**CEN 4010 Principles of Software Engineering, Summer 2021**

**Milestone 3: More Detailed Requirements, Architecture and a**

**Vertical Software Prototype**

# **Team: Divide and Conquer (Team 07)**

# **Project name: “Delectable**”

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# History table:

|  |  |
| --- | --- |
| Date | Comments |
| 06/15/2021 | Milestone 1: Project Proposal and High-level description |
| 07/08/2021 | Milestone 3: More Detailed Requirements, Architecture and a Vertical Software Prototype |

# Documentation date: 07/08/2021

# **1** **Executive Summary - “Delectable”**

Around the world, families and friends are accustomed to gathering multiple times throughout the year, whether it be for birthdays, holidays, or ceremonies. The one thing that connects these gatherings together is the food being served, food that we’ve known our entire lives but are specifically kept for these special gatherings so that we may realize how much care is actually put into making these foods. Though a pandemic has made it increasingly difficult to connect with our friends and relatives, Delectable is here to preserve that connection of mouthwatering foods being shared at a gathering, by creating a haven where users are able to share all of their cooking recipes with their family and friends. Delectable will allow users to post photos and videos to their customized feeds and attach descriptions to them containing recipes. Though Delectable does an astounding job at sharing recipes between friends and maintaining the secrecy of family recipes, users will still be able to freely share their recipes to the public. When shared publicly, users will be able to rate recipes on a 5 star scale and also comment on the post so that they may be able to ask questions for clarification or praise that newly found recipe. Delectable’s search function will allow users to look up recipes; where posts with high ratings will be displayed as popular recipes and recently created posts will be displayed as new recipes. The filter function paired with search will allow users to see recipes categorized by specific ingredients, nationalities, holidays, diets, or even time of day. Recipes will show nutritional information. Users will be able to create a shopping list. This website is meant to focus on being able to create and share recipes to your friends and family with ease, rather than our competitors that limit recipe creations through a paywall.

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# **2** **Competitive analysis**

(Y)=yes

(N)=no

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Website name | Sharing recipe public/private to family/friends | Rating recipe after trying at home | Categorize recipes by (season, type, etc.) | Recipe feeds  (popular, new, trending) | Upload personal recipes to page |
| Delectable | Y | Y | Y | Y | Y |
| Yummly | N | Y | Y | Y | N  (pay to play) |
| Tasty | N | N | Y | Y | N |
| Instagram | Y | N | N | N | Y |
| Pinterest | Y | N | Y | N | Y |

In the field of online recipes many websites contain useful blogs, articles or even copies of recipes but lack structure or the ability to upload recipes and share with friends. In our website “Delectable” the focus is sharing recipes amongst friends and family to keep people connected during social distancing. The app will allow a user to upload personal recipes and apply them to categories such as food type, seasonal or by meal. The recipe is saved to the user page for rating if public availability. A feed is available for users to view continuously updated with recipes. The website differs from Yummly and Tasty in the fact a user can upload their own recipes and allow for friends to rate. The difference from Instagram and Facebook is a dedicated web page for recipes allowing for category search. To remain competitive with websites Tasty and Yummly a shopping list feature will be saved to user profile so the user can refer to which items need to be purchased to make recipes. Delectable will be a go-to source of recipes for family and friends to reference when gathering for a meal.

<https://www.yummly.com/>, <https://tasty.co/>, <https://www.instagram.com/>, <https://www.facebook.com/>, <https://www.pinterest.com/>

**3** **Data definition**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Meaning | Usage | Comments |
| User | actor | Use case scenarios | A person who is signed up in the system has an account |
| Guest | actor | Use case scenarios | A person who is using the system, but is not signed in. |
| Administrator | actor | Use case scenarios | A person who manages and updates the system. |
| Account | data | Use case scenarios | A collection of user’s information |
| Recipe | data | Use case scenarios | Main data unit in the system, contains instructions and media of the recipes |
| Review | data | Use case scenarios | Stores users comments about recipes |
| Category | data | Use case scenarios | Each recipe has keys (categories) assigned to it |
| Recommended | data | Use case scenarios | List of highly rated recipes |
| New | data | Use case scenarios | Recently added recipes |
| Search | service | User service | Searches recipes by the name or ingredients |
| Filter | service | User service | Filters recipes by the category |
| Add | service | User service | Allows users to add new recipes |
| Favorite | service | User service | A list of recipes that user wish to save |
| Sign up | service | User service | Allows user to create an account |
| Sign in | service | User service | Allows user to enter the system |
| Sign out | service | User service | Allows user to leave the system |
| Remove | service | User service | Delete recipe from favorite list |
| Media | service | User service | Allows user to add photos or videos to the recipe or review |
| Home | User interface | User interface | Default page for users |
| Website | User interface | User interface | Collection of all the pages in the system |
| Profile | User interface | User interface | A page containing user information |
| Delectable | Website name | User interface | Name of the system |

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# **4** **Overview, scenarios and use cases**

Use Case: **Find**

Users or guests use the system’s search service to find recipes they like. Does not require the user to be signed in.

Use Case: **Add a recipe**

Users add a recipe through the system’s add service.Requires the user to be signed in.

Use Case: **Review and Rate**

Users add their rating and comments related to the particular recipe.Requires the user to be signed in.

Use Case: **Favorite**

Users add recipes to their “Favorite” list.Requires the user to be signed in.

Use Case:  **Delete a recipe**

Users can delete a recipe they previously added through the system's delete service. Requires users to be signed in.

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# **5** **High-level functional requirements**

**Guest expectation**

# **Creating Account** - Priority 1

The system will allow users to create an account storing UserName, Email, Password, Date of Birth, First Name, Last Name, Location, Security Questions, Phone Number. The system will have unique identifiable UserNames so they cannot be duplicated. All fields must be filled in and the initial password and re-entered password must match in order for your account to be registered.

1. **Browse the recipes** - Priority 1

Visitors will be able to browse by scrolling through the homepage. There will be a trending recipes feed and the ability to search through the website for specific recipes through categorizations like specific ingredients, nationalities, holidays, diets, time of day, etc. The feed will be continuously updating and organized by interaction and user engagement.

1. **Saved recipes** - Priority 2

Users will be able to favorite the recipes that they are interested in, which will save the recipes into a private folder in their profile page. They will be able to freely access their favorite recipes and remove recipes from the folder at their own discretion.

1. **View the Specific Recipe/Ingredients** - Priority 1

The system will allow visitors to click on any recipe featured on the trending feed and it will send them to an ingredients page where they will be recommended similar recipes, cooking time, instructions, pictures, and other relevant content for that recipe. The page will be immutable to the visitor but they will be able to write reviews and rate it.

1. **About Us** - Priority 2

System will have a general about page explaining the functionality of the website can provide links and tutorials about how to use the website and introduce prospective users to the concept behind the website.

**User expectation**

1. **Reviewing and rating recipes** - Priority 2

Users will have an option to write a review or rate a particular recipe. Review can consist of text, video and photo material. Reviews themselves will also be available for rating. Rating system will be based on 1 to 5 scale, with the 5 being the highest.

1. **Adding a recipe** - Priority 1

Users will be able to add a new recipe. Recipes will have required fields (i.e. ingredients, cooking instructions, cooking time, preparation time). Recipes will also have their category and keywords.

1. **Deleting a recipe/review** - Priority 1

Users will be able to delete the recipes or reviews they added. System administrators will also be allowed to delete inappropriate recipes/reviews or media.

1. **Editing/Deleting personal account** - Priority 1

Users will be able to change personal information (i.e. First Name, Last Name) or credentials - user name and password.User will also be able to fully delete their made account on Delectable.

**5. Reporting inappropriate content** - Priority 2

Users will be able to report recipes and reviews that they think are unacceptable.

**6. Blocking users** - Priority 3

Users will be able to block other users from their profile, which will prevent the blockee from being able to see the blocker’s posts and prevent them from being able to interact with the blocker.The block can be lifted at any time by the blocker.

# **6** **List of non-functional requirements**

For example, performance, usability, accessibility, expected load, security requirements, storage, availability, fault tolerance etc. Number each. When possible, try to quantify these quality attributes.

1. **Security-** The website should be publicly accessible to browse and view recipes easily. The recipes should be viewable in categories or as an updated feed. An account and login will be required to upload personal recipes and view private recipes from friends.
   1. Login and access levels
   2. Access permissions assigned by account holder for each upload.
   3. Account inactivity should automatically sign a user out after a period of two hours.
   4. Attempt to adhere to OWASP Application Security Verification Standard.
2. **Performance-** Delectable must compete with a large market of websites and must have a competitive response time. A response time over three seconds begins losing the user's attention. A response time of three seconds should be the goal of Delectable with a load
   1. The most important aspect of performance is how the website behaves in peak use hours. A response time under three seconds when used by up to 500 users simultaneously will ensure the user a smooth experience and prevent system crashes. This estimate is calculated with an estimate of 2000 users in a day/ 12 hours a day with a peak use time around typical American meal times with a multiplier of 5 to account for peak usage.
   2. Upload performance will be improved with the use of templates to input recipes.
3. **Accessibility-** For ease of use and accessibility for all the website should be available through major web browsers and supported to run on mobile. There is a standard used in industry, Web Content Accessibility Guidelines which will be referenced when building the website to make it available for anyone to use. When the Web meets this goal, it is accessible to people with a diverse range of hearing, movement, sight, and cognitive ability.
   1. Alternative text for images allows for auto screen readers to help visually impared individual to read a description of the photo.
   2. The ability to navigate a webpage without the user of a mouse allows for users with fine motor skill disabilities to use the features available to most others.
   3. The ability to change font sizes of text entries on Delectable will enhance the accessibility for those with poor eyesight
4. **Maintainability-** To maintain a functional website after publication the design needs to follow strict guidelines.
   1. Understandability, meaning the code is structured and thoroughly documented for future reference.
   2. Conforming to Technical design standards, a simple design is always best practice to ensure consistent performance.
   3. Conforming to coding standards and best practices will allow other future software developers to change and reference code segments efficiently.

**7** **High-level system architecture and database organization**

**Languages:** HTML, CSS, Javascript, Python

**Frameworks:** React, Bootstrap, Laravel

**Supported browsers:** Mozilla Firefox, Microsoft edge, Opera, Google Chrome, Safari

**Software products:** Microsoft Word, Whatsapp, Google docs, Zoom

**Tools:** Visual Studio Code, Github, Jira, WinSCP

**Systems:** Linux, Windows, Mac

**API’s:** Nutritionix, Google My Business API

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**8** **High-level UML diagrams**

**9 Key Risks**

1. **Inaccurate estimations in software development plan**
   1. To negate the chances of missing important deadlines the team must consider the Cone of Uncertainty, the phenomenon experienced at the start of a project where deadlines cannot be predicted accurately because the team cannot fathom the time it takes to complete everything.
   2. An obvious answer to the issue is to pad the estimate of how long the project will take so each team member will dedicate more time to a solution than is needed.
   3. Another step is to take into consideration a compromise in design, meaning to stop when a feature is functioning and not spend excess time fine-tuning your code seeking perfection.
   4. Size the estimate of an issue relatively to previous tasks. This helps picture large projects in a meaningful way.
2. **Change in scope/expectations of final webpage after initial time frame agreed upon** 
   1. Minimization strategies and a contingency plan apply here; using Agile will force the development team to operate on short manageable iterations and opportunity to reflect upon project objectives.
   2. Focus team to only elaborate on prioritized work in an active sprint.
   3. Have an overall culture that less is more, a better functioning app is better than a busy app.
3. **Poor quality code that is unpleasant to use/difficult to read**
   1. Utilize peer review to avoid writing code that risks technical debt, or code that decreases the agility of a software project in the long-term.
   2. Appoint a dedicated Product Manager to monitor the quality of a project.
   3. When a developer in the team produces code they must claim ownership of the success and failures and make changes promptly to produce clean readable code.
   4. Retain the key code quality aspects to measure in mind when creating code. These are as follows, reliability, maintainability, testability, portability, and reusability.
4. **Cross-platform compatibility/fitting a webpage that works on every browser**
   1. Validate the HTML and CSS by having well aligned, indented, and matching opening-closing braces.
   2. Use HT