Culinary Code - A Recipe Website Analysis and Design

Web Technologies

SET08101

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Introduction and description

It has been tasked to design, implement, and evaluate a website on the topic of food. In this report, the features, analysis, design and plan for implementation are laid out and discussed.

This project is designed to demonstrate an understanding of client-side web development along with abilities to implement a design using HTML, CSS and JavaScript.

The initial idea was to create a website that could generate a weekly meal plan and add ingredients from all selected recipes to a shopping list. However, upon researching this idea, it seems this would be overly ambitious. Personalized collections of html pages would be better suited to a dynamic website, rather than a static one. Upon redesigning the website, the aim is now towards creating a collection of recipes organized by cuisine, courses and diet. Outputting to a shopping list will remain, and is expected to be one of the more challenging aspects of creating this site. This is most likely going to be in the form of outputting the list of ingredients of a single recipe to a pdf. It would be nice to incorporate adding ingredients from multiple recipes, but this will be a late addition if time allows. Saving ingredients from multiple recipes of the users selection is most likely subject to the same problems presented above, but the idea will continue to be considered.

The home page will consist of a 'Recipe of the Week' article, along with a section for 'Popular Recipes'. The navigation section will contain links to list pages by 'All Recipes', 'Cuisine', 'Courses' or 'Diet'. The user should be able to easily navigate through the pages to find a recipe based on the category chosen. Ideally each of the sub pages will also contain a filter to further narrow down the recipes displayed. There will also be an educational quiz, navigated to from a html aside section on the home page. This quiz will be based on testing the users culinary knowledge and should hopefully be a fun addition to the rest of the website.

Each recipe should be presented to the user in a consistent manner, such that when the user navigates from recipe to recipe, the flow and presentation maintains consistency. All pages should keep to a simple and clean presentation, in an attempt not to clutter the users screen to aid navigation and reduce any confusion.

At this stage in the design process, the aim is also to include additional user aids for each recipe such as adjusting 'units' and/or 'number of servings'. It is noted that there is a lot of content to implement in the given timeframe. Due to this, further in this discussion, the features and pages will be broken down into 'sprint' like stages of implementation. This should lead to at the very least, a functional site. As time allows, the extra aids, features and functionality can be added at various stages.

The proposed name for the website will be 'Culinary Code' inspired by the synonyms that recipes and computer programs share (and this project being part of a computing course).

Background Research

"Usability is critical for the success of any website" says (SocialMediaToday, 2013). They go on to say "Usability is about making it easy for visitors to find the information they need quickly and easily". In this article, the author lists and discusses various characteristics of a user-friendly website. Some that stand out are:

- Well formatted content that is easy to scan (the average internet user skims through the content on a web page instead of reading each and every word – headings, sub-headings, paragraphs, bullets or lists help to break up text).
- Fast load times (website loads within 4 to 6 seconds – one of the main reasons visitors leave your site); common factors being third-party plugins, widgets and social media.
- Contrasting colour scheme – lack of contrast makes it very difficult for visitors to read your content.
- Usable forms – offer tooltips and suggestions. Display on-screen message on completion.

(SocialMediaToday, 2013) recommends using Pingdom (SolarWinds, 2023) to test the speed of websites.

Some examples of the above points can be found in similar websites to which this project aims to create. On (Condé Nast, 2023) epicurious website, the layout is broken up well making it easy to scan. Contrasting colours can be seen on (Discovery, inc., 2022) Food Network site, making text stand out and readable. (Dotdash Meredith, n.d) Allrecipes website, keeps things simpler with a minimalistic colour scheme as well as utilizing an 'F-shaped' based reading pattern and grid based layout as recommended by (Feeling Peaky, 2022).

Something which appears to be mentioned in almost every article on the subject of website features ((Ideas On Purpose, 2023), (NSDesign Ltd, 2023) and (Top Design Firms, 2023), to name a few), is 'strong calls-to-action'. These are to guide visitors as to what to do next. Good examples of 'strong' calls-to action can be seen on the BBC Good Food (Immediate Media Company Ltd, 2023) site, with bright purple buttons against a white background for their search bar, along with the main article recipe button and further down for their 'more' buttons. Delish (Hearst Magazine Media, Inc, n.d) on the other hand, have chosen to put focus into their subscribe button with black text on a bright green button against a white background. Delish also use breadcrumbs throughout their website showing the user where they have come from, aiding usability.

(DK New Media, LLC., 2022) provides a helpful article listing 68 different features for websites and where to place each. Feature 2 in the article is 'Logo', and it is suggested that they are "requiring contrast, recognition at any size, creativity, colors that target your audience, and perhaps sending a visual message that impacts your audience. Be sure to link your logo back to your home page". All good points which will be taken into account for this project.

Incorporating audio into the website has been considered for the home page in an attempt to engage users further when they visit the site (The satisfying sound of a sizzling pan). (Mozilla Foundation, 2023) provides an article on using the <audio> tag to embed sound contents in html documents. They also list the various events

that may be used in conjunction with the tag. This article will be utilized when adding audio into the project's home page.

For inspiration on a quiz, the "Name That Food" quiz on (Merriam-Webster, Incorporated, 2023) is well laid out, interactive and user-friendly. Each question is displayed one at a time, and upon submitting an answer, a tick or cross is displayed along with highlighting the correct answer. Further information is then displayed below. This would be a good aim for the project, however it may be a difficult challenge to implement a quiz with similar aesthetics. An optional timer slider button is also incorporated at the start. Further research in this area will be required.

In reference to exporting a recipes ingredients, this is most likely going to be done by generating a pdf, though other methods will be considered if time allows. (Medium, 2022) and (GeeksforGeeks, 2023) both provide details on how to generate a pdf using client-side JavaScript jsPDF library via cloudfare.com links. This will only be part of the challenge to be able to output the ingredients. (Tesco.com, 2023) recipes have the feature to be able to print a recipe. This first removes the websites header, footer and unrelated sections of the page, therefore only printing the recipe. This is similar to the project website, however the project aims are to only output the ingredients to create a shopping list. To be able to achieve this, content must be retrieved with element ID tags. (Tutorials Point, 2023) provides an article that gives an overview of the steps required to achieve this. Another option may be to use a JSON file to store specific information, however it has proven difficult to locate information that is specific to this situation thus far with my current knowledge. Further research may be required if difficulties arise using jsPDF and element ID tags. (Smashing Magazine, 2011) provide a good article about using CSS media print, along with how to hide certain elements – this may be another option.

Core Features

Below is a list of the intended minimum features aimed to be implemented in the projects website. Each is followed by a short reason why each is included.

- **Website title** – To display websites name in the browser tab so users can easily identify website among others.
- **Readable text** – Text should be in a readable font and easy to scan.
- **Logo** – For brand recognition and for visitors to be able to click from any page and return to the home page for easy navigation.
- **Strong calls-to-action** – To help guide visitors what to do next.
- **Simple, but contrasting colour scheme** – To assist readability of website content and make elements stand out.
- **Clearly labeled links** – To aid navigation and help direct users.
- **Article** – Recipe of the week on the home page containing a clickable button which takes the user to the mentioned recipe.
- **Clickable images** – To help breakup content and not present user with lots of text. Images in the 'Popular recipes' section, should be clickable to reach the relevant recipe.
- **All recipes page** – All recipes to be displayed on one page for browsing, accessed from the navigation bar.
- **Recipes by cuisine** – Recipes to be categorized by cuisine e.g. Chinese, Italian - accessed from the navigation bar.
- **Recipes by Course** – Recipes to be categorized by course e.g. Lunch, Dinner, Dessert - accessed from the navigation bar.
- **Recipes by Diet** – Recipes to be categorized by diet e.g. Vegetarian - accessed from the navigation bar.
- **Copyright information** – To be displayed in a footer section.
- **Recipe page** – Each recipe to be displayed in its own page, but all should be in identical format to aid usability.

Additional Features

In addition to the core features set out, the following will hopefully be added as time allows. Note these will be implemented only after the core features have been incorporated.

- **Contact information** – To contain a contact form and contact details to allow visitors to easily get in touch about issues (or complements) on the site. Accessible from a link in the footer section.
- **About us page** – To give users additional information about the website. Accessible from a link in the footer section.
- **Site map** – Guides visitors to where they want to go for easy navigation. Accessible from a link in the footer section.
- **Use of breadcrumbs** – Tells uses where they have been to assist in easy navigation.
- **Generate shopping list** – Output ingredients of a recipe (to pdf, or printing with CSS media print) for users to easily reference required items for cooking.
- **Tool tips** - Most likely only required for shopping list output icon to assist users to correctly interpret icons function. Required on any unlabeled icons. Could also be used on logo icon.
- **Change units** – Each recipe should be able to adjust what unit ingredients are displayed in. Quantities should adjust accordingly. Increases usability.
- **Change servings** – Each recipe should be able to adjust number of portions. Ingredient quantities should adjust accordingly. Increases usability.
- **Use of audio** – On home page, to engage users further when they visit the site.
- **Quiz** – To add an element of entertainment and hopefully also educational to further engage users. Accessed via a clickable button in a html aside section on the home page.
- **Usable form controls** – Form controls (used in quiz and contact us pages) should be usable to the user, i.e. not too many fields, descriptive labels, use of tooltips or suggestions.
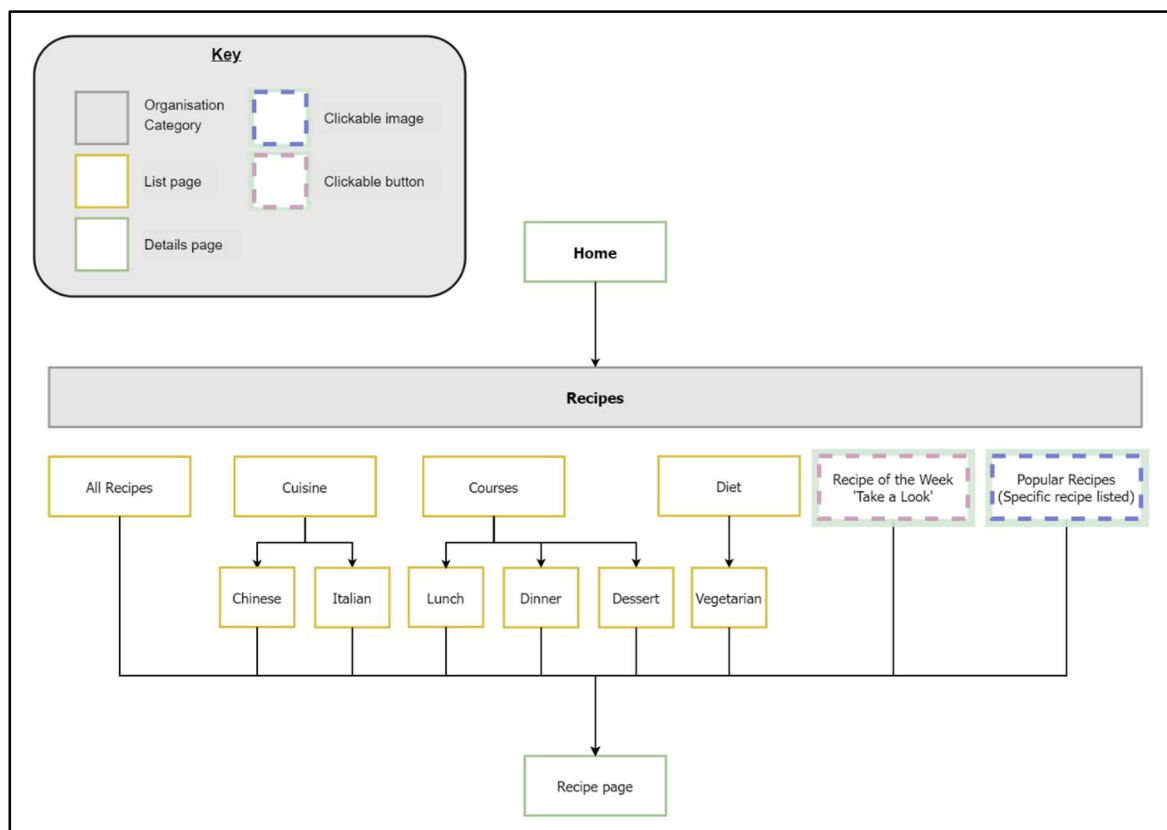- **Search bar** – To allow users to easily search the website.

- **Filter** – Filter to be used on list pages to further narrow down pages displayed to user. This should increase usability and aid navigation.
- **Social media icons** – To link to websites social media pages.

It is noted that there is a lot listed here. As such it is quite likely that not all of these will be possible to implement in the given timeframe. Later in the report, the implementation is laid out in stages. This is in an attempt to create at least a minimal functional website and create a plan to implement as many of the additional features as possible.

Site organisation

As the features have been designed to be implemented in multiple stages, Figure 1 (below), shows the site organisation of the core features. Figure 2 (below), shows the full implementation of core features and additional features. It should be noted that every page should be able to return to the home page via clicking on the logo.

Figure 1. Core features site organisation (Dickinson, 2023)

It can be seen in both Figure 1 (above), and Figure 2 (below), that recipe pages can be accessed in multiple ways. Either directly from the home page, via either the clickable images in the popular recipes section, or via the clickable button on the recipe of the week article. Alternatively, users could go via a list page such as the 'all recipes' page, or one of the category list pages (cuisine, courses, or diet). Within the additional features, there is a plan to implement a site map, 'about us' page and 'contact us' page. These will be contained in the footer section (as seen in Figure 2) which should be on every page, and hence accessible via every page on the site. The site map should allow direct access to every page on the website, akin to (Recipe Cloud, LLC, 2023). Similarly, the navigation bar should be on every web page, allowing access to all of the recipe list pages (and search page if implemented) from any page.
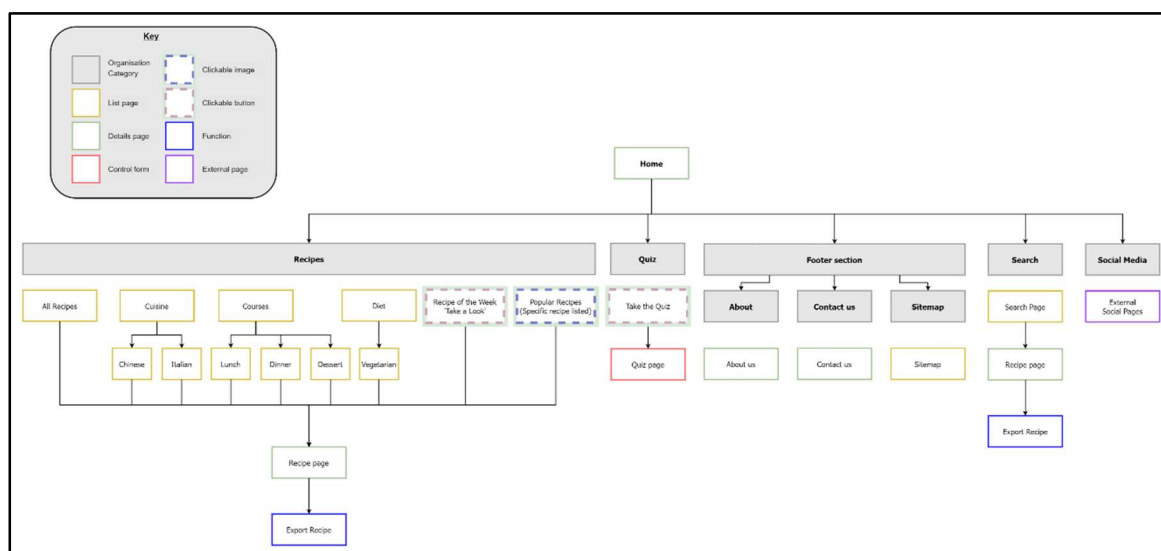

Figure 2. Full implementation site organisation (Dickinson, 2023)

In terms of being able to access a particular recipe from the different categories (cuisine/courses/diet etc.), there are multiple possible approaches to this. The first, and obvious way, would be to store recipes in directories relevant to its category; e.g. /recipes/courses/dinner/… However this could lead to duplicates, as a particular recipe could fall under multiple categories (dinner and vegetarian for instance). An alternative may be to use a script or JSON file for each recipe, containing a dictionary. Keys are the category in question (course/diet etc.), with Boolean values, along with the relevant url as another key-value pair. Inspecting one of the recipes on (Tesco.com, 2023), it can be seen that they use a script in a

similar (although much more complicated) way. Figure 3 (below), shows an extract (with some code removed for simplicity). It can be seen that (Tesco.com, 2023), pass a dictionary containing lists of dictionaries. Categories are set as values and the entire dictionary is assigned to a variable. It is assumed that this is used by another script, to be able to select different recipes based on different categories. This provides some inspiration for the project to hopefully adapt in a similar manner to avoid duplicate recipes and remove the amount of storage needed. Though this is a challenge that will require further research and consideration.
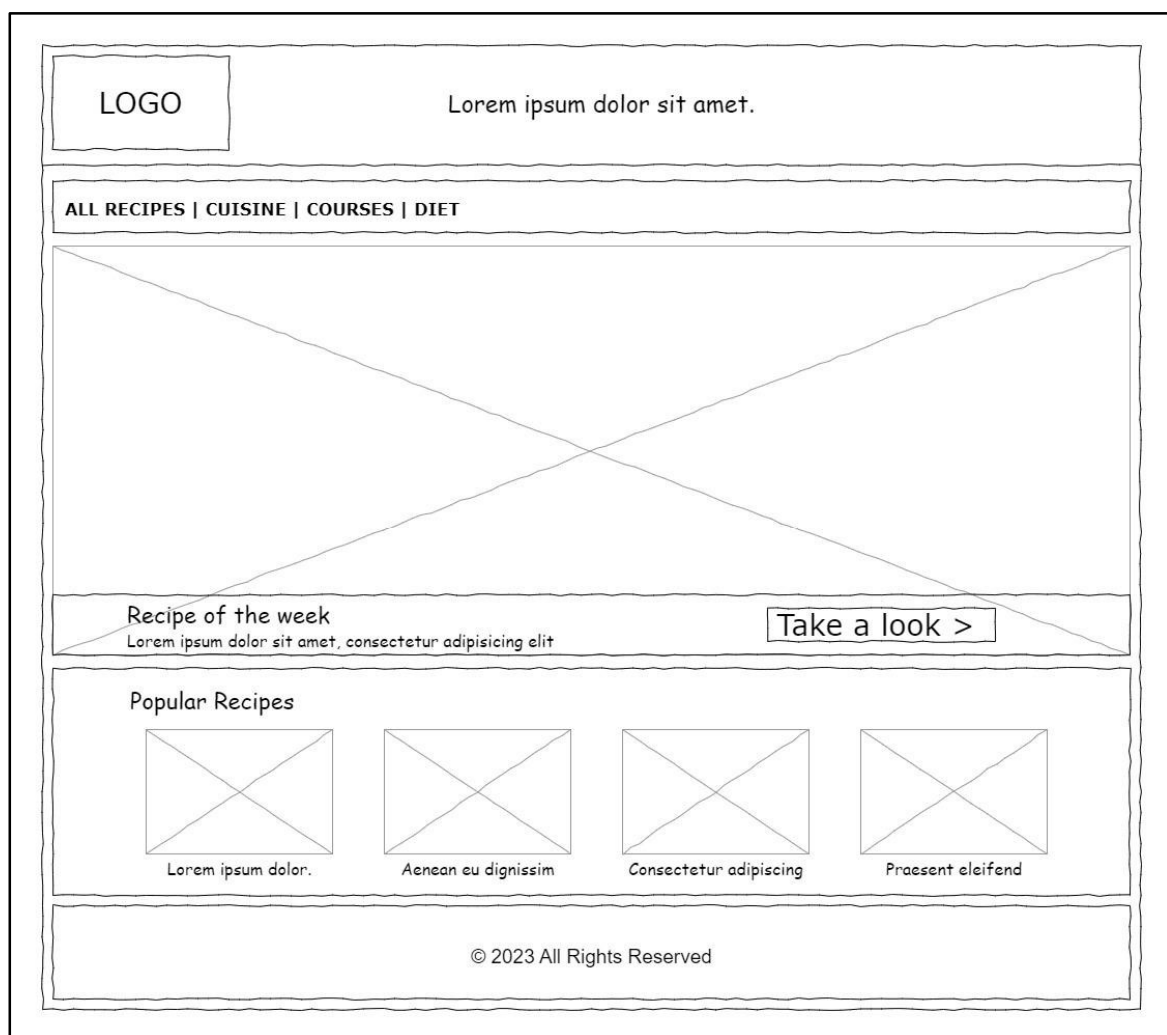
```
<script>

  var navigationData = {...,
    "navigationItems":[...,

        {"subItems":[{"url":"/recipes/special-diets/dairy-free-recipes.html","label": "Dairy-free" ,"hideFromMobileMenu":false},
          {"url":"/recipes/special-diets/vegetarian-recipes.html","label": "Vegetarian" ,"hideFromMobileMenu":false},...],
          "url":null, "label":"Special diets" ,"hideFromMobileMenu":false,"openInNewWindow":false},

        {"subItems":[{"url":"/recipes/courses/breakfast-recipes.html","label": "Breakfast" ,"hideFromMobileMenu":false},
          {"url":"/recipes/courses/brunch-ideas.html","label": "Brunch" ,"hideFromMobileMenu":false},...],
          "url":null, "label":"Meals" ,"hideFromMobileMenu":false,"openInNewWindow":false},

        {"subItems":[{"url":"https://realfood.tesco.com/pancake-day.html","label":"Pancake Day","hideFromMobileMenu":false,"addToMobileMenu":true},
          {"url":"/budget-meals/healthy.html","label":"Healthy on a budget","hideFromMobileMenu":false,  "addToMobileMenu":true},...],
          "url":null,"label":"Popular","hideFromMobileMenu":false,"openInNewWindow":false},

        {"subItems":[{"url":"/chicken-recipes.html","label":"Chicken recipes","hideFromMobileMenu":false},
          {"url":"/recipes/grains-pulses-and-pasta/pasta-recipes.html","label":"Pasta recipes",  "hideFromMobileMenu":false},...],
          "url":null,"label":"Ingredients","hideFromMobileMenu":false,"openInNewWindow":false},

      ...]
  };

</script>
```

Figure 3. *Code extract showing dictionaries being utilised to store information about a webpage. Some code has been removed for simplicity.* *(Tescos.com, 2023)*

External CSS stylesheets should be used where possible. The HTML, CSS, JS and image files, should all be maintained within their own directories for a more manageable website. These directories should also be maintained within a single directory
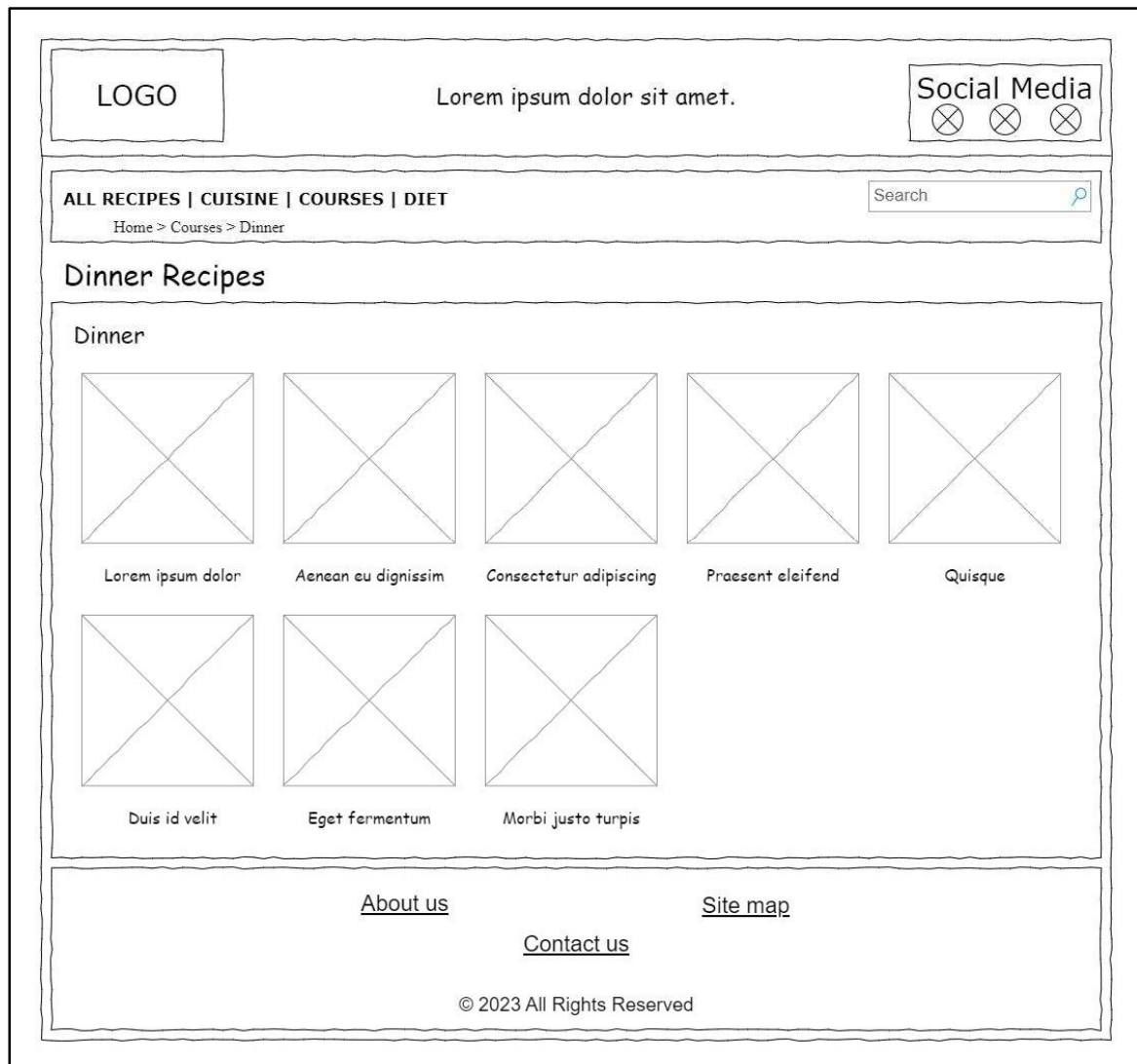
User Interface

Figure 4 (below), shows the home screen for the core features. The design has been inspired by the research as laid out in the background research section earlier, giving particular consideration to how the user interacts. The key ways to reach a recipe are either via the navigation bar (all, cuisine, courses or diet). However the user can also visit a recipe page via the 'Recipe of the week' in the main article, or via one of the 'Popular recipes' that will be displayed in the section below the main article. A strong call-to-action should be created on the 'Take a Look' button in the main article with the use of contrasting colours.

Figure 4. Home page for core features (Dickinson, 2023)

Figure 5 (below), shows the layout for the list pages (all recipes, cuisine, courses, diet). These will be displayed in the same way with differing content to maintain consistency.

Figure 5. List page with full implementation feaures (Dickinson, 2023)

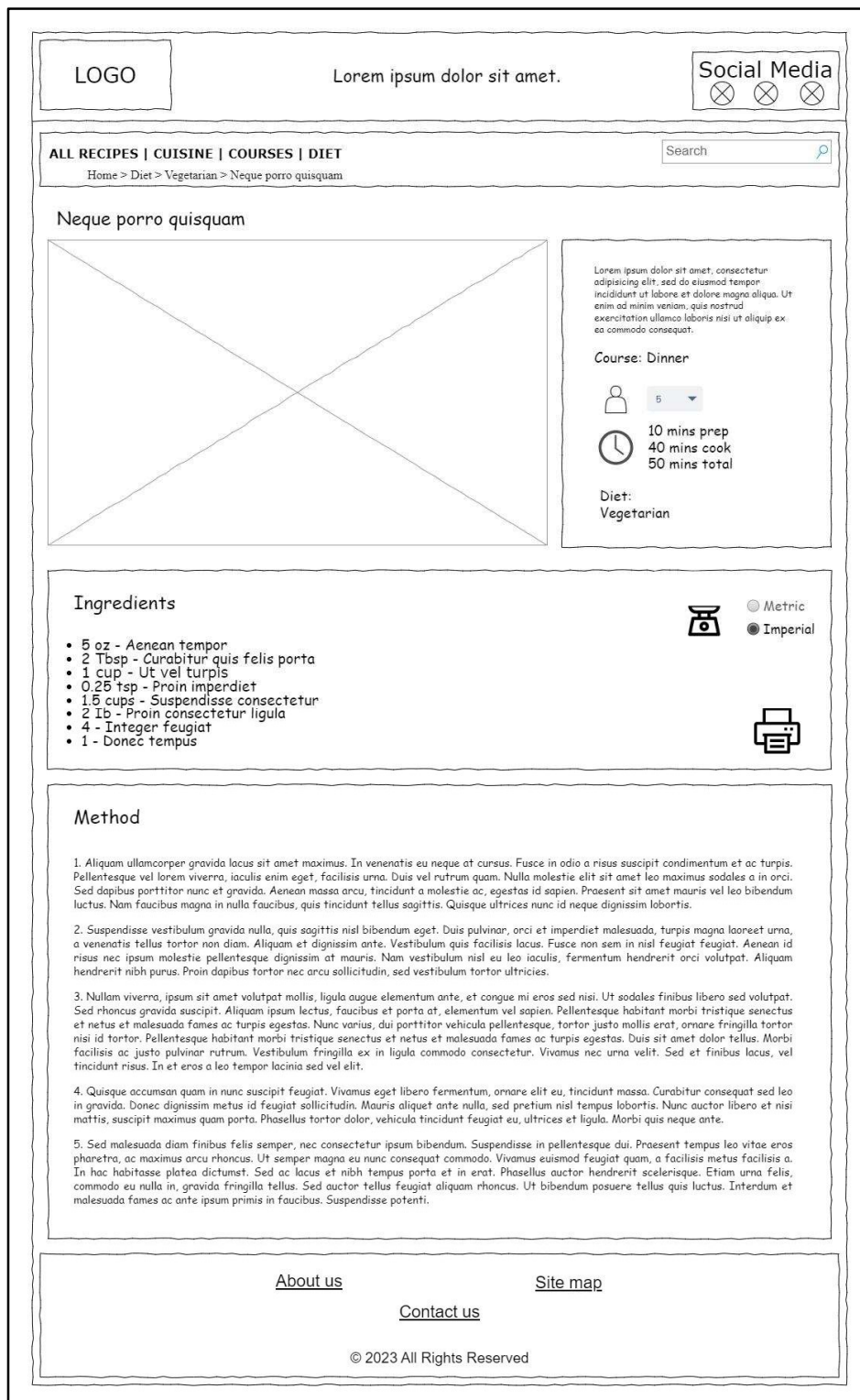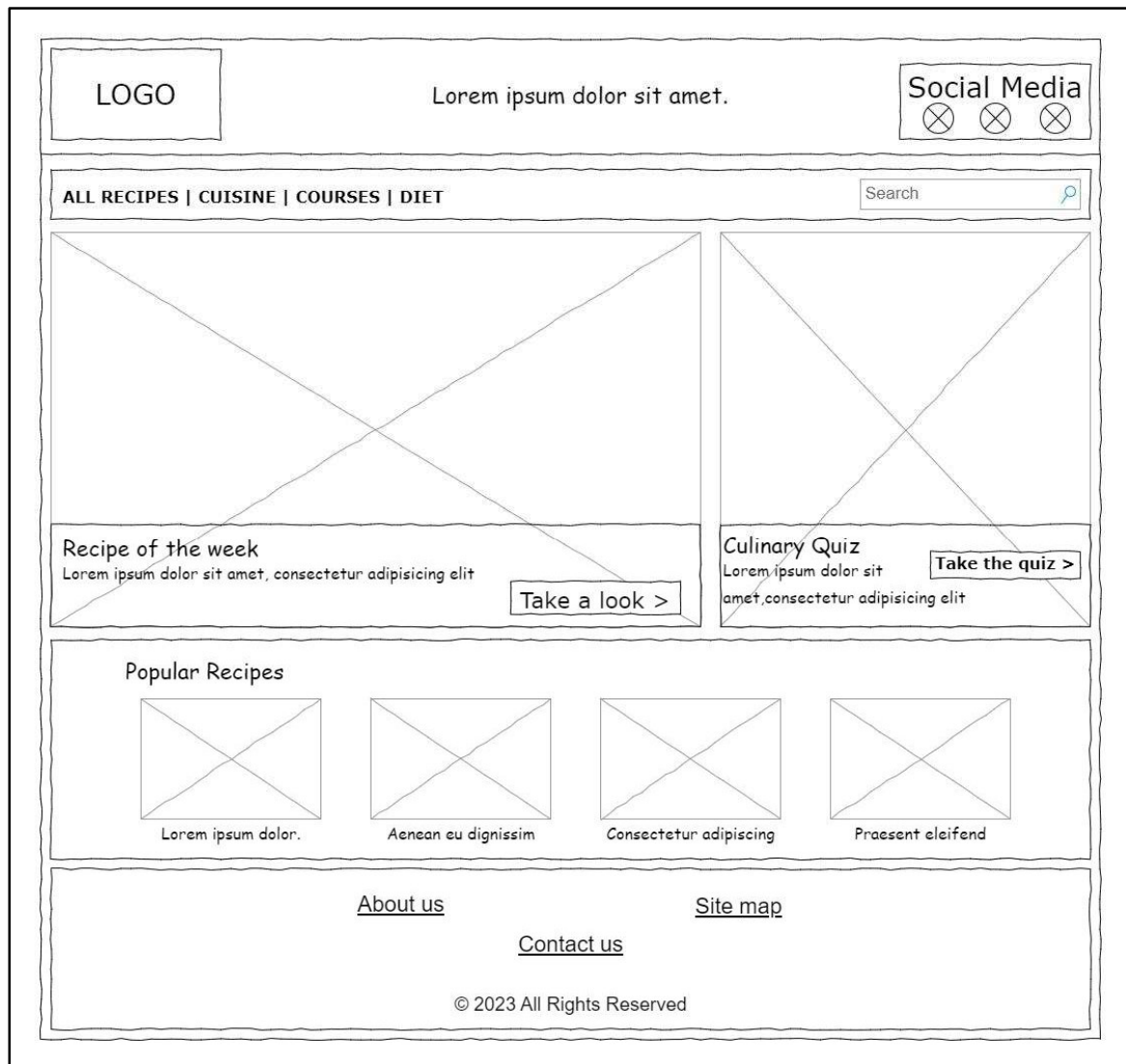Figure 6 (below), shows the layout of a recipe page. All recipes should be displayed in a similar manner.

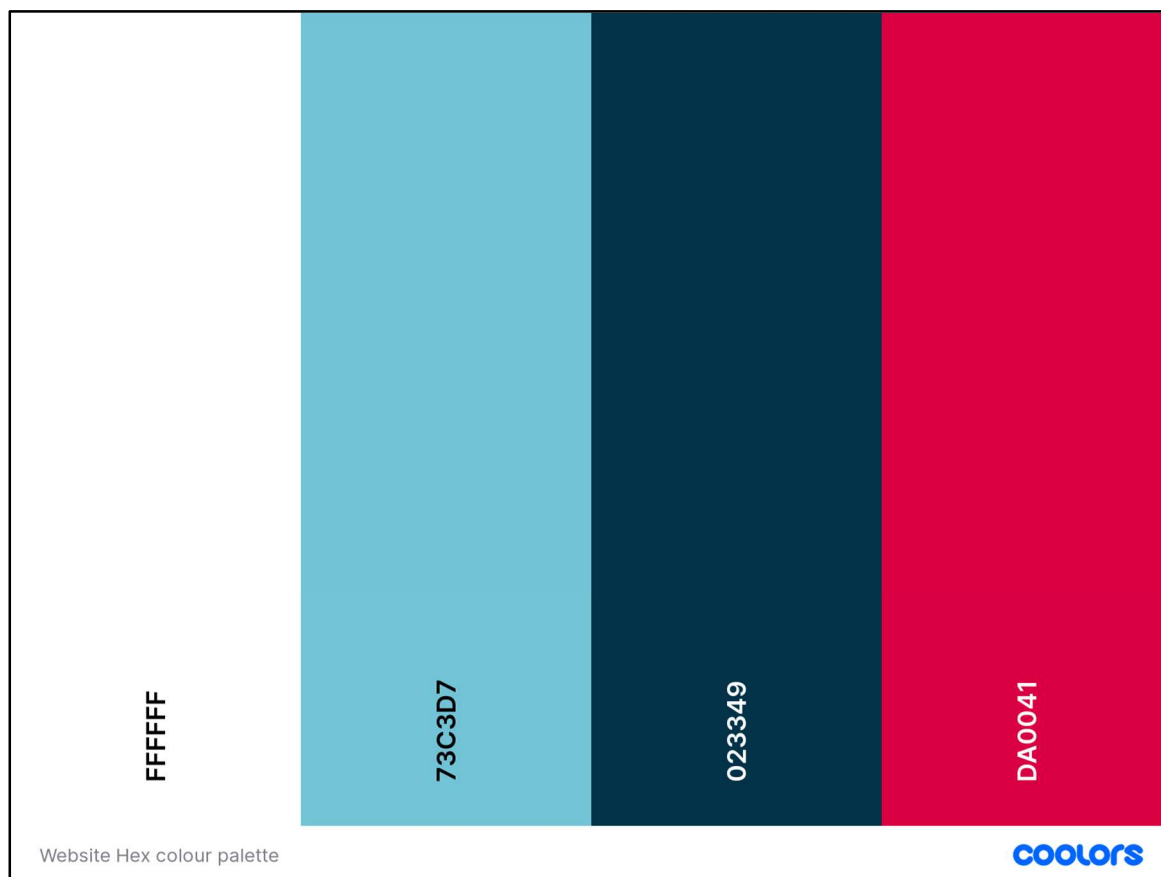*Figure 6. Recipe page with full implementation features shown (Dickinson, 2023)*

Figures 7 (below), shows the intended layout of the home page for the additional features and complete website design. Audio will play upon arrival to the home screen (if time allows implementation).

Figure 7. Home page showing full implementation features (Dickinson, 2023)

Figure 8 (below), shows the initial colour scheme. This will be used in combination with black and white to make things stand out to visitors. The main colours will be a mixture of light and dark blues and the red will be used for calls-to-action.

Figure 8. Initial colour palette idea. Main colours will be a combination of the blues, whilst the red will be used for calls-to-action. Generated via (Coolors, n.d).

Implementation plan

Table 1 (below), lays out the stages of implementation. Hopefully by stage 5, there should be a functional (though limited) website. By stage 8 or 9, there should be a lot more functionality in the website. The Fibonacci sequence is used in the estimate to compare stages.

Table 1. Implementation plan (Dickinson, 2023)

Stage	Goal	Scope	Estimate
1	Create home page content.	- Create header, nav, main (article & section) and footer sections. - Add website title. - Add logo – with tooltip if possible. - Add copyright information.	1

		• Add a clickable button for the recipe of the week (won't link anywhere currently). • Popular recipes won't link anywhere currently, but should create a grid.	
2	Create recipe page content for at least 3 recipes.	• Content to be created for minimum 3 recipes which span all of the categories (cuisine – min 2 to be covered, course – min 2 to be covered, diet – min 1 to be covered). • Header, nav and footer sections should be identical to home page. • Logo should link to home page. • Link button on home page to recipe. • Link popular recipes on home page to recipes and add images. • Text to be in a readable font and layout (use F-pattern)	5
3	Create list pages for all recipes, cuisine, courses and diet.	• Link recipes to list pages. • Each list page should list only relevant recipes.	3
4	Create stylesheet for home, recipe and all list pages.	• Colour scheme should be consistent throughout, contrasting colours to be used. • Strong calls-to-action to be used and should stand out for button/logo.	3
5	Test current website for functionality and aesthetics.	• Have others try to use the website and gather some feedback on current design. • Review design.	3
6	Add site map.	• Site map should be accessible from the footer section. • Site map should list all current pages in logical sections. • Add to stylesheet as required.	2
7	Add audio to home page	• Audio should be relevant to the theme of website (cooking). • Use royalty free audio (or record own sound). • Should play upon entrance to website.	2
8	Add functionality to print recipe ingredients.	• User should be able to print recipe ingredients to pdf (printing using CSS media print would be even better).	3
9	Add a quiz page.	• This should be accessible from a html aside section on the home page. • Control buttons to be used for user selection of answers.	8

		- The quiz should be multiple choice and allow the user to only select one answer at a time. - Questions to be educational regarding cooking. - Option to include a graphic on completion of the quiz. - Correct answers to be displayed after each question. - Add to stylesheet as required.	
10	Add search bar	Search bar to be in navigation section.	3
11	Add about us page	- About us page to be accessible via the footer section. - To provide some information to the user about the website. - Add to stylesheet as required.	3
12	Add contact us page	- Contact us page to be accessible via the footer section. - Should have a clickable phone number. - Should have a control form for the user to enter some comments along with the users name, email and phone number. - Should be emailed to website admin upon the users submission via a button. - Add to stylesheet as required.	3
13	Add breadcrumbs	Add breadcrumbs to navigation bar to show user which pages they have come from.	2
14	Add functionality to change recipe units.	- Add buttons so user can change recipe units between metric or imperial. - This should be reflected in the ingredients displayed once clicked as well as what is printed.	3
15	Add functionality to change recipe servings.	- Add dropdown box so user can change recipe serving sizes between 1 and 6 as a minimum. - This should be reflected in the ingredients displayed once changed as well as what is printed.	3
16	Connect to social media.	- Add social media icons to header section. - Icons should be clickable and take user to websites social media pages.	2
17	Add Filter	Filter to be added to list pages to further narrow down pages displayed.	5

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