Technical Design

CS39930 – Web Based Major Project

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# Introduction

The web-based project that I have decided to build is a meal planner that allows the user to look through recipes created by themselves, their close friends and family to add to this planner. There will also be an option to create a shopping list from the recipes selected in the weekly planner.

The customers/users of this site are my close friends and family to allow them to share recipes efficiently and in a clear format as well as making them easily accessible. The customer also wants to ensure that meal planning and shopping trips are efficient.

The people that want this to be built will be the users/customers as it is for people who are interested in cooking as well as wanting to share the recipes with their friends.

# Structure And Navigation

Figure 1 shows the structure of the website and how the pages are linked together.

A diagram of a website

Description automatically generated

Figure 1. Site navigation diagram.

## Log in/ Create Account

To log in, both users will have to use the landing page and then navigate to the login/register page. From here they are able to create an account or log in by filling in the forms provided.

A green rectangular object with black text

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Figure 2. Login/Create Account

## Edit Recipe

To edit a recipe the user will have to navigate to “My Recipes” to be able to see a list of their recipes in order to edit them. Users are only allowed to edit their own recipes.

A diagram of a recipe

Description automatically generated

Figure 3. Edit Recipe.

## Add Recipe

To add a recipe users can use the “Recipes” page or the “My Recipes” page and use the “Add Recipe” button to create a new recipe. From there they can fill in the form to create a new recipe.

A diagram of a recipe

Description automatically generated

Figure 4. Add Recipe.

## Remove Recipe

Like with editing recipes, users can only edit recipes they have made so they will have to go through the “My Recipes” page to edit their recipes. This will bring them to a filled in form to allow them to make changes as needed.

A diagram of a website

Description automatically generated

Figure 5. Remove Recipe.

## Make Shopping List

To “make” the shopping list users will have to have something in their planner otherwise their shopping list will be empty. The list is generated automatically from the planner table.

A diagram of a website

Description automatically generated

Figure 6. Make Shopping List.

## Remove From Planner

To remove from the planner users need to get to the home page where the planner is. There are buttons next to the items on the planner to remove recipes in the event that the user may not need to make a meal that day.

A diagram of a website

Description automatically generated

Figure 7. Remove From Planner.

## Add To Planner

To add to the planner users need to go to a selected recipe and use the dropdown menu to select which day they want to put the recipe into.

A diagram of a recipe

Description automatically generated

Figure 8. Add To Planner.

## Log Out

To log out, a regular user will have to go to the account page and press the log out button. This will immediately log out the user and return them to the login page.

A diagram of a website

Description automatically generated

Figure 9. Log Out.

## Delete User Account (Admin And Regular User)

To delete an account regular users will need to go to their account page and press the “delete account” button. To remove a user as an admin, the admin would need to go to the admin page and use the “remove user” button to remove the selected user.

A diagram of a website

Description automatically generated

Figure 10. Delete User Account.

## Browse Recipes

To browse recipes users will need to navigate to the “recipes” page where they will see all recipes as well as options to search and sort recipes.

A diagram of a website

Description automatically generated

Figure 11. Browse recipes.

## Change User Password (Admin And Regular User)

To change a password, users will have to go to the “account” page and change their password and confirm their choice. Admins can change user passwords in the admin page.

A diagram of a website

Description automatically generated

Figure 12. Change Password.

## View Recipe

To view a recipe, users need to navigate to one of the two recipe pages and then select the recipe they want to view. When on the selected recipe page, they will be able to see their desired recipe.

A diagram of a recipe

Description automatically generated

Figure 13. View Recipe.

# Component Structure

## Landing Page

|  |  |
| --- | --- |
| Page ID | 1. Landing Page |
| Info On Page | Shows some information about the site and how to register. |
| Page Generation Details | The page has all of its information generated in html with links to get to the login page. |
| Links To Other Pages | This page links to 2. Login Page. |
| Other Things Worth Noting | None |

Based on previous feedback of the original prototype, more visual elements have been added to the site to make it more appealing to users. The main change is the header with the background of a food platter. This helps to show that this site is for food related information and services. Another change is the “Log in / Register” tab in the navigation bar which has been made to fit on one line to look neater.

A screenshot of a recipe

Description automatically generated

Figure 14. Landing page 2.0.

## Login Page

|  |  |
| --- | --- |
| Page ID | 2. Login Page |
| Info On Page | This page has a form for logging in and registering. |
| Page Generation Details | The page uses html form elements to generate the forms. Once the data is filled in, it is checked with form validation in JavaScript then checked again server side in Php. |
| Links To Other Pages | This page links to the landing page and to the home page/admin page depending on the user type if the credentials that are given are correct. |
| Other Things Worth Noting | None |

To help users understand what some of the fields are for, a clickable question mark has been added, and if clicked a popup appears to tell users what the key is for and how they can get one.

A screenshot of a login form

Description automatically generated

Figure 15. Login / register page 2.0.

A screenshot of a computer

Description automatically generated

Figure 16. popup message to tell users what the key is and how they can obtain one.

## Home Page

|  |  |
| --- | --- |
| Page ID | 3. Home Page |
| Info On Page | The home page has an individual planner for each user that they can add to, remove and edit. |
| Page Generation Details | This page generates a table for the logged in user from a database that contains a table for users and their planner. The recipes come from a recipe table that has all of the recipes in it. |
| Links To Other Pages | This page links to 5. My Recipes, 6. Recipes, 7. Shopping List and 8. Account. |
| Other Things Worth Noting | This page is individual to each user and is generated on loading the page once the user has logged in. |

The planner has changed from the previous design to cater more to the use cases. There is now a button on each row of the planner to empty out the meal for a certain day for users that don’t plan on making something that day.

A screenshot of a grocery list

Description automatically generated

Figure 17. Planner page 2.0.

## Admin Page

|  |  |
| --- | --- |
| Page ID | 4. Admin Page |
| Info On Page | This page will contain all of the users' usernames and passwords as well as a way to change the password or remove the user entirely. |
| Page Generation Details | This page will get all of the users and their passwords from the users table and the password table and then print them all out into a table. |
| Links To Other Pages | This page is only accessible under the admin account. The admin only has access to this page to change user information. Admins can then log out to get back to the login page. |
| Other Things Worth Noting | None |

A log out button has been added to the admin page to allow administrators to log out. Each of the buttons that are used to delete or remove anything on the site will have a bin symbol in it that is provided by Google Material Icons (Google, 2024).

A screenshot of a log out

Description automatically generated

Figure 18. Admin page 2.0.

## My Recipe

|  |  |
| --- | --- |
| Page ID | 5. My Recipes |
| Info On Page | This page will display all of the recipes made by a specific user so they can edit or delete them. These are displayed in a table. |
| Page Generation Details | This page generates a table of all of the recipes that the logged in user created. A query will be used to search through the recipes table and return all of the recipes made by that user. |
| Links To Other Pages | This page links to 6. Recipes, 7. Shopping List, 8. Account as they are all on the navigation bar. It also links to 9. Edit recipe, 10. Selected Recipe and 11. New Recipe. |
| Other Things Worth Noting | The recipes are displayed in a table to save space and make them easy to find and change. The user who made the recipes do not need the images to know what the recipe is as they are the ones who made them. |

The “My Recipes” page how has buttons to search and sort recipes. Each of the buttons will use Google Material Icons to have a bin and a pencil symbol to show what can be edited and deleted (Google, 2024).

A screenshot of a recipe form

Description automatically generated

Figure 19. My Recipes 2.0.

## Recipes

|  |  |
| --- | --- |
| Page ID | 6. Recipes |
| Info On Page | This page displays all recipes by all users and has options to search and sort the results. From here users will be able to create recipes also. |
| Page Generation Details | The page uses html to generate the template of the page and then each of the recipes are displayed in their own cards once the data is collected from the database. Each card will be clickable to take the user straight to that recipe. |
| Links To Other Pages | This page links to 5. My Recipes, 7. Shopping List, 8. Account as they are all on the navigation bar. From this page users will be able to go to 10. Selected Recipe and 11.New Recipe. |
| Other Things Worth Noting | On the navigation diagram there is a line to edit recipe. This is due to overlapping lines but this page only has access to 10. Selected recipe to view it and 11. New Recipe to make a new one. |

The recipes page now has a button to add a recipe which was missing in the original prototype.

A screenshot of a recipe form

Description automatically generated

## Shopping List

|  |  |
| --- | --- |
| Page ID | 7. Shopping List. |
| Info On Page | This page contains all of ingredients from a user’s planner. These are all displayed in a table with a checkbox next to show if it has been selected to make it easier to check items off when the user goes shopping. |
| Page Generation Details | This page displays all of the ingredients from the recipes from the user's planner. They are all displayed in a table that is generated in JavaScript with a checkbox for users to toggle. |
| Links To Other Pages | This page links to 5. My Recipes, 6. Recipes, 8. Account as they are all on the navigation bar. This page does not link to any other pages. |
| Other Things Worth Noting | None |

Based on feedback, a form has been added to the bottom of the shopping list to add extra items so it can be used as a main list for users that use it while shopping.

A screenshot of a grocery list

Description automatically generated

Figure 20. Shopping List 2.0.

## Account

|  |  |
| --- | --- |
| Page ID | 8. Account |
| Info On Page | This page displays the username, password an option to remove account, option to log out and the key so the user can share it to others who wish to use the site. |
| Page Generation Details | This page is generated mostly in html with some of the boxes being filled in with JavaScript. The username and password is fetched from the database to be displayed in the username and password box to allow users to change them. |
| Links To Other Pages | This page links to 5. My Recipes, 6. Recipes, 7. Shopping List as they are all on the navigation bar. This page does not link to any other pages. |
| Other Things Worth Noting | The content will be generated depending on the user so another user's user is not displayed where it is not supposed to. |

This page has not been updated from the previous version of the prototype.

A screenshot of a login form

Description automatically generated

Figure 21. Account page 2.0.

## Edit Recipe

|  |  |
| --- | --- |
| Page ID | 9. Edit Recipe |
| Info On Page | This page contains options to change the recipe name, ingredients, instructions and the picture as well as a confirmation and cancel button. |
| Page Generation Details | This page contains a form that will already be filled out so users can edit an already existing recipe. This will update all of the already existing details of the recipe. |
| Links To Other Pages | This page links back to 5. My Recipes page when the recipe is changed or the change was cancelled. |
| Other Things Worth Noting | None |

This page has not been updated from the previous version of the prototype.

A screenshot of a recipe

Description automatically generated

Figure 22. Edit recipe 2.0.

A screenshot of a grocery store

Description automatically generated

Figure 23. Edit recipe 2.0.

## Selected Recipe

|  |  |
| --- | --- |
| Page ID | 10. Selected Recipe |
| Info On Page | This page displays the selected recipe that the user selected. It will contain the name of the recipe, the creator, an image that was uploaded by the creator and then the ingredients and instructions. |
| Page Generation Details | The recipe information will be fetched from the database and displayed accordingly. The ingredients will be looped through and displayed into rows on a table. The image will be displayed by using the stored image file path to where the image is stored on the server. To have separate lines between the steps in the instructions, any time the user presses an enter key, it will be converted to a "<br>" tag so it can be displayed correctly. |
| Links To Other Pages | This page only links back to 5. My Recipes or 6. Recipes depending on which page the recipe was selected from. |
| Other Things Worth Noting | None |

This page has not been updated from the previous version of the prototype.

A screenshot of a recipe

Description automatically generated

Figure 24. Selected recipe 2.0.

A screenshot of a grocery list

Description automatically generated

Figure 25. Selected Recipe 2.0.

A screenshot of a grocery list

Description automatically generated

Figure 26. Selected recipe pop up to save to the planner 2.0.

## New Recipe

|  |  |
| --- | --- |
| Page ID | 11. New Recipe |
| Info On Page | This page is similar to 9. Edit Recipe but all of the text boxes are blank. There is a form for users to fill in that includes the recipe name, recipe image upload, ingredients and instructions and then a button to confirm or cancel the creation of the recipe. |
| Page Generation Details | This page contains a form that is empty that will be used to fill in the data to add a new recipe. |
| Links To Other Pages | This page only links back to 5. My Recipes and 6. Recipes. |
| Other Things Worth Noting | None |

This page has not been updated from the previous version of the prototype.

A screenshot of a recipe form

Description automatically generated

Figure 27. Add recipe 2.0.

A screenshot of a grocery store

Description automatically generated

Figure 28 Add recipe 2.0.

# Persistent Data Model

The site only needs three tables to be able to provide for all of the use cases. The users table stores the user information for users to log in. The planners table contains all of the planners for each of the users and stores the IDs for the recipes that the users have selected. Instead of using the recipe names, IDs have been used so that there can be multiple recipes with the same name. The Recipes table contains all of the recipes and the information related to them. The Recipes table links to the Users table as users can have multiple recipes and their name is referenced in the creator field. The username is used as the reference instead of the userID because each username is unique.

A screenshot of a computer

Description automatically generated

Figure 29. Diagram of the tables in the database and how they link.

# Sample Data

## Users Table

The users table consists of a userID as the primary key, the username, the hashed password and the user type which defaults to regular as there will only be one administrator for now.

A screenshot of a computer program

Description automatically generated

Figure 30. Query to create users table.

A screenshot of a computer

Description automatically generated

Figure 31. Users table with two example users.

## Recipes Table

The recipes table contains all of the recipes that users have created as well as some pre-made ones to populate the site. There are some character limits on some of the fields to avoid too many characters in the forms. This table needs username from the users table to fill the creator field and this is done with the foreign key.

A screenshot of a computer program

Description automatically generated

Figure 32. Query to create recipes table.

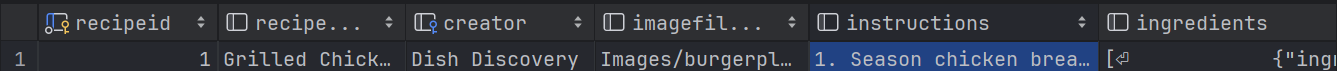


Figure 33. Recipe table with an example recipe.

## Planners Table

The planner table stores the planners of each user and uses foreign keys to populate the table on the planner page for each user.

A computer screen shot of a program

Description automatically generated

Figure 34. Query to create the planner table.

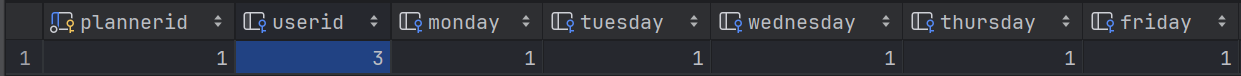


Figure 35. Full table of the recipe IDs in the planner.

A black rectangle with white text

Description automatically generated

Figure 36. Query for the table in Figure 37. It shows how a recipe from a certain day could be fetched to display it on the website.

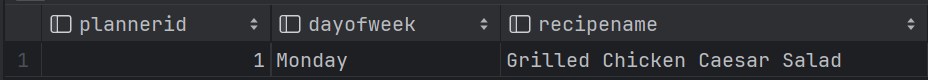


Figure 37. Example data of the day of the week and the meal set to it.

## Front End Test Data

This is some test data to test how a recipe will be displayed on the website. It uses the recipeID to get the recipe as there are multiple recipes in this array. The ingredients section is an array ingredients in JSON so they can be looped around to display them in a table. The instructions section is a large section of text that has “<br>” tags where the user would press the enter key to go to a new step when creating the recipe. When displayed on the page, it will have a new line for each step.

A computer screen shot of text

Description automatically generated

Figure 38. JSON of an example recipe.

# References

Google. (2024, March). Retrieved from Google Fonts: https://fonts.google.com/icons