers are free to make appointments for this building. Managers must add the staff who will work in this building into the system. Managers can also view all the staff who works in a specific building by selecting the details. The building details are then displayed on the view where the Manager can view the staff member's names within that building. If by any chance a building has been demolished or removed from the DSP's ownership, then this building can be deleted from the system. Next thing is though what happens with all the staff working in that building? If staff members have been relocated then the Manager needs to go in and update the staff member's information. This is easily done with less than 4 clicks.

Managers can view all the appointments made through the system also. As they are staff members, Customers can also select to make an appointment with them so there are two options located on the system. These are to view all appointments and to view their appointments. If the all appointments option is selected then the manager can see all the appointments in the system, both new and old will appear. They also have the same abilities as staff members do with this section of the system. Managers can also view charts which show a lot of useful information within them. There is an option on this view in which they can see them.

Managers may also view all the users of the system and what roles their profiles possess. As another option I wanted to allow Managers manually change staff roles to Managers if they have gained a promotion within the DSP. Unfortunately this proved to be quite difficult and is something I need to investigate more in future expansions.

### Project Technologies:

There are quite a few different technologies used within the development of this system. These are:

- C#
- Asp.Net MVC
- SQL Server used by Linq Queries
- Entity Framework
- JavaScript and JQuery

The business logic was carried out through mainly C# although JavaScript and JQuery were used a bit also in the development process. C# was mainly used in the Controllers where the business logic lived. These Controllers were the power behind the system.

MVC is the design pattern used in the system. The model is where class attributes live while the controller is where the business logic exists. The views are the display, which is where I used HTML, CSS, Bootstrap, and Razor Syntax to display it how it looks.

SQL Server is where the data lives which is needed for this system to work properly. To access the data living in the SQL database I used Linq Queries. These queries are very similar to SQL Queries, except the syntax is slightly different and backward. I enjoyed using this language because it was something different which now I can say I can use.

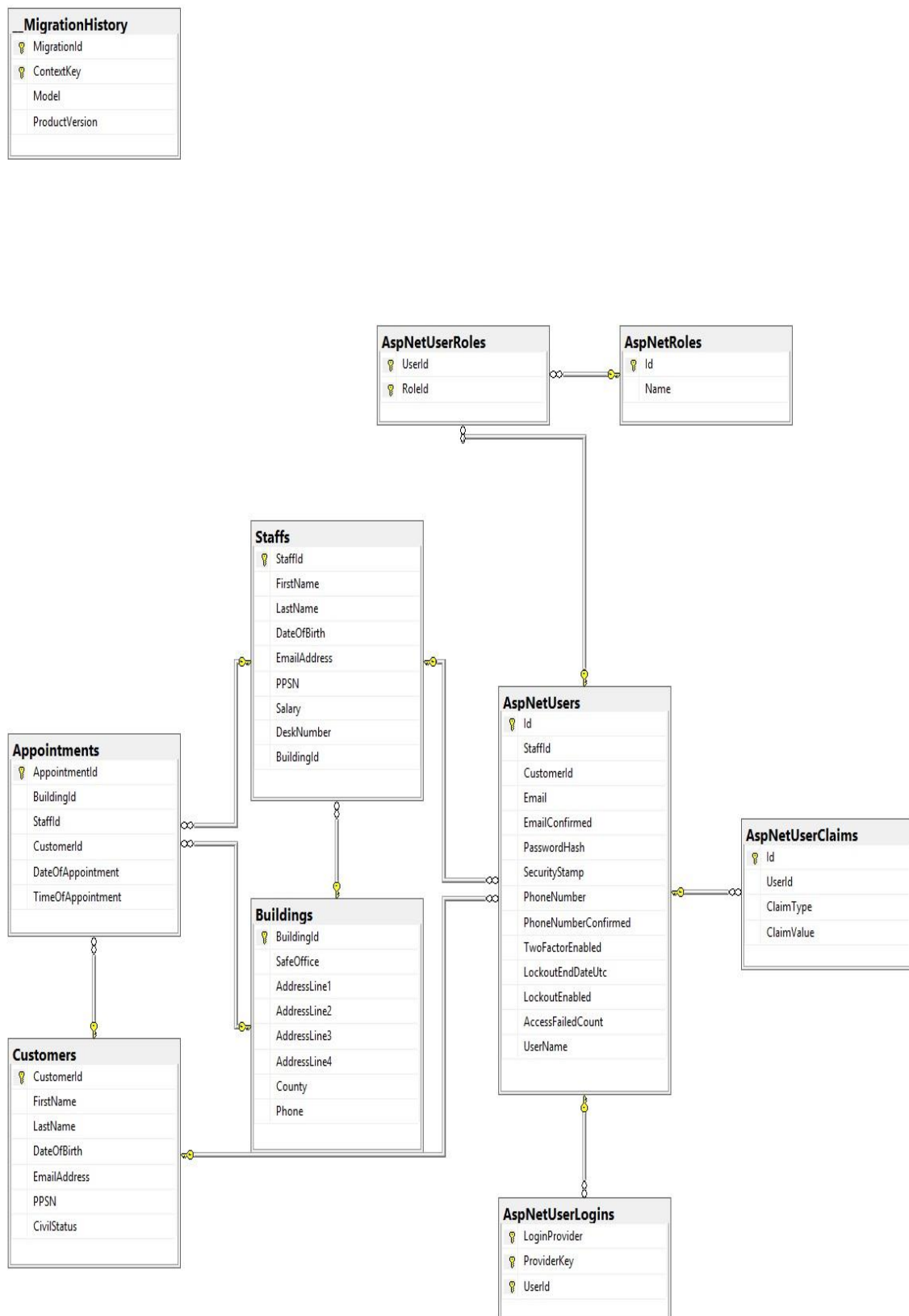
Entity Framework is used in Asp.Net and was very useful in this project. This is a useful way to work with relational data using domain-specific objects. I enjoyed learning this new to me framework within the development of this system.

JavaScript and JQuery were used when there was no need to refresh the browser. This became quite useful when implementing drop down options. This was due to the fact of one drop down depending on another i.e. displaying the correct data when an option is chosen in the second drop down. Another time they were needed was populating pins in a Google Map for location of offices where a Customer can gain a Public Services Card.

## Design Specification:

### Database Design:

#### Entity Relationship Diagram:



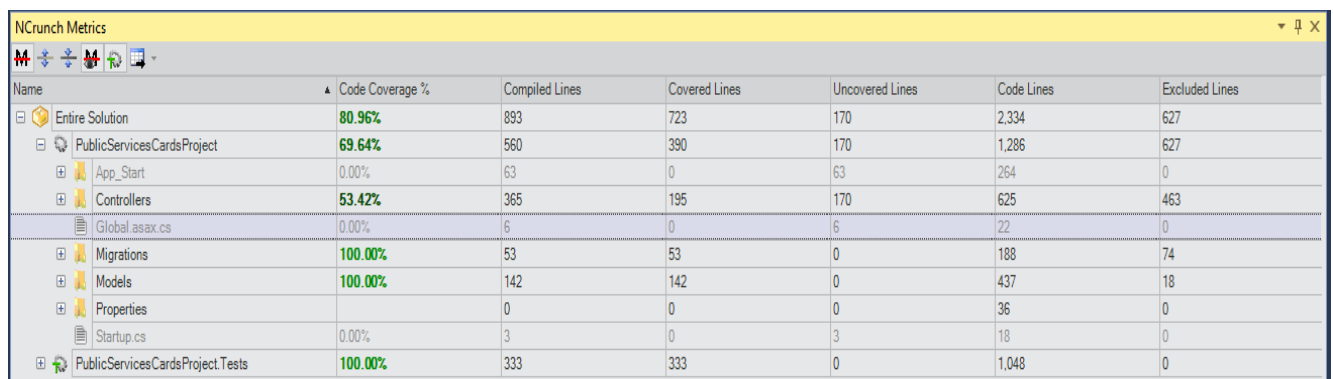
#### About The Entity Relationship Diagram:

My database was helped by using the Entity Framework in Visual Studio. The actual design I suffered with at the start as I was still learning the framework. Through a lot of practice and research I managed to get my database the exact way I wanted it. This can be seen as above. Entity Framework uses Code First Migrations which I have become quite fond of. This means you write your classes first, the way you want them to work in the database, then issue a migration command through NuGet Package Manager Console, which is an extension in Visual Studio, and now your database schema is generated for you. I found this quite useful as time was of the essence. Another file would be generated. This file is named the Configuration.cs. In this file, developers insert their test data into a Seed() method which gets called when one issues the "Update-Database" command in NuGet Package Manager Console.



## Testing:

As I said previously, I took an agile methodology approach and used test driven development within this systems development. I wrote my methods with testing in mind. Everything I have created has been vigorously tested through unit testing. To help me with unit tests, I used NCrunch which is a very useful automated testing tool. This saved an enormous amount of time because I never had to run a single test manually. This tool detected code changes and would run the tests again. If the tests succeeded one would see green dots located on the left hand side of Visual Studio. If they were failing, they would appear as red dots instead. Black dots represented as not being tested. Test metric figures are quite high which I shall show in screen shots below:



| Name                             | Code Coverage % | Compiled Lines | Covered Lines | Uncovered Lines | Code Lines | Excluded Lines |
|----------------------------------|-----------------|----------------|---------------|-----------------|------------|----------------|
| Entire Solution                  | 80.96%          | 893            | 723           | 170             | 2,334      | 627            |
| PublicServicesCardsProject       | 69.64%          | 560            | 390           | 170             | 1,286      | 627            |
| App_Start                        | 0.00%           | 63             | 0             | 63              | 264        | 0              |
| Controllers                      | 53.42%          | 365            | 195           | 170             | 625        | 463            |
| Global.asax.cs                   | 0.00%           | 6              | 0             | 6               | 22         | 0              |
| Migrations                       | 100.00%         | 53             | 53            | 0               | 188        | 74             |
| Models                           | 100.00%         | 142            | 142           | 0               | 437        | 18             |
| Properties                       |                 | 0              | 0             | 0               | 36         | 0              |
| Startup.cs                       | 0.00%           | 3              | 0             | 3               | 18         | 0              |
| PublicServicesCardsProject.Tests | 100.00%         | 333            | 333           | 0               | 1,048      | 0              |

Overall the entire solution is 80.96% tested which is a great figure. The metric is brought down by a controller class which is proving difficult to test but will be investigated and solved. Here are the controller figures:



| Controllers               | Code Coverage % |
|---------------------------|-----------------|
| AccountController.cs      | 4.53%           |
| AppointmentsController.cs | 5.39%           |
| BuildingsController.cs    | 92.22%          |
| HomeController.cs         | 100.00%         |
| ManageController.cs       | 8.08%           |
| StaffController.cs        | 94.74%          |

The model classes are 100% tested and functioning as expected. Here are the figures also:



| AppointmentModels | Code Coverage % |
|-------------------|-----------------|
| Appointment.cs    | 100.00%         |
| Building.cs       | 100.00%         |
| Customer.cs       | 100.00%         |
| Staff.cs          | 100.00%         |

I am happy with all the test code that has been wrote and I know that the most important methods are being tested and are working correctly.

## HTTPS and SSL:

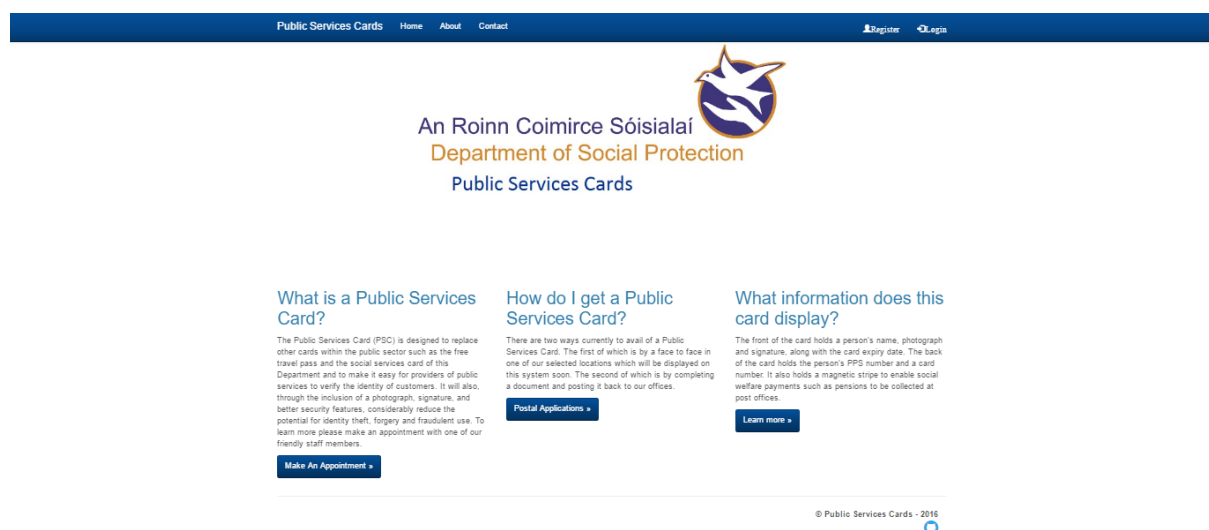
The system has been enabled to use Secure Socket Layer (SSL) and Hypertext Transport Protocol Secure (HTTPS). This makes the system more secure for the end user, meaning they can trust the connection as it is encrypted to the server. This has been enabled as users enter their personal information into the system and from experience users do not trust entering information into sites that do not use HTTPS or SSL.

## User Manual:

In this system, there are three main users. These are:

- Customers
- Staff Members
- Managers

Each user has a different view. However some are similar, the functionality is different though on the other hand. Now I will begin with what the non-user of the system is presented with. This view is the same as the Customers, Staff Members, and Managers views. This is the Home View:



This Home View is the same all over the system. Customers, Staff Members, and Managers each have the same view. From here Customers may download the application form needed if they wish to avail of the postal registration option. They do this by simply clicking the button which reads “Postal Applications”.

The next View is the About View. This is also the same throughout the system. This view has information about the system and about Public Services Cards on it. This is a very informative page as is shown underneath:

Public Services Cards Home About Contact Register Login

## About This Booking System

### Quick Links

|  |
|--|
| About This Application                             |
| How Do I Make An Appointment?                      |
| How Do I Amend My Appointment?                     |
| Can I Cancel My Appointment?                       |
| What Do I Need To Bring With Me To My Appointment? |

### About This Application

This is a Third Year Computing Project for the Institute of technology Tallaght completed while out on a work placement with The Department of Social Protection. The work placement was over 6 months, 26 weeks, from the 25th January up until the 22nd July. However, this project started from the 11th April and commenced on the 27th May, giving just over 8 weeks to complete this booking system for my appointments at the Department of Social Protection.

There are 3 separate users on this application. They are:

- Customers
- Staff Members
- Managers who are basically administrators

When you initially Register as a user, you become known as a Customer. To become a Staff member, another Staff Member, or Manager must create your profile manually. After this you are free to use the application. Only Managers can create other managers and assign them these permissions.

Customers have only basic functionality. They may:

- View the Home Page
- View the About Page
- View the Contact Page
- Make an Appointment on the Appointments Page - Customers can choose where they want their appointment, with who, and the time and date
- Change Appointment
- Update their Appointment
- Cancel their Appointment
- Manage their details

Staff Members may:

- View the Home Page
- View the About Page
- View the Contact Page
- View their daily schedule with appointments
- Change Appointment date and time in which the customer will be notified
- Manage their details

Managers can see everything on the application.

### How Do I Make An Appointment?

Thanks to this application it has now become very easy to make an appointment to gain your free Public Services Card. There are a number of simple steps in completing your booking. These include:

- Clicking the New button which is located under this paragraph

This is the place where Customers will come to visit if they have a question that needs to be answered. Another view is the Contact View. This shows exactly where Customers can go to get a Public Services Card. The view is also the same for all users and is shown underneath:

Public Services Cards Home About Contact Staff Appointments Buildings Users Hello DanielBuckleyTy3@gmail.com! Log off

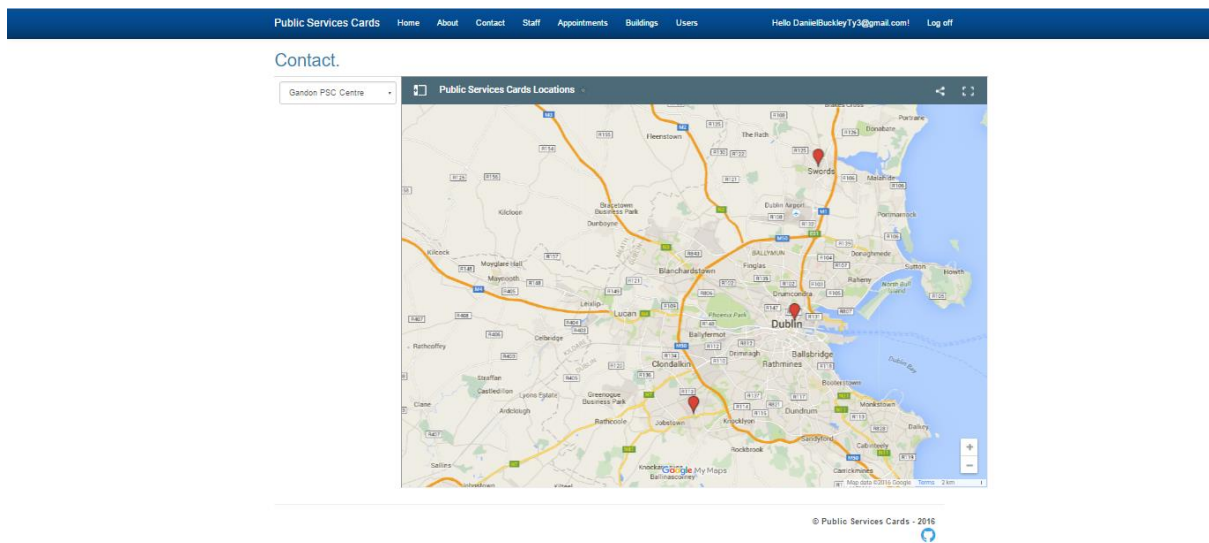
## Contact.

Gandon PSC Centre

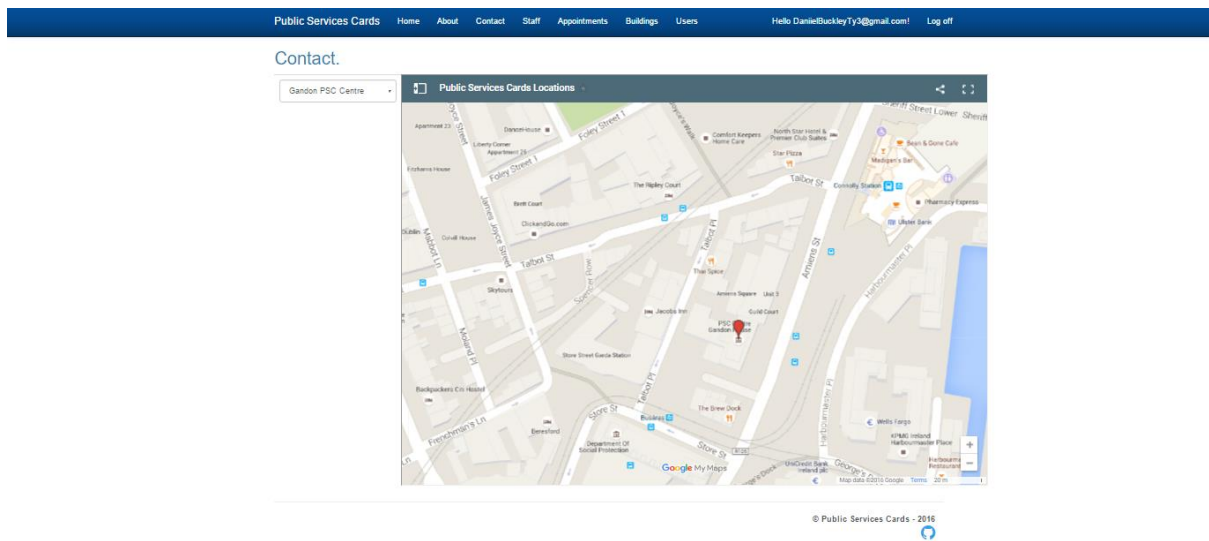
### Public Services Cards Locations

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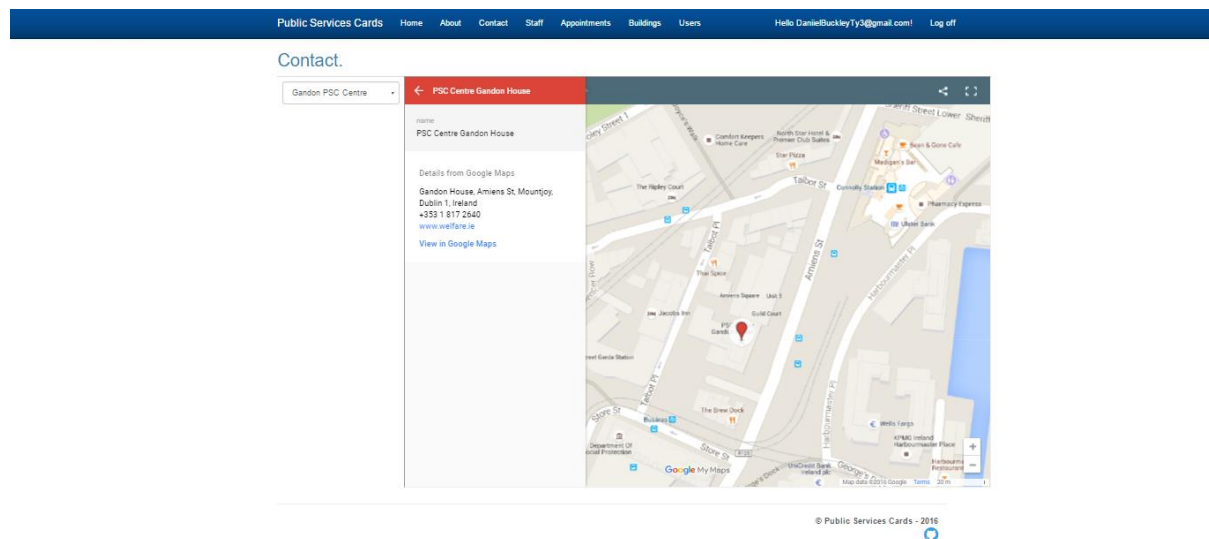
The user can see the markers which represents office locations. The Customer then has the ability to scroll in and pin point the location which they would like to attend an appointment in. When any user scroll in they are met with the next view:



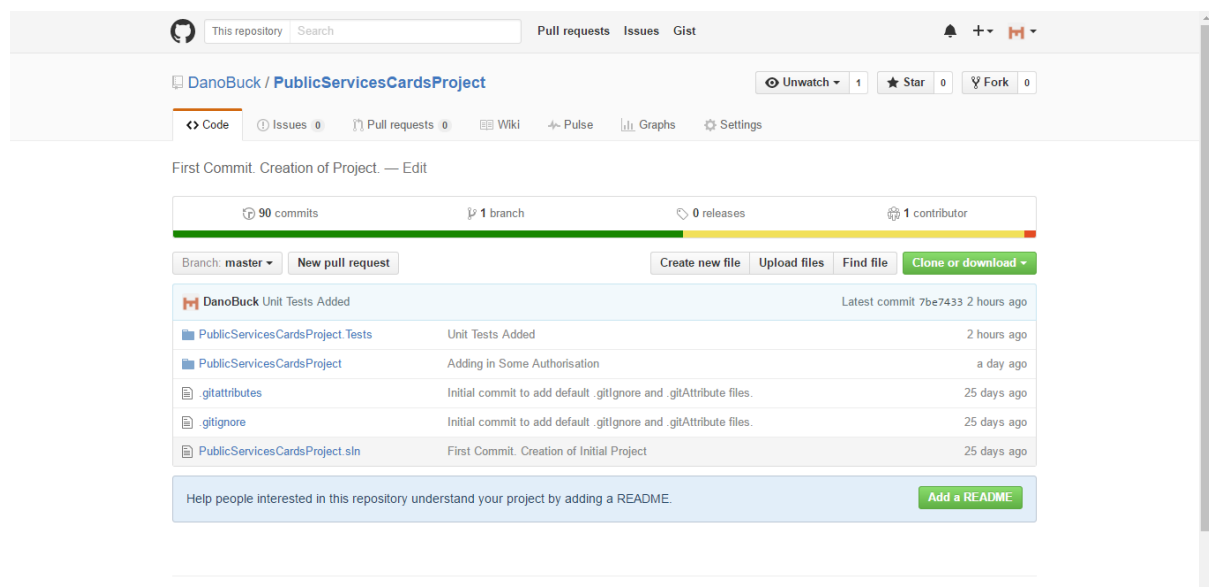
They now can scroll even further to get the pin point position which is shown as:



Now the user knows the pin point position of where an office is. If the user clicks on the marker of the map, they can see the relevant information on the map. This can be seen as:



Information such as the address and phone number now appear for the user. Notice how there is a GitHub icon in the footer of the system if a user clicks this icon, they are brought to where the code lives, within a GitHub Repository. When clicked they are met with the following view which is external to the system:



This is the GitHub Repository where all the code needed for the system is stored. The repository is public meaning everyone can view the code inside it. This repository was updated very regularly.

## Login:

Logging in is fairly straight forward in this system. The user simply clicks the “Login” link located on the navigation bar. This in turn brings the user to the Login View which looks as followed:

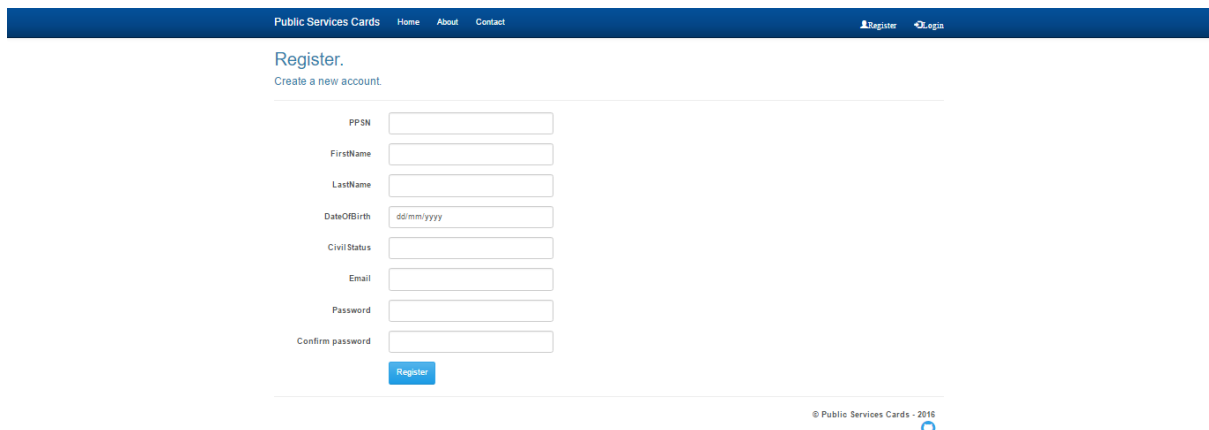


The screenshot shows the 'Login' page of the 'Public Services Cards' system. The navigation bar at the top includes links for 'Public Services Cards', 'Home', 'About', 'Contact', 'Register', and 'Login'. The main heading is 'Log in', with a subtext 'Use a local account to log in.' Below this, there are input fields for 'Email' and 'Password', a 'Remember me?' checkbox, and a 'Log in' button. To the right, there is a section titled 'The Actual Card' showing a sample of a blue Public Services Card. At the bottom, there is a link to 'Register as a new user' and a copyright notice '© Public Services Cards - 2016'.

As appears there are two fields located on this view, an Email field and a Password field. Both must be correct to enter the system. The image on the right of the view is of an actual Public Services Card and is what each user of the system will gain.

## Customer Registration:

The Customer can register for the system very easily. They simply click on the Register link on the navigation bar. They are then brought to another view which allows them to enter their details. The view is as the following:



The screenshot shows the 'Register' page of the 'Public Services Cards' system. The navigation bar at the top includes links for 'Public Services Cards', 'Home', 'About', 'Contact', 'Register', and 'Login'. The main heading is 'Register.', with a subtext 'Create a new account.' Below this, there are input fields for 'PPSN', 'FirstName', 'LastName', 'DateOfBirth' (with a placeholder 'dd/mm/yyyy'), 'Civil Status', 'Email', 'Password', and 'Confirm password'. A 'Register' button is located at the bottom of the form. At the bottom of the page, there is a copyright notice '© Public Services Cards - 2016'.

The Customer needs to fill out all of the relevant information on this screen. If not errors are thrown back and the Customer will need to fix them in order to become a user of the system and avail of making appointments. Once completed the system automatically logs them in and an email is generated and sent to their email address which they have specified containing their username and password so that they have a record of this information.

## Customer Appointment View:

Moving onto the Customers Appointment View. This view is strictly theirs. Staff Members or Managers cannot access this view and do not know about it either. When a Customer logs in they are met with another option on the navigation bar. This extra option is called “My Appointments”. This is their most important view as it is where they make their booking. When they do not have an appointment, they are met with the following view:

The screenshot shows the 'Make An Appointment' page. At the top is a dark blue navigation bar with links: Public Services Cards, Home, About, Contact, My Appointments, Hello Adam@gmail.com!, and Log off. Below the navigation bar, the title 'Make An Appointment' is displayed. Underneath the title is a small 'New' button. At the bottom right of the page, there is a copyright notice: © Public Services Cards - 2016, followed by a small circular logo.

There is nothing on this view except for a button which allows the Customer to make an appointment. Once this button is clicked, the user is brought to another view. This view is shown below:

The screenshot shows the 'Make Appointment' page. At the top is a dark blue navigation bar with links: Public Services Cards, Home, About, Contact, My Appointments, Hello Adam@gmail.com!, and Log off. Below the navigation bar, the title 'Make Appointment' is displayed. Underneath the title is a form with the following fields: Office (Gandon PSC Centre), Staff Name (Daniel Buckley), Customer Name (Adam Buckley), Appointment Date (dd/mm/yyyy), and Appointment Time (--:--). A 'Create' button is located below the Appointment Time field. A 'Back to List' link is located at the bottom left of the form. At the bottom right of the page, there is a copyright notice: © Public Services Cards - 2016, followed by a small circular logo.

Customers must enter in the correct details to make an appointment. Their name is dynamically entered in the “Customer Name” drop down and cannot be edited. Once this is done, an email is sent to them containing the relevant information of their newly created appointment and they are directed back to where they started but this time their view is different. The updated view is shown below:

The screenshot shows the 'Make An Appointment' page. At the top is a dark blue navigation bar with links: Public Services Cards, Home, About, Contact, My Appointments, Hello Adam@gmail.com!, and Log off. Below the navigation bar, the title 'Make An Appointment' is displayed. Underneath the title is a table with the following columns: Office, Staff Name, Customer Name, Appointment Date, Appointment Time, and a link column. The table contains one row of data: Gandon PSC Centre, Daniel Buckley, Adam Buckley, 24-05-2016, 12:00. The link column contains links: (F Edit) | (Details) | (Cancel). At the bottom right of the page, there is a copyright notice: © Public Services Cards - 2016, followed by a small circular logo.

| Office            | Staff Name     | Customer Name | Appointment Date | Appointment Time |                                 |
|-------------------|----------------|---------------|------------------|------------------|---------------------------------|
| Gandon PSC Centre | Daniel Buckley | Adam Buckley  | 24-05-2016       | 12:00            | (F Edit)   (Details)   (Cancel) |

Notice that the “New” button has disappeared. This means that the Customer may only make one appointment at a time. If “Cancel” is selected then this changes back. If a Customer wishes to edit their appointment they may do so by clicking the “Edit” link. They are shown a page similar to when they make an appointment.

## Staff Members Appointments View:

The Staff Members View is very similar to the Customers. However they can only see the appointments for themselves and no other Staff Members as they do not need to see their colleague's appointments. The view is shown below:

| Public Services Cards Home About Contact My Appointments Hello MilyMasterson@outlook.com! Log off |                |               |                  |                  |  |
|---|----------------|---------------|------------------|------------------|--|
| Appointments  |                |               |                  |                  |  |
| Office  | Staff Name     | Customer Name | Appointment Date | Appointment Time |  |
| Intreo Centre Swords  | Mily Masterson | Finbarr Furey | 22-05-2016       | 12:47            | <a href="#">Details</a>   <a href="#">Delete</a> |
| Intreo Centre Swords  | Mily Masterson | Adam Buckley  | 24-05-2016       | 12:20            | <a href="#">Details</a>   <a href="#">Delete</a> |
| Intreo Centre Swords  | Mily Masterson | Adam Buckley  | 13-12-2016       | 01:20            | <a href="#">Details</a>   <a href="#">Delete</a> |

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Notice how Staff Members may only view details on appointments or cancel them. They do not have the ability to edit a Customer's appointments.

## Managers Views:

### All Staff View:

Managers have three additional views compared to the other two users. This is because they have more functionality over the system. One of the extra views is the Staff View. This lists all the Staff Members within the organisation along with their details. This view is shown as:

| Public Services Cards Home About Contact Staff Appointments Buildings Users Hello DanielBuckleyTy3@gmail.com! Log off |                  |               |     |  |        |             |                      |  |  |
|---|------------------|---------------|-----|--|--------|-------------|----------------------|--|--|
| All Staff   |                  |               |     |  |        |             |                      |  |  |
| Office <input type="text" value="All"/> <input type="button" value="Filter"/>   |                  |               |     |  |        |             |                      |  |  |
| PPSN  | Name             | Date Of Birth | Age | Email Address  | Salary | Desk Number | Office               |  |  |
| 1234567Q  | Daniel Buckley   | 09/01/1995    | 21  | <a href="mailto:DanielBuckleyTy3@gmail.com">DanielBuckleyTy3@gmail.com</a> | 45000  | 1           | Gandon PSC Centre    |  |  |
| 1234567A  | Cecil O'Hegarty  | 12/05/1990    | 25  | <a href="mailto:CecilO'Hegarty@gmail.com">CecilO'Hegarty@gmail.com</a>     | 45000  | 2           | Gandon PSC Centre    |  |  |
| 1234567B  | Freda Burns      | 01/05/1965    | 51  | <a href="mailto:FredaBurns@outlook.com">FredaBurns@outlook.com</a>         | 45000  | 1           | Tallaght PSC Centre  |  |  |
| 1234567C  | Theresa O'Reilly | 09/12/1980    | 35  | <a href="mailto:TheresaO'Reilly@live.ie">TheresaO'Reilly@live.ie</a>       | 49000  | 2           | Tallaght PSC Centre  |  |  |
| 1234567KA   | Mily Masterson   | 01/05/1955    | 61  | <a href="mailto:MilyMasterson@outlook.com">MilyMasterson@outlook.com</a>   | 45000  | 1           | Intreo Centre Swords |  |  |
| 1234567BA   | Billy O'Byrne    | 06/12/1979    | 36  | <a href="mailto:BillyO'Byrne@live.ie">BillyO'Byrne@live.ie</a>             | 49000  | 2           | Intreo Centre Swords |  |  |

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On this view, the Manager can see all Staff. He has the ability to filter the table by choosing an option in the drop down list, which contain all departmental buildings, and clicking the filter button. This then returns the Staff Members in which he searched for depending on the building. Managers can also edit a Staff Members details, view their details, and if needs be, delete them out of the system. Once deleted they may not log back onto the system.



### All Buildings View:

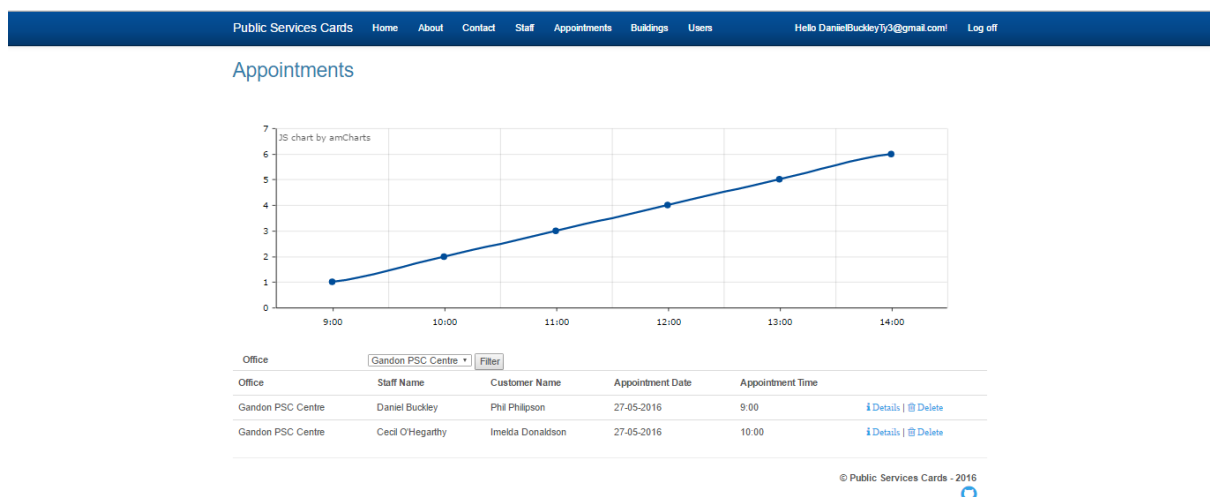
Managers can view all buildings and all their details. They may also update information such as phone number and/or name of the building if they wish. If a building is no longer in existence then they may delete the building. They may also search for a building by its office name if they wish. The view looks like the following:

| Public Services Cards   Home   About   Contact   Staff   Appointments   Buildings   Users   Hello DanielBuckleyTy3@gmail.com!   Log off |  |              |   |
|---|--|--------------|---|
| Buildings   |  |              |   |
| Find by office: <input type="text"/> <input type="button" value="Search"/>  |  |              |   |
| Office  | Address  | Phone        |   |
| Gandon PSC Centre   | PSC Gandon, Public Services Card Centre, Gandon House, Amiens Street, Dublin | (01) 8172940 | <a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a> |
| Tallaght PSC Centre   | Unit 247, Level 2, The Square Shopping Centre, Tallaght, Dublin              | (01) 4029495 | <a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a> |
| Intreo Centre Swords  | Mainscourt, 23 Main Street, Swords, Dublin                                   | (01) 4529495 | <a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a> |
| <input type="button" value="New"/>  |  |              |   |
| © Public Services Cards - 2016  |  |              |   |

This is very similar to the Staff View as well but it is totally separate part of the system.

### All Appointments View:

The Appointments View is where the Manager can see all the appointments in the DSP. This is done in the form of a drop down list at the top of the view with all the departmental offices. There is also an option called "Mine" in which the Manager can view all of their appointments. There is now a graph located on the Managers Appointment View. This graph summarises appointment times and which time is the most popular among Customers to avail of an appointment. This allows the Manager to know when it is critical to be in the office. The chart has been implemented using the AmChart.js which is freely to use for developers looking to summarise data. The view looks like the following:



## Users and Roles:

Managers can also view all the users on the current system. This is done by clicking on the link on the navigation bar which displays “Users”. They are then brought to this view:

Public Services Cards

Home

About

Contact

Staff

Appointments

Buildings

Users

Hello DanielBuckleyTy3@gmail.com!

Log off

Users And Roles

| Email Address              | System Role |                           |
|----------------------------|-------------|---------------------------|
| Adam@gmail.com             | Customer    | <a href="#">Edit User</a> |
| Amanda@gmail.com           | Customer    | <a href="#">Edit User</a> |
| TheresaO'Reilly@live.ie    | Staff       | <a href="#">Edit User</a> |
| DanielBuckleyTy3@gmail.com | Manager     | <a href="#">Edit User</a> |
| FinbarFurey@gmail.com      | Customer    | <a href="#">Edit User</a> |
| ImekiaDonaldson@gmail.com  | Customer    | <a href="#">Edit User</a> |
| FredaBurns@outlook.com     | Staff       | <a href="#">Edit User</a> |
| BillyO'Byrne@live.ie       | Staff       | <a href="#">Edit User</a> |
| MillyMasterson@outlook.com | Staff       | <a href="#">Edit User</a> |
| Dogson@gmail.com           | Customer    | <a href="#">Edit User</a> |
| Phil@gmail.com             | Customer    | <a href="#">Edit User</a> |
| CecilOHegarty@gmail.com    | Staff       | <a href="#">Edit User</a> |

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From here Managers have all the information which they need regarding the users of the system. Managers also have the ability to change a user's role by clicking the “EditUser” link on any of the users. Managers now can change Staff Members to Managers. However, Managers cannot change any Customer Roles.

## Test Accounts for Lecturers:

System URL: <https://publicservicescardsonline.azurewebsites.net>

To access the system as a Manager, please use:

- Email: [DaniielBuckleyTY3@gmail.com](mailto:DaniielBuckleyTY3@gmail.com) Password: PassWord1'

To access the system as a Staff Member, please use:

- Email: CecilOHegarty@gmail.com Password: PassWord1'

To Access the system as a Customer, please use:

- Email: [Adam@gmail.com](mailto:Adam@gmail.com) Password: PassWord1'

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