

1 COMP1687 Self Assessment Sheet for the 201718 Coursework

This sheet must be completed and submitted with your report

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URL

<http://stuweb.cms.gre.ac.uk/~na2880g/web/cw/index.php>

Student Use													
Level 1	Account creation	18	0	1	2	3	4	5	6	7	8	9	10
Level 2	Verify account	12	0	1	2	3	4	5	6	7	8	9	10
Level 3	Authentication	10	0	1	2	3	4	5	6	7	8	9	10
Level 4	Member post	12	0	1	2	3	4	5	6	7	8	9	10
Level 5	Image upload	10	0	1	2	3	4	5	6	7	8	9	10
Level 6	Item search	10	0	1	2	3	4	5	6	7	8	9	10
Level 7	Cookie	6	0	1	2	3	4	5	6	7	8	9	10
Level 8	Report	16	0	1	2	3	4	5	6	7	8	9	10
Staff Use													
Self-assessment		6	0	1	2	3	4	5	6	7	8	9	10
Comments													

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2.1 Statement of Functionality

The developed web application meets all levels of functionality. One exception is although the functionality of level 7 has been completed, no warning of cookie use is provided to the user.

3.1 Bug Declaration

There are some known bugs to the system, these are noted below:

- If CSS is disabled, the embedded Google Maps break into several pieces. If JS and CSS is disabled this is not an issue as maps are not shown and users are guided to pages where they can use the site fully without JS.
- If the user hits the back button from the search results back to the search page, the start and end points appear back in the form but will not be submitted if the form. This will cause the search to find no results.
- On pages where there is little content, the footer does not stick to the bottom on larger screens. This is not a major issue to fix, however it was not noticed during development and only became apparent when testing on the universities computers.

4 Strengths and Weaknesses

4.1 Application

4.1.1 The strengths of the application are:

- It achieves all levels of functionality set out in the specification.
- User input for registration and login is validated using both HTML5 and JS.
- Errors are handled correctly and error messages are displayed to users.
- The site is protected from SQL injection.
- It is easy to use.
- It can be used without JS and largely without CSS.
- The code from all pages largely passes validation.
- The front-end design is attractive and makes good use of colour, spacing and grids.

4.1.2 The weaknesses of the application are:

- It does not display a cookie warning with links to a Cookie Policy.
- There are a couple of bugs, noted in the Bug Declaration.
- The PHP code gets a bit messy in some places and includes some repeating code. Functions should have been used to simplify the code and improve layout/readability of the code; in future projects I will ensure the use of functions for these purposes.

4.2 Development Process

4.2.1 Process

The web application was developed using an iterative approach, working through each level of functionality at a time. Initial design of the application was conducted before starting any development and designs were modified if necessary at the end of each level. Each level was broken

down into smaller stages (requirements), and stages were implemented one at a time with testing taking place throughout and at the end of each stage.

4.2.2 Strengths of Development Process

- Development was conducted in a structured and organized way using iterative cycles.
- It was found developing and testing small bits of functionality at a time led to thorough testing of the application at each level. This meant once a level was completed, few if any bugs were identified when integrating other levels of functionality.
- Conducting design before starting development led to an understanding of what files/pages would be needed to create the website and how the webpages would be laid out (i.e. what order functionality should be implemented).

4.2.3 Weaknesses of Development Process

- Better planning could have been undertaken to manage time throughout the development process.
- PHP functions should have been identified before development, this would have led to the use of functions and therefore the generated code would have been simpler and less complex.
- Could have made better use of progressive enhancement practices to build core features before adding CSS and JS.

4.3 Evaluation and Testing

Evaluation of the web application was undertaken after implementation of each level. Once a level had been completed, the functionality was compared to the requirements set out in the coursework specification. If it was decided the application met the functionality set out in the specification then implementation of the next level was undertaken; if it was decided that the specification was not met, issues were noted, and the level was worked through again.

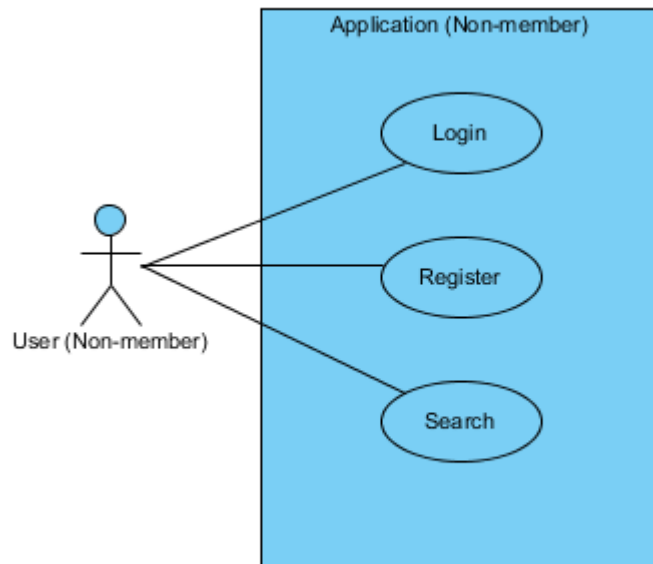
Testing was carried out throughout the development cycle, with final acceptance testing being carried out once all levels of functionality had been achieved. When working on a specific level of functionality, tests would be conducted anytime any requirements were added. Often the test would simply involve printing a success or error message to screen to determine where or not the application was functioning correctly. If a test was passed, the next stage would be implemented until the level was complete. At the end of each level, black-box testing was carried out on the current level and all previous levels. It is believed this led to thorough testing of the application and defects were identified and dealt with in a structured way.

Once all levels of functionality had been achieved the final application underwent acceptance testing, again from a black-box perspective. The issues/bugs identified at this point were fixed and the application was once again tested at all levels of functionality before restarting final acceptance testing.

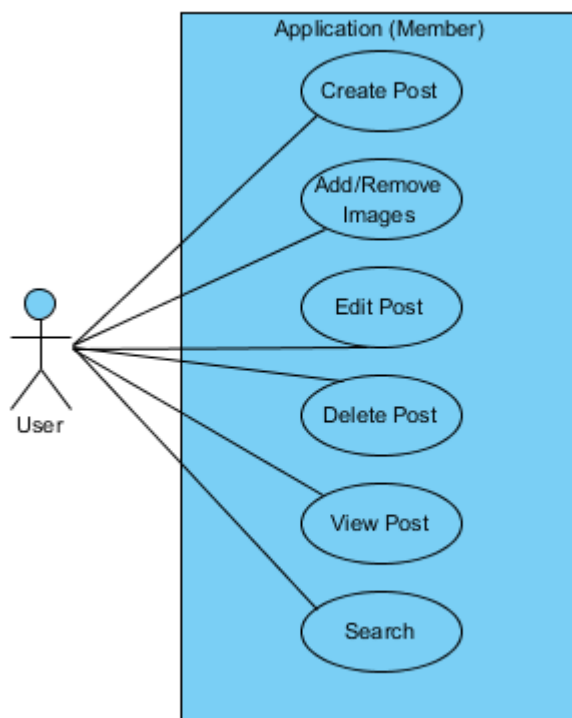
5 Design Documentation

5.1 Use Case Diagrams

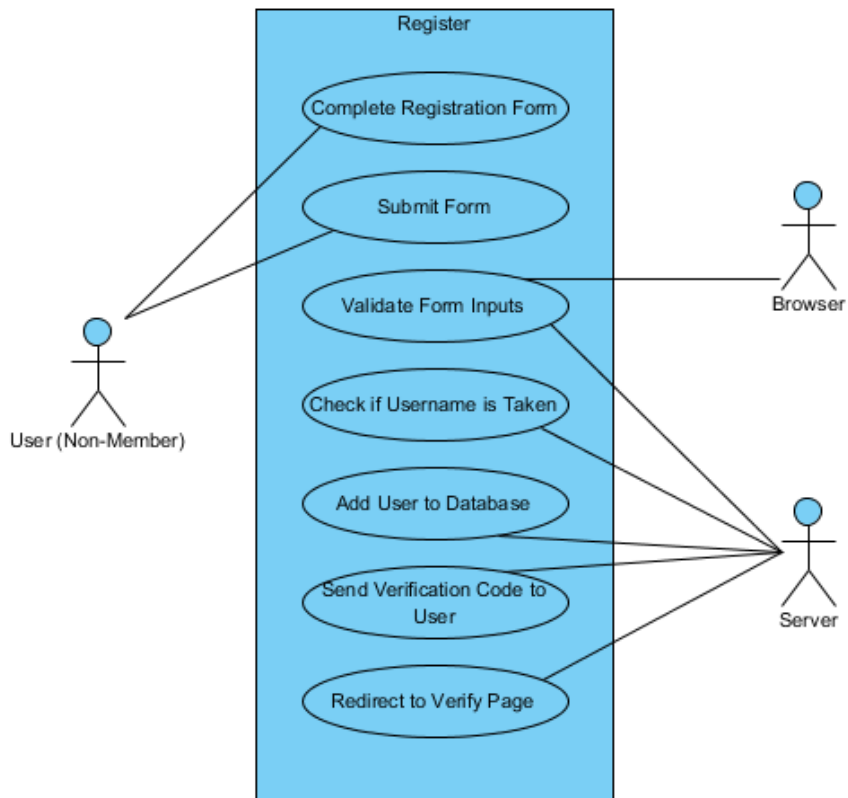
5.1.1 Application (Non-Member)



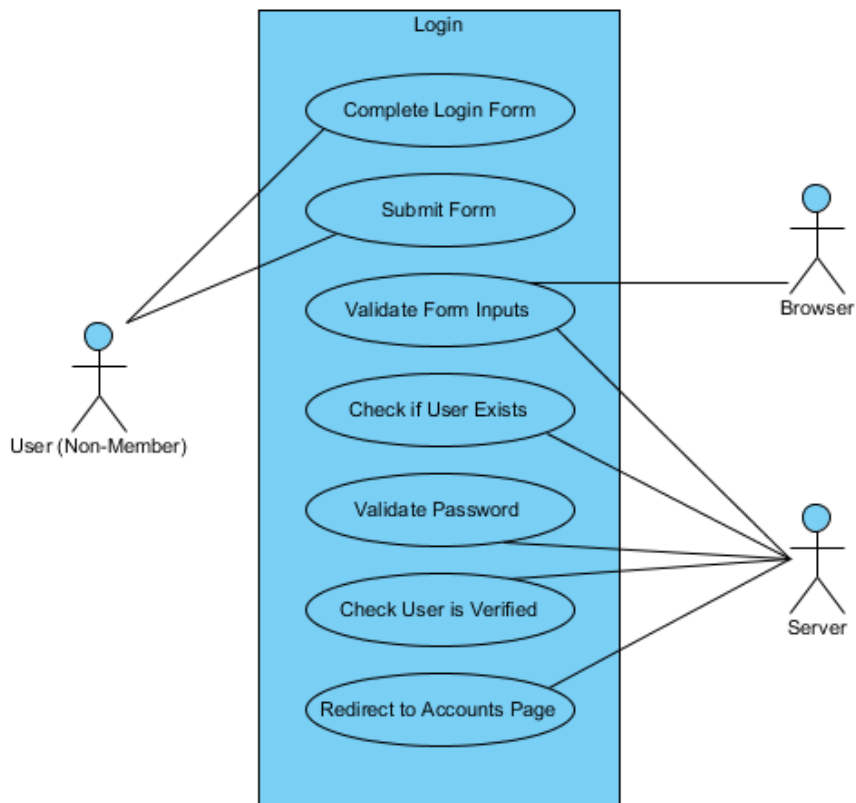
5.1.2 Application (Member)



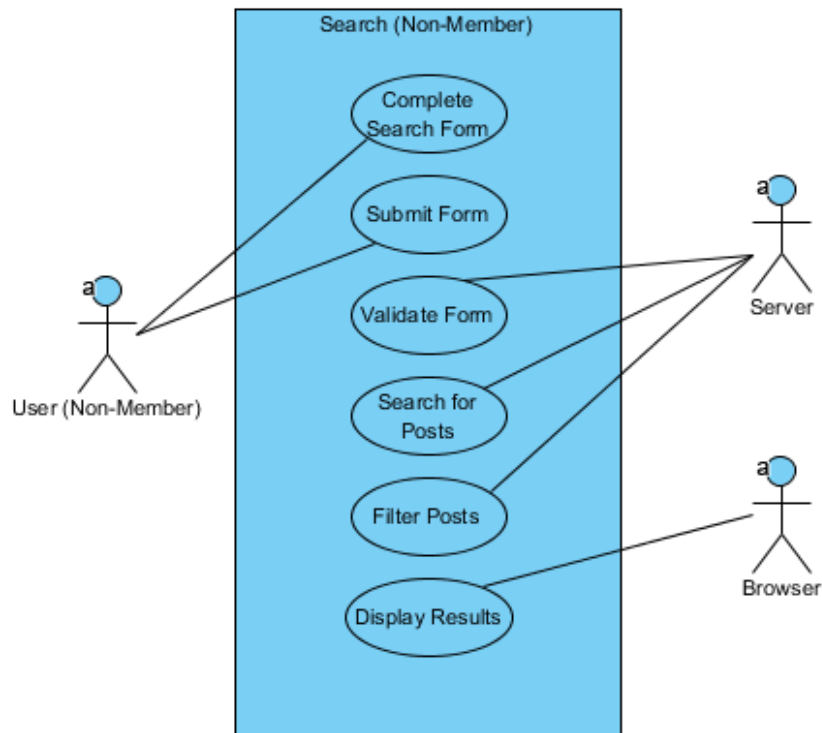
5.1.3 Register



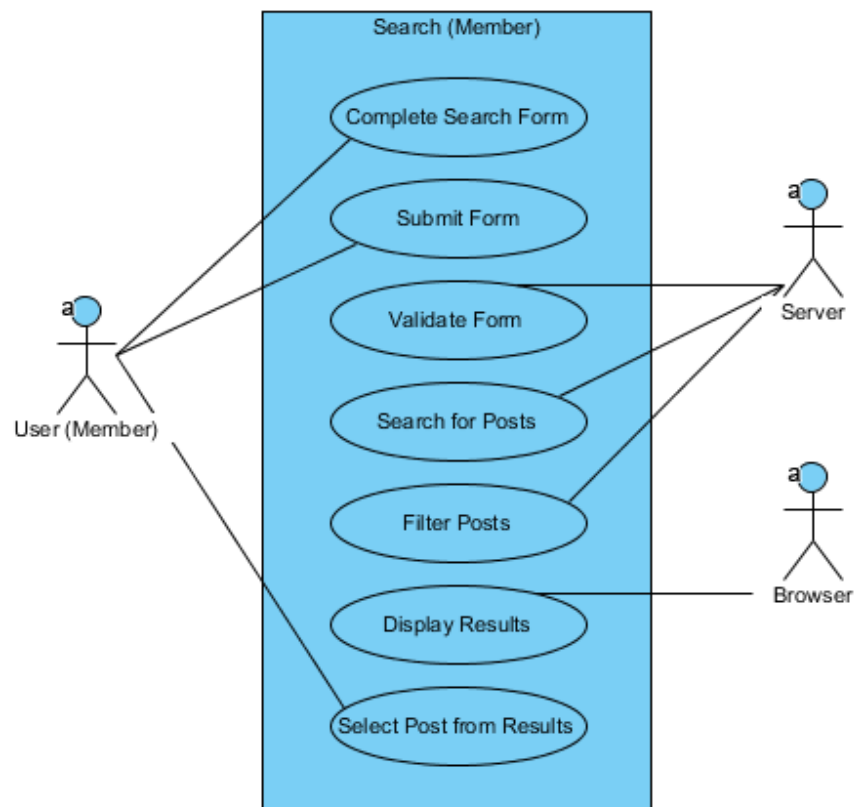
5.1.4 Login



5.1.5 Search (Non-Member)



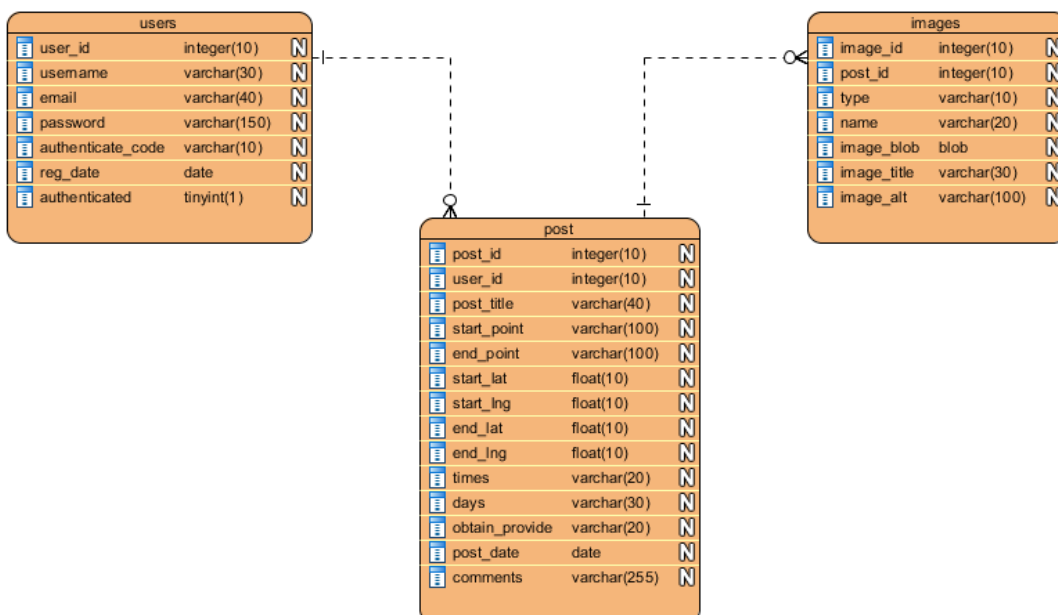
5.1.6 Search (Member)



5.1.7 Account



5.2 Database Schema (ERD)



5.3 List and Description of all Files

5.3.1 Main Pages

- account.php: User account page. Welcomes users and displays user's posts. User can add posts, edit posts, add images to posts and delete posts.
- addImage.php: Page that allows logged in users to add images to one of their posts.
- deletePost.php: Script that deletes a post from the database.
- editPost.php: Page that allows a logged in user to edit a post they have previously made.
- index.php: Home/landing page, features the login form.
- register.php: Sign-up/registration form. Allows a user to fill in a form and register with the application.
- search.php: Allows users to search for posts based on start/end location (taken from an embedded Google Map), time, days etc.
- searchResults.php: Gets results from search and sorts based on user's preferences, then displays on page.
- simpleCreatePost.php: Allows users to create a post without using JavaScript (No G.maps).
- simpleSearch.php: Allows users to perform a simple search without using JavaScript (No G.maps). Users with JS disabled will automatically be redirected here if they go to the search.php page.
- simpleSearchResults.php: Gets, sorts and displays results from a simple search.
- verify.php – Allows a user to type in an authentication code to verify their account. If an unauthenticated user tries to log in, they will be redirected here.
- viewPost.php – Allows a user to view the full details of a post and provides a link back to their search results, simple search results or account dependent upon which page directed them to viewPost.php.

5.3.2 Scripts and Includes

- addImageScript.php – Script that adds an image to the database.
- addPostScript.php – Script that adds a post to the database.
- captcha.php – Script that generates a captcha image.
- connect.php – Script to connect to the database.
- deleteImageScript – Script to delete an image from a post.
- footer.php – File that contains all code for the footer section. Included in all main pages.
- getImage.php – Script to get images associated with a post.
- getPostScript.php – Script to get all posts associated with a user.
- header.php – File that contains all code for the header section. This includes the logo and navigation. Included in all main pages/

- loginScript.php – Script to verify a user’s login details and check if their account has been verified.
- logout.php – Script to destroy all session variables and log the user out. Redirects to index.php.
- updatePostScript.php – Script that updates a user’s post based on the information posted via the editPost.php page.
- verifyScript.php – Script that verifies a user’s authentication code and either logs the user into the site or redirects them back to the verify.php page and passes an error message.

5.3.3 CSS

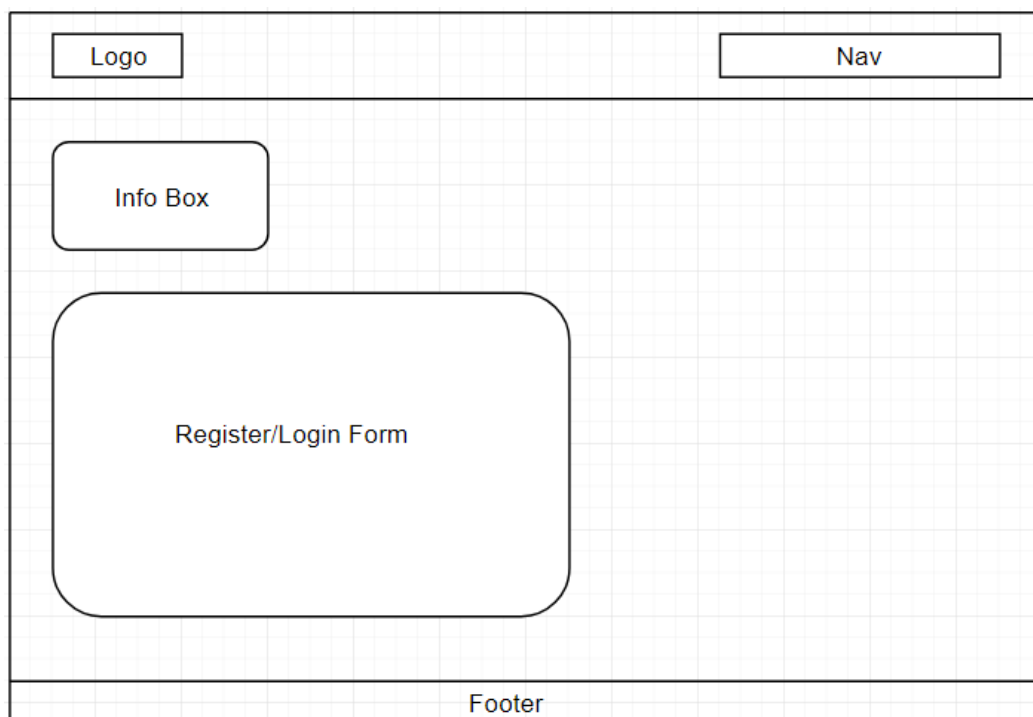
- styles.css – Custom style sheet. Used to set the font, background image, text-colour, border-styling, button styling etc.
- bootstrap.min.css – Bootstrap style sheet. Used to enable usage of Bootstrap predefined CSS classes.

5.3.5 Images

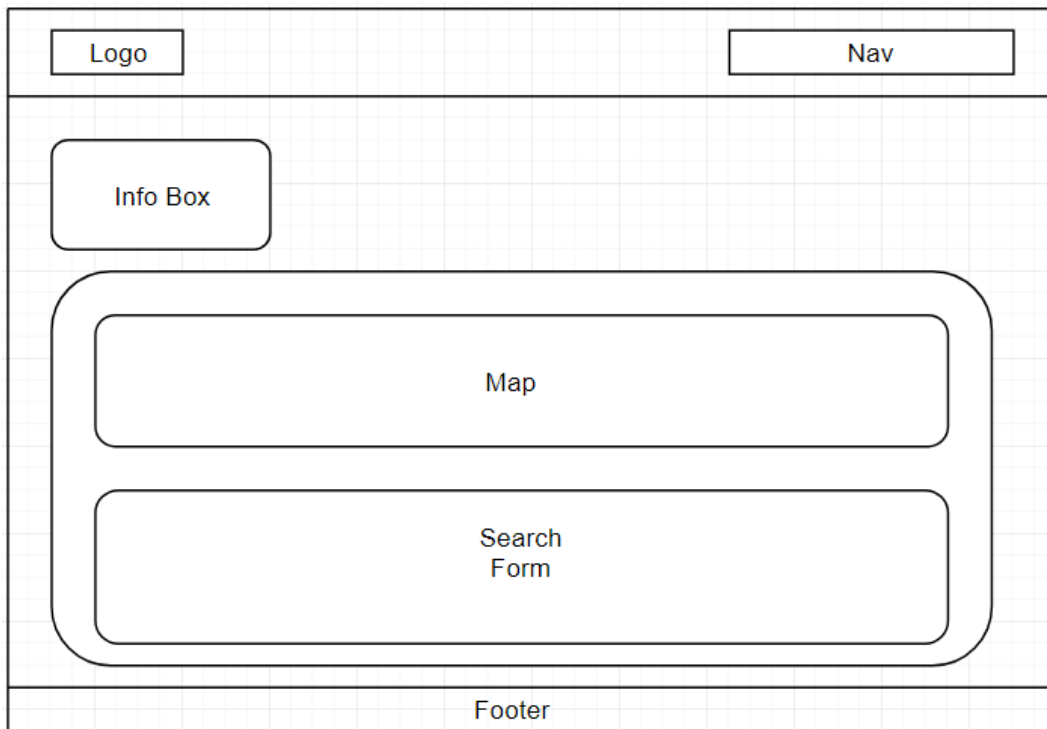
- bg-darkest.jpg – Background image tile. This is a small tile taken from a stock image, it is repeated on the background. There are other variations of this file in the “img” folder but this is the only image used on the website apart from the captcha image.
- captcha_background.png – Image used for the captcha background.

5.4 Wireframe Designs

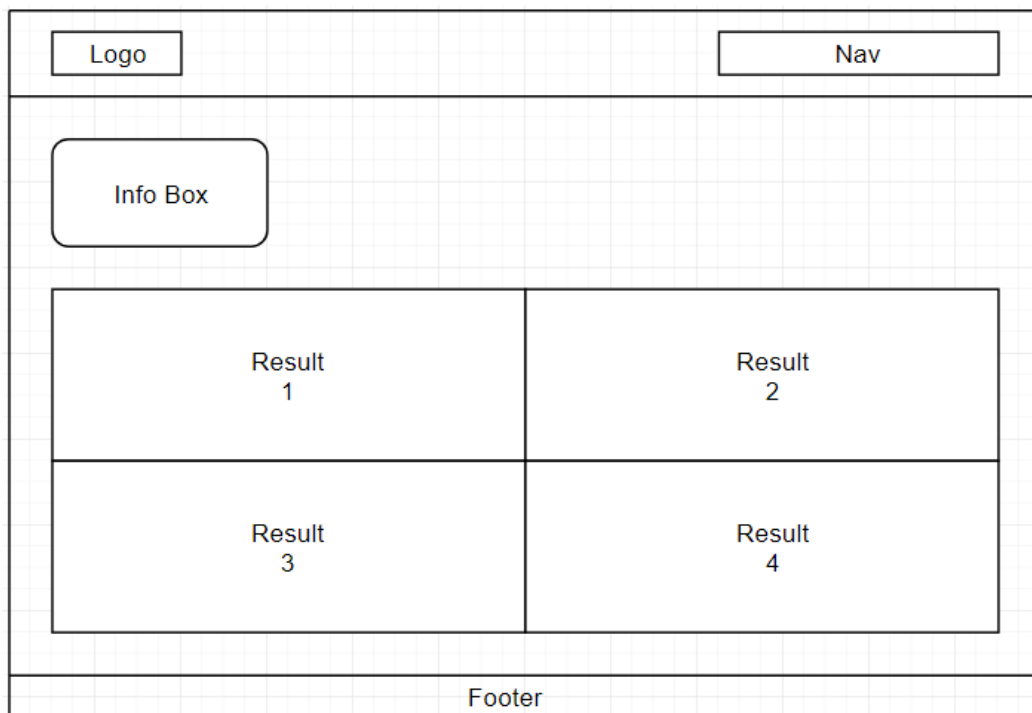
5.4.1 Register/Login Page



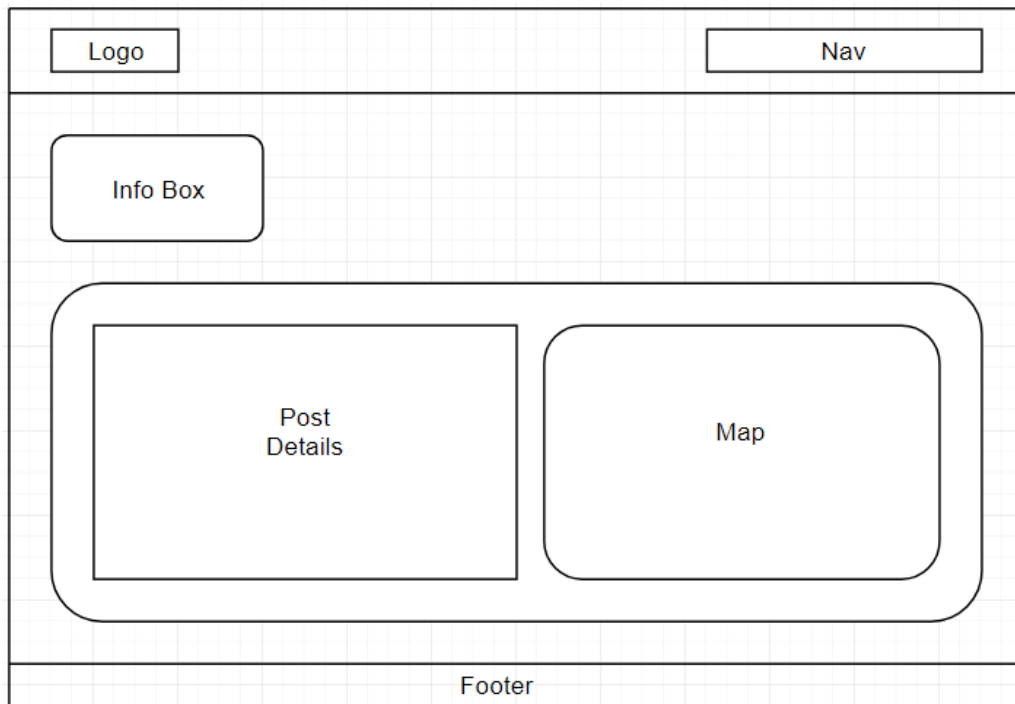
5.4.2 Search Page



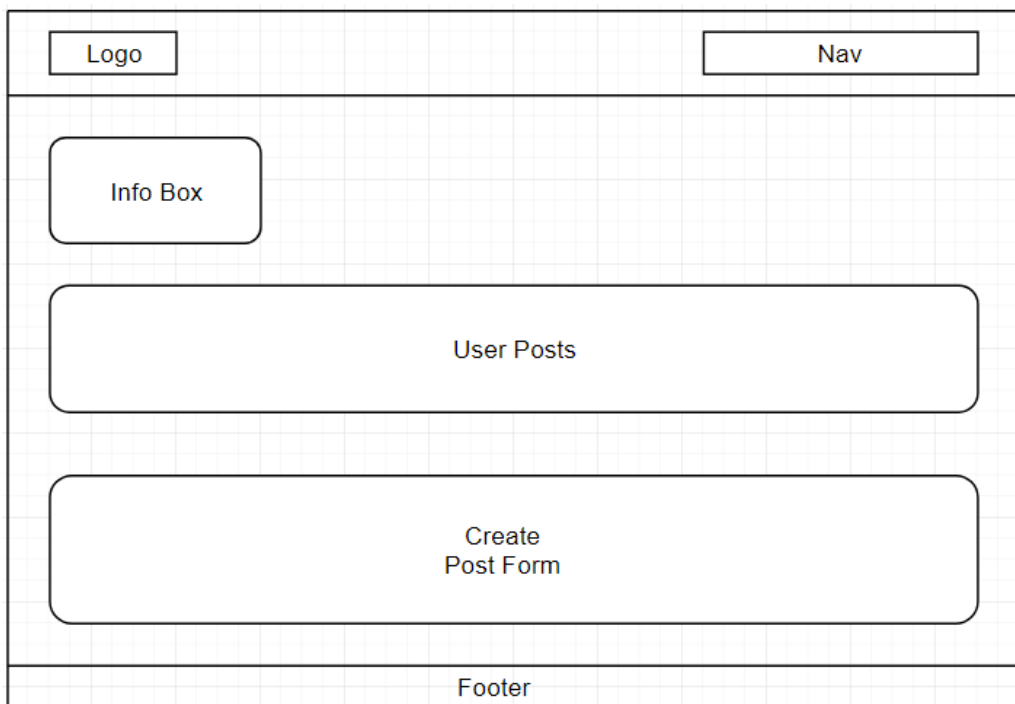
5.4.3 Search Results Page



5.4.4 View Post Page



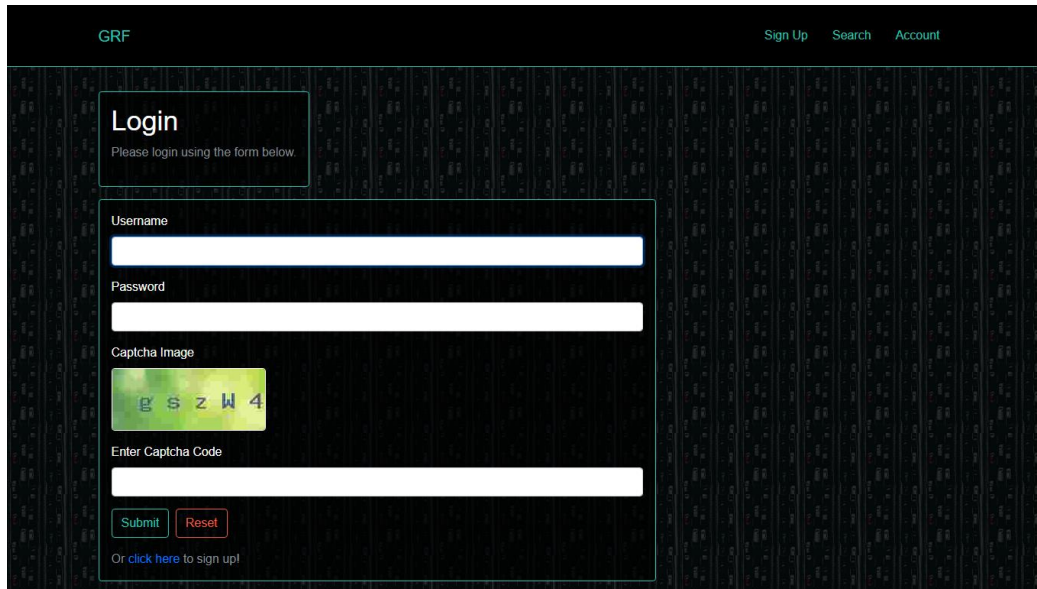
5.4.5 Account Page



5.5 Screenshots of Application

5.5.1 Index/Login Page

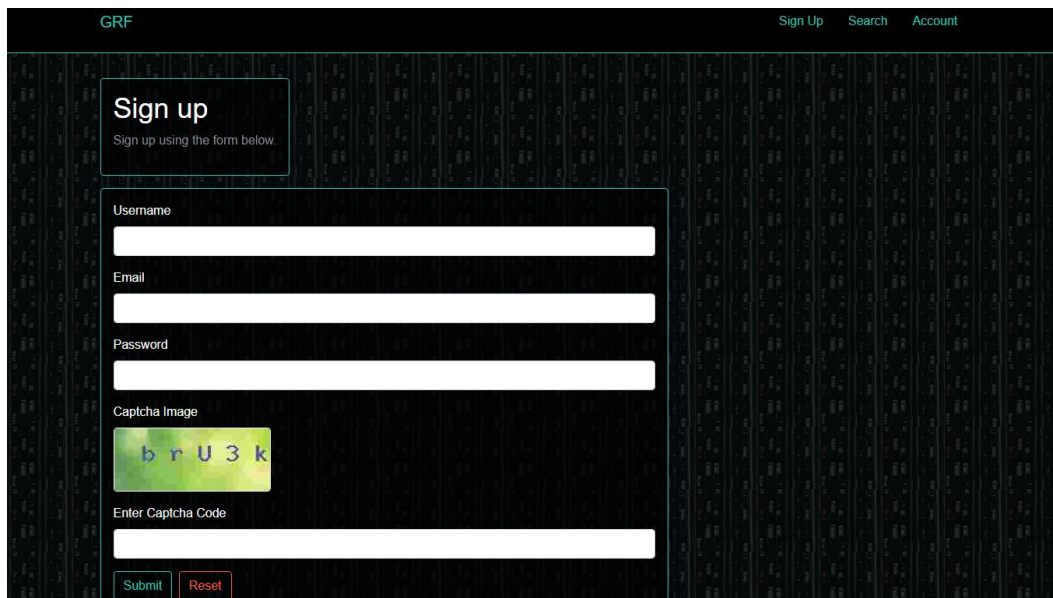
This page allows a user to login to a previously created account. User input is validated using HTML extensions and JavaScript validation checks that the username and password is not empty. A captcha image is provided, and the user must type the code into the form. This input is also validated using the HTML5 “required” extension.



The screenshot shows the Login page of the GRF application. The page has a dark background with a repeating pattern of small, colorful characters. At the top, there is a navigation bar with the text "GRF" on the left and "Sign Up", "Search", and "Account" on the right. The main content area features a "Login" form. The form has a title "Login" and a subtitle "Please login using the form below." Below the subtitle, there are four input fields: "Username", "Password", "Captcha Image", and "Enter Captcha Code". The "Captcha Image" field displays a green rectangular image with the text "g s z W 4". Below the "Enter Captcha Code" field, there are two buttons: "Submit" and "Reset". At the bottom of the form, there is a link that says "Or click [here](#) to sign up!"

5.5.2 Registration Page

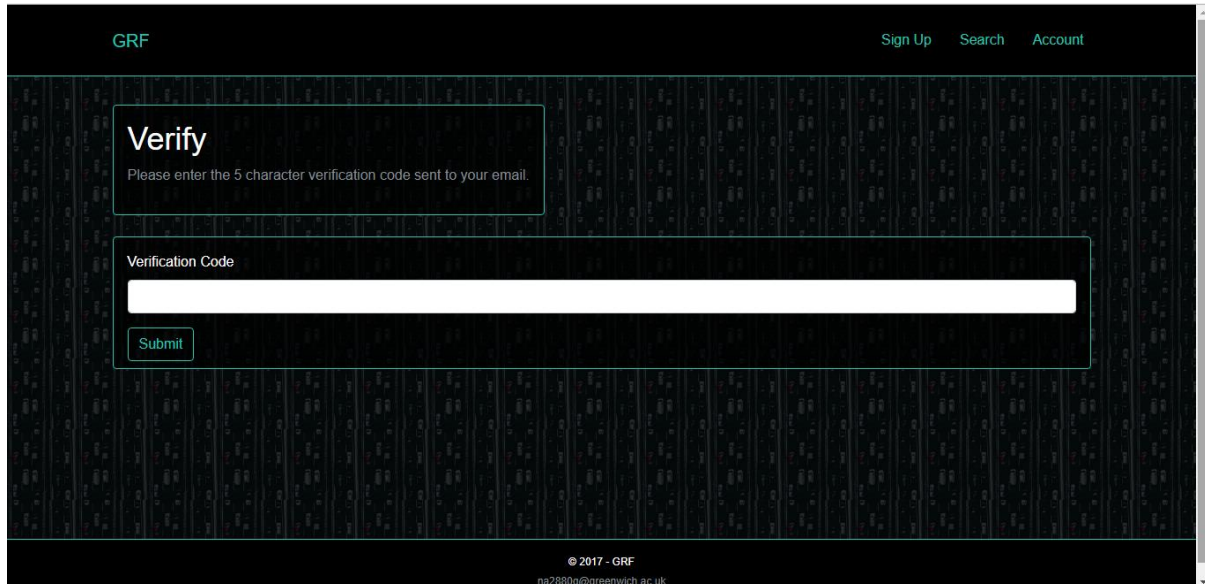
This page allows a user to sign up using a username, email and password. Inputs are validated using HTML5 extensions and username and password are validated by JavaScript to ensure both fields are at least 5 characters long. A captcha image is provided to ensure the user is a human.



The screenshot shows the Sign up page of the GRF application. The page has a dark background with a repeating pattern of small, colorful characters. At the top, there is a navigation bar with the text "GRF" on the left and "Sign Up", "Search", and "Account" on the right. The main content area features a "Sign up" form. The form has a title "Sign up" and a subtitle "Sign up using the form below." Below the subtitle, there are four input fields: "Username", "Email", "Password", and "Captcha Image". The "Captcha Image" field displays a green rectangular image with the text "b r U 3 k". Below the "Captcha Image" field, there is an input field labeled "Enter Captcha Code". At the bottom of the form, there are two buttons: "Submit" and "Reset".

5.5.3 Verify Account Page

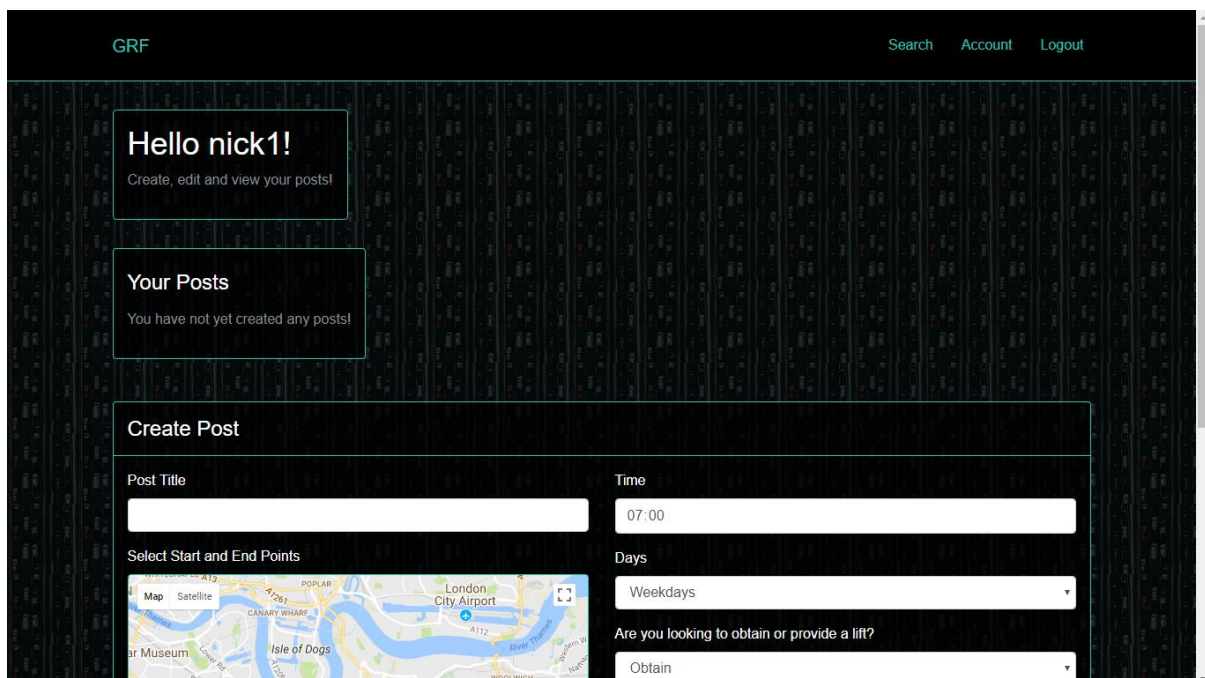
This page prompts a user to enter the authentication code sent to them via email. If a user who has not authenticated their account tried to login they will be redirected here. The value entered into this form is then submitted to a script that checks the code and either validates the account and logs the user in, or warns the user the code entered is incorrect.



The screenshot shows the 'Verify' page of the GRF application. The page has a dark background with a subtle pattern of small, colorful text. At the top, the 'GRF' logo is on the left, and 'Sign Up', 'Search', and 'Account' links are on the right. The main content area is a light gray box with a rounded border. It contains the title 'Verify' in a large, bold font, followed by the instruction 'Please enter the 5 character verification code sent to your email.' Below this is a text input field labeled 'Verification Code' and a 'Submit' button. At the bottom of the page, there is a footer with the text '© 2017 - GRF' and 'na2880g@greenwich.ac.uk'.

5.5.4 Account Page (Without Posts)

This is the default page the user is taken to when they first validate their account. They are welcomed with a greeting message and are informed that no posts have been created yet. The user can then use the create post form to create a new post. Upon submission the post is added, and the user is redirected back to the accounts page and will be able to see the newly created post as shown in the Account Page (With Posts) screenshot (5.5.5).



The screenshot shows the 'Account' page of the GRF application. The page has a dark background with a subtle pattern of small, colorful text. At the top, the 'GRF' logo is on the left, and 'Search', 'Account', and 'Logout' links are on the right. The main content area is a light gray box with a rounded border. It contains a greeting message 'Hello nick!' followed by the instruction 'Create, edit and view your posts!'. Below this is a section titled 'Your Posts' with the message 'You have not yet created any posts!'. At the bottom is a 'Create Post' form. The form has two columns. The left column contains a 'Post Title' text input field, a 'Select Start and End Points' section with a map of London, and a 'Map' button. The right column contains a 'Time' text input field with the value '07:00', a 'Days' dropdown menu with the value 'Weekdays', and a section titled 'Are you looking to obtain or provide a lift?' with a dropdown menu showing 'Obtain'.

Create Post

Post Title

Time

Select Start and End Points

Start Point

End Point

Days

Are you looking to obtain or provide a lift?

Comments

© 2017 - GRF

5.5.5 Account Page (With Posts)

This page is displayed when a user has added at least one post. It has all the features mentioned above plus the user can add images to, edit, delete and view their post.

GRF [Search](#) [Account](#) [Logout](#)

Hello nick1!
Create, edit and view your posts!

Your Posts

Post ID	Post Title	Start Point	End Point	Time	Days	Obtain or Provide	Date Posted	Images	Edit	Delete	View
58	New Post	Prince of Wales Rd, Blackheath, London SE3, UK	Branham House, Boyard Rd, Woolwich, London SE18 6UL, UK	07:00	Weekdays	Obtain	2017-11-30	<input type="button" value="Add"/>	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>	<input type="button" value="View"/>

Create Post

Post Title Time

5.5.6 Edit Post Page

This page allows a user to edit a previously created post. The information of a specific post is pulled from the database and the form is populated with that information. The User can then make changes to the post and hit the save button. This is also the page where users can delete images from a post.

Once the user has pressed the save button the post is updated, and the user is redirected back to the accounts page. There is also a button to cancel the edit.

GRF Search Account Logout

Edit Post

Post Title
New Post

Time
07:00

Days
Weekdays

Are you looking to obtain or provide a lift?
Obtain

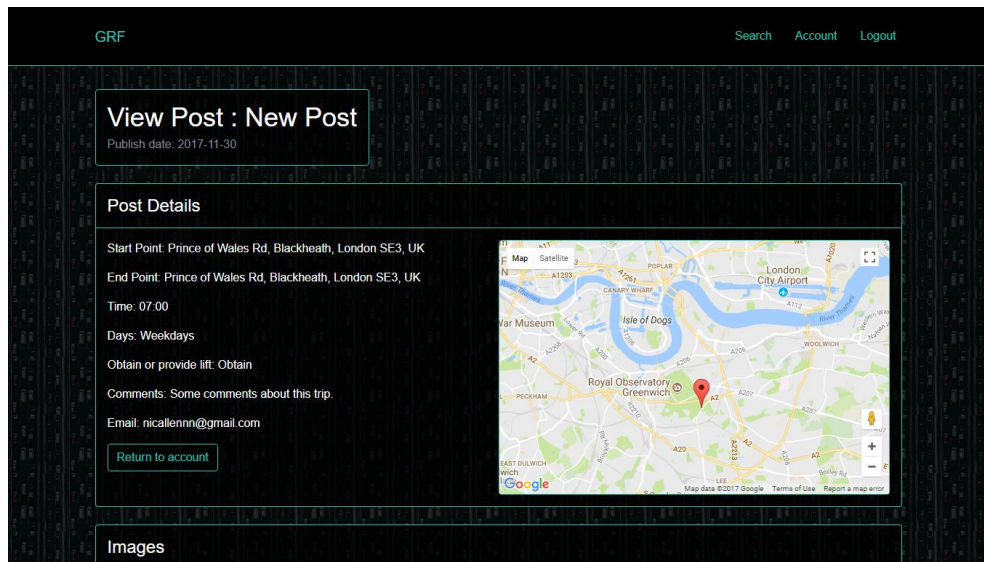
Comments
Some comments about this trip.

Select Start and End Points

Map Satellite
London City Airport
Isle of Dogs
Royal Observatory Greenwich
PECKHAM
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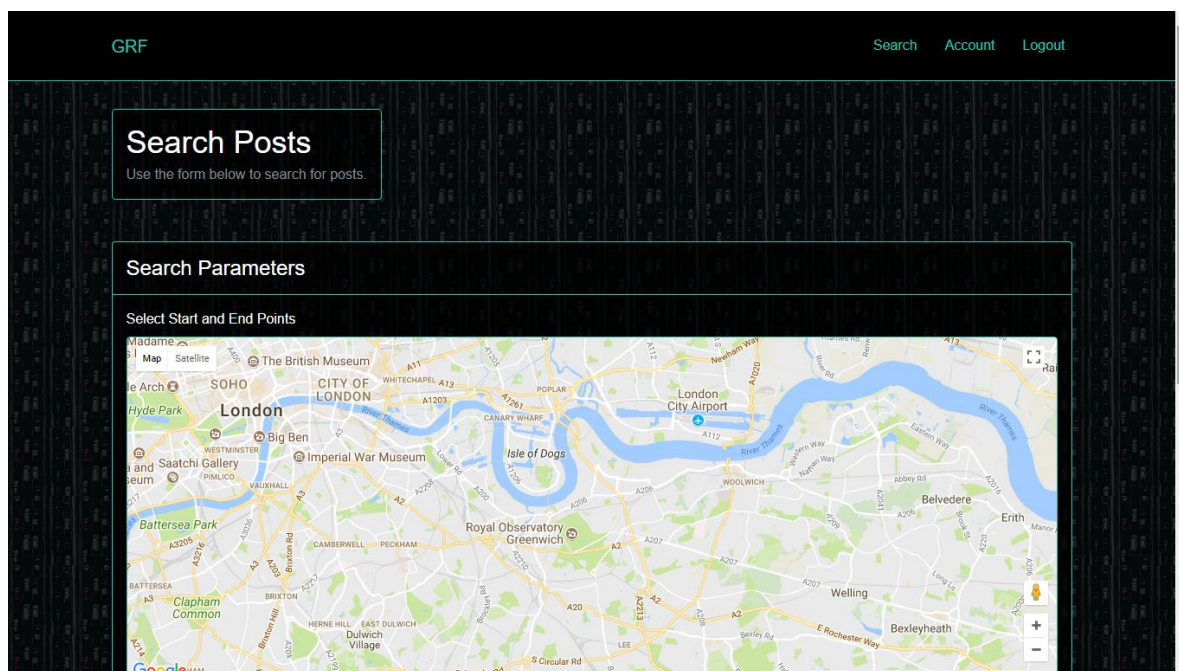
5.5.8 View Post Page (From Account)

This page allows a user to view a post they have uploaded. The information related to a specific post will be displayed along with a map showing the start and end points. If the user has come from the accounts page, a button will be displayed to take the user back to accounts. If the user has come from a search result page the button will take the user back to their search results as shown in View Post Page (From Search Results) (5.5.11).



5.5.9 Search Page

This page allows a user to enter information regarding a journey into a form. The start and end points are taken from the user clicking on an embedded Google Map. The user can also define filters for search and choose how the results will be ordered.



Map data ©2017 Google Terms of Use Report a map error

Clear Markers

Start Point

Max Distance from Start Point (miles)

5

End Point

Max Distance from End Point (miles)

5

Between Times

07:00 08:00

Sort Results via Distance to

Start

Days

Weekdays

Include Posts without Images

Yes

Days

Obtain

Submit Reset

5.5.10 Search Results Page

This page displays the results from a search. The information for the search is passed through the form in the search page and all sorting, filtering etc. is carried out before displaying the results in a paginated, tiled format. The user then has the option to view the post, if the user is not logged in they will be redirected to the login page and an error message will be displayed.

GRF Search Account Logout

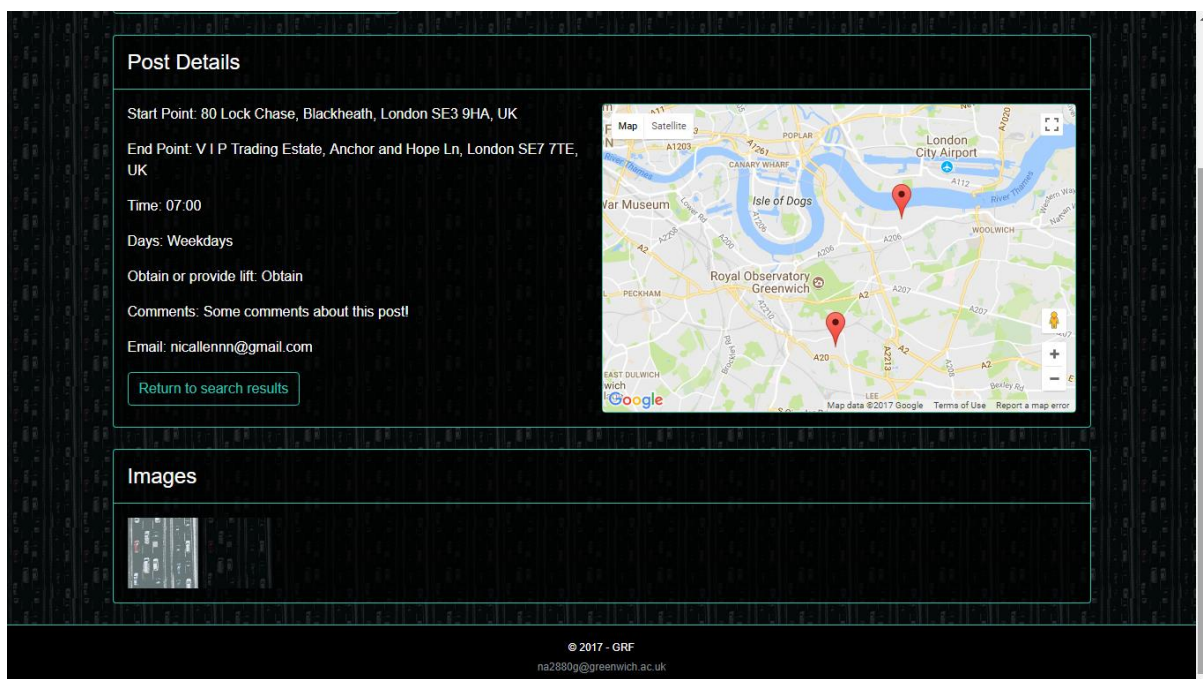
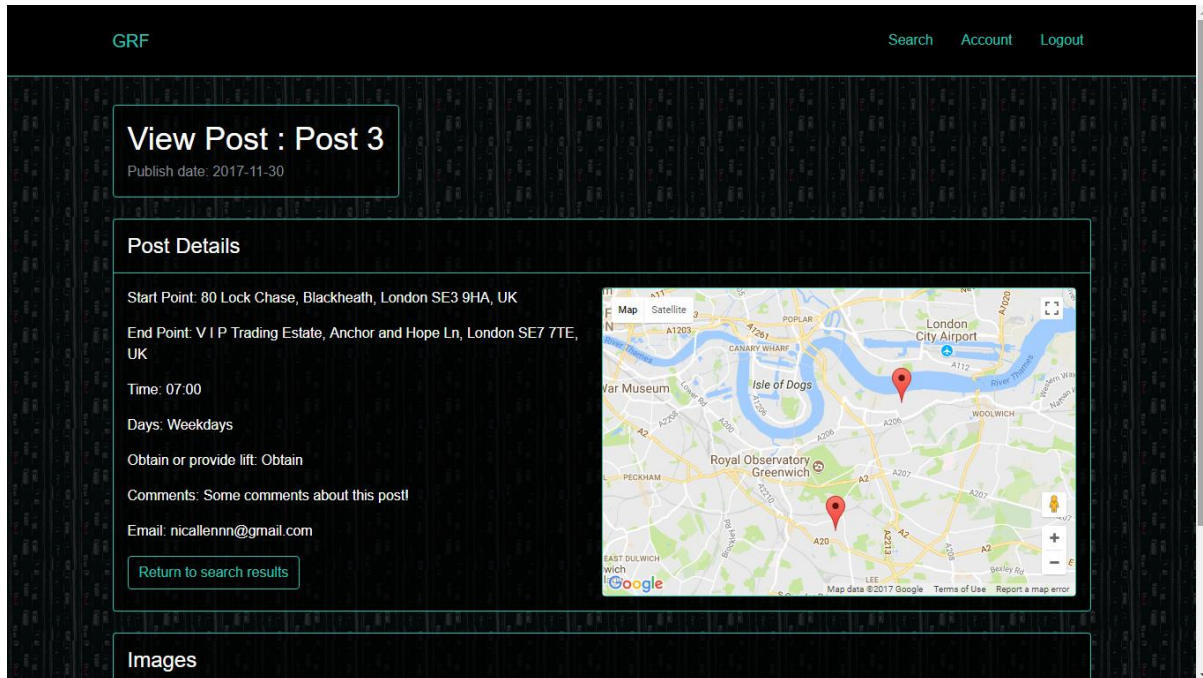
Search Results

Please see the results of your search below.

<p>Post Title: Title 2</p> <p>Start Point: 6 The Orchard, Blackheath, London SE3 0QS, UK</p> <p>End Point: 20 Barnfield Rd, London SE18 3TX, UK</p> <p>Time: 07:00</p> <p>Day/s: Weekdays</p> <p>Obtain or provide lift: Obtain</p> <p>View</p>	<p>Post Title: Post 3</p> <p>Start Point: 80 Lock Chase, Blackheath, London SE3 9HA, UK</p> <p>End Point: V I P Trading Estate, Anchor and Hope Ln, London SE7 7TE, UK</p> <p>Time: 07:00</p> <p>Day/s: Weekdays</p> <p>Obtain or provide lift: Obtain</p> <p>View</p>
<p>Post Title: New Post</p> <p>Start Point: Prince of Wales Rd, Blackheath, London SE3, UK</p> <p>End Point: Prince of Wales Rd, Blackheath, London SE3, UK</p> <p>Time: 07:00</p>	<p>Post Title: Post 4</p> <p>Start Point: 27 Eastern Rd, London SE4 1LD, UK</p> <p>End Point: 96 Greenvale Rd, London SE9 1PF, UK</p> <p>Time: 07:00</p>

5.5.11 View Post Page (From Search Results)

This is the same page described in the View Post Page above. The only difference is if the user had come to this page from the search results page, the return button will take the user back to the search results.



5.5.12 Simple Search Page (If JS is Disabled)

This page will allow a user without to perform a search without JavaScript (No Google Map). The user can enter information about their journey into the form however the form will only find exact matches. The user is warned of this and advised to only enter part of a postcode for start and end

points. The other search filters are carried out as normal, however the results are not ordered in any specific way (i.e. by distance to start/end).

The screenshot shows the 'Simple Search' page of the GRF website. The page has a dark blue header with the 'GRF' logo on the left and 'Search', 'Account', and 'Logout' links on the right. The main content area has a light blue background with a grid pattern. A red warning message at the top states 'Javascript is not enabled in your browser!'. Below this, a message explains that enabling Javascript allows for more search parameters, but a simple search form is available. A note specifies that the simple search only finds results with an exact postcode match. The 'Search Parameters' section contains several input fields: 'Start Postcode' and 'End Postcode' (text boxes), 'Days' (a dropdown menu with 'Obtain' selected), 'Between Times' (two text boxes for '07:00' and '08:00'), and 'Include Posts without Images' (a dropdown menu with 'Yes' selected). There is also a 'Days' dropdown menu with 'Weekdays' selected. At the bottom of the form are 'Submit' and 'Reset' buttons.

5.5.13 Simple Search Results Page

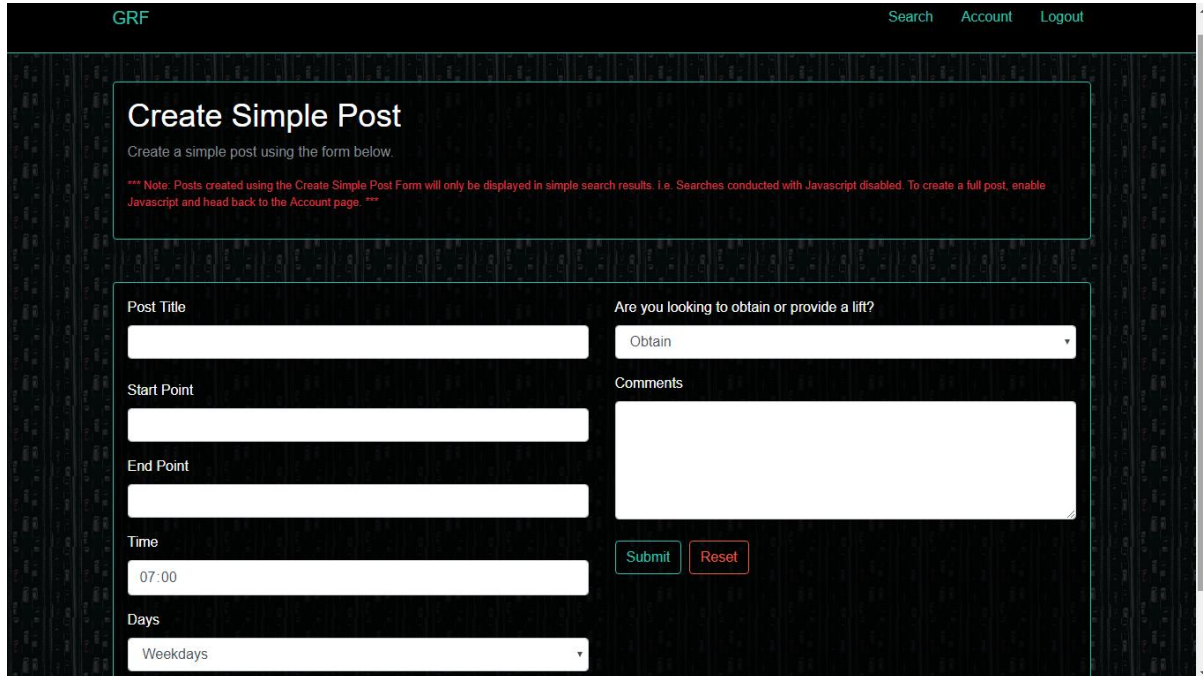
This page displays the results of a simple search. It looks the same as the main search results page.

The screenshot shows the 'Search Results' page of the GRF website. The page has a dark blue header with the 'GRF' logo on the left and 'Search', 'Account', and 'Logout' links on the right. The main content area has a light blue background with a grid pattern. A red box at the top says 'Search Results' and 'Please see the results of your search below.' Below this, there are four search results displayed in a 2x2 grid. Each result shows the 'Post Title', 'Start Point', 'End Point', 'Time', 'Day/s', and 'Obtain or provide lift' button. The results are as follows:

Post Title	Start Point	End Point	Time	Day/s	Obtain or provide lift
New Post	Prince of Wales Rd, Blackheath, London SE3, UK	Prince of Wales Rd, Blackheath, London SE3, UK	07:00	Weekdays	Obtain
Title 2	6 The Orchard, Blackheath, London SE3 0QS, UK	20 Barnfield Rd, London SE18 3TX, UK	07:00	Weekdays	Obtain
Post 3	80 Lock Chase, Blackheath, London SE3 9HA, UK	V I P Trading Estate, Anchor and Hope Ln, London SE7 7TE, UK	07:00	Weekdays	Obtain
Post 4	27 Eastern Rd, London SE4 1LD, UK	96 Greenvale Rd, London SE9 1PF, UK	07:00	Weekdays	Obtain

5.5.14 Simple Create Page (If JS is Disabled)

This page allows a user to create a post without using JavaScript (No Google Map). The user can manually enter start and end points however they are warned that their post will only be discovered in searches by other users with JavaScript disabled (no latitude and longitude values are stored).



The screenshot shows a web application interface with a dark background and a grid pattern. At the top, there is a navigation bar with the text 'GRF' on the left and 'Search', 'Account', and 'Logout' on the right. The main content area is titled 'Create Simple Post' in a large, bold font. Below the title, there is a subtitle 'Create a simple post using the form below.' and a red warning message: '*** Note: Posts created using the Create Simple Post Form will only be displayed in simple search results. i.e. Searches conducted with Javascript disabled. To create a full post, enable Javascript and head back to the Account page. ***'. The form itself is divided into two columns. The left column contains input fields for 'Post Title', 'Start Point', 'End Point', 'Time' (with a value of '07:00'), and 'Days' (with a dropdown menu showing 'Weekdays'). The right column contains a dropdown menu for 'Are you looking to obtain or provide a lift?' with the value 'Obtain', a large text area for 'Comments', and two buttons: 'Submit' and 'Reset'.

6 Borrowed Material

6.1 Frameworks Used

The final web application developed to fulfil this coursework made use of Twitter Bootstrap 4.0. As the framework offers quick styling of webpages through its predefined CSS and JS classes, making use of the framework allowed me as the developer to spend more time working on the backend functionality and requirements, while still producing a well styled and enticing application.

6.2 Code Sources

Below is a list of all the code borrowed for the development of the application.

CODE ADAPTED FROM GOOGLE MAPS API - FINDING LOCATIONS WITH SQL

Found at: <https://developers.google.com/maps/solutions/store-locator/clothing-store-locator>

CODE ADAPTED FROM STACK OVERFLOW - HOW TO REDIRECT IF JAVASCRIPT IS DISABLED

Found at: <https://stackoverflow.com/questions/2489376/how-to-redirect-if-javascript-is-disabled>

CODE ADAPTED STACK OVERFLOW - LIKE OPERATOR WITH \$VARIABLE

Found at: <https://stackoverflow.com/questions/1843640/like-operator-with-variable>

CODE ADAPTED FROM WEB APPLICATIONS COURSE NOTES - GOOGLE MAP
INTEGRATION

Found at: <http://stuweb.cms.gre.ac.uk/~ha07/web/JavaScript/GoogleMap.html>

CODE ADAPTED FROM WEB APPLICATIONS COURSE NOTES - UPLOADING FILES TO
MYSQL

Found at: <http://stuweb.cms.gre.ac.uk/~ha07/web/PHP/imageUpload.html>

CODE ADAPTED FROM W3SCHOOLS - HMTL FORM ELEMENTS

Found at: https://www.w3schools.com/html/html_form_elements.asp

CODE ADAPTED FROM W3SCHOOLS - HTML5 INPUT TYPE HIDDEN

Found at: https://www.w3schools.com/tags/tryit.asp?filename=tryhtml5_input_type_hidden

CODE ADAPTED FROM W3SCHOOLS - PHP INSERT DATA INTO MYSQL

Found at: https://www.w3schools.com/php/php_mysql_insert.asp

CODE ADAPTED FROM W3SCHOOLS - PHP MAIL() FUNCTION

Found at: https://www.w3schools.com/php/func_mail_mail.asp

CODE ADAPTED FROM W3SCHOOLS - PHP SETCOOKIE FUNCTION

Found at: https://www.w3schools.com/php/func_http_setcookie.asp

CODE ADAPTED FROM W3SCHOOLS - PHP SUPERGLOBALS

Found at: https://www.w3schools.com/php/php_superglobals.asp

CODE ADAPTED FROM W3SCHOOLS - SQL UPDATE STATEMENT

Found at: https://www.w3schools.com/sql/sql_update.asp