
Software Requirements Specification

for

Brew Day!

Version 1.0

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Revision History

Name	Date	Reason for Changes	Version
SRS	11/21/17	Initial Requirement Specification	1.0

1. Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to provide a detailed description of the requirements and functionalities of the 'Brew Day' web application. This document covers each of the system's intended features. This document records the collected and analyzed ideas that define the system, and its requirements with respect to the stakeholders. Primarily prepared for the stakeholders for its approval, this document will also serve as a reference for the developers to assist with understanding the requirements of the system.

1.2 Document Conventions

This document has been recorded using the IEEE Standard typographical conventions. Every requirement statement is to have its own priority. This document also contains field-specific terminologies which can be referred to from the Appendix A: Glossary.

1.3 Intended Audience and Reading Suggestions

This document is intended for all individuals involved in the 'Brew Day' project, such as sponsors, developers, team members, instructors, users, and testers. Readers interested to get a brief overview of the project should focus on Part 1: Introduction and Part 2: Overall Description of the document.

Readers who wish to discover the features of the Brew Day application in a more detailed manner should go through Part 3: External Interface Requirements and Part 4: System Features. Part 3 offers comprehensive information about the user interface as well as the hardware and software platforms on which the application will run.

For readers who would like to consider some non-technical aspects of the project, Part 5 brings the performance, safety, security, and other requirements that will be important to the users. Readers not able to find the information they are looking for should check Part 6: Other Requirements.

1.4 Product Scope

The scope of the Brew Day! application is primarily focused on different features offered by an online homebrew community like creating and sharing recipes, and updating and managing the ingredients and equipment needed for brewing those recipes by homebrewers. Home brewers are the major focus of the web application as its users. The application can be accessed through web by anyone. All system information is maintained in a database.

2. Overall Description

2.1 Product Perspective

Brew Day project is a new, self-contained product to be developed and used as a web application. The application allows home brewers (users) to maintain a list of brewing recipes, and a list of available ingredients. Since, the project is a data-centric application, it will need to store the data in an organized manner. For this, a relational database will be used. As the web application communicates with the database, it will add, fetch, and modify the data.

2.2 Product Functions

With the web application, the users will be able to maintain a database of brewing recipes, and the ingredients required for the brewing process. The following list offers a brief outline of the major functions the application must perform or must let the user perform.

- A user must be able to view the recipes, i.e., providing user access to the recipe database
- User must be allowed to edit the brewing recipes
- User should be able to access the ingredients involved, and equipment needed
- User should have the ability to add new recipes to the database through the application
- Brewers should have the ability to make modifications to the batch size
- Application must provide the option for deleting the recipe as well
- “What Should I Brew Today?” suggests a brewing recipe for the day
- Update the ingredients, either automatically or manually by the user
- Store notes pertaining to each brewing recipe
- Store the brew log, when was that beer brewed along with records of the quantity and time
- Application should be able to keep track of available ingredients

2.3 User Classes and Characteristics

Brew Day application is going to be developed for a single kind of user; i.e. home brewers. Although, the design of the application will be made more and more user-friendly, users are still expected to have the basic knowledge and experience of using Internet, website, and navigating through web pages. User will have access to all the website content, and all the functionalities. No technical expertise is expected from the users.

2.4 Operating Environment

The application is to be built for the web. So, the application can be accessed through the internet on any device, namely, laptops, personal computers, mobile devices, or tablet devices. Application is not intended to be resource or graphics intensive, thus, has no hardware constraints.

2.5 Design and Implementation Constraints

The primary design consideration for our web application is to make it responsive for the web, which means that the application should be easily accessible through different devices, and should adapt itself to the device it is accessed from. Creation of such a user interface which is both effective and easy to navigate will be a challenge for the developer team. No hardware limitations are identified for this application. The application will be based on the most popular HTTP protocol of the web.

2.6 User Documentation

User documentation for the project includes a User Manual, which will be delivered along with the application.

2.7 Assumptions and Dependencies

Assumptions made for the user involve the availability of electronic devices like laptops, personal computers, mobile devices, or tablet devices to access the application through the internet. It is also assumed that the user (home brewer) will have an internet connection to access the application through any browser installed in his/her device.

3. External Interface Requirements

3.1 User Interfaces

Brew Day! user interface must be specifically designed keeping the home brewers in mind, providing them clarity, effectiveness and consistency in the application. Users should spend their time using the application rather than figuring out how to use the application. The home screen offers a menu of the list of functions that the application must perform. Selecting the options from the menu, the user should be directed to the respective screen. Every screen displays the menu on the top. Details of the user interface design can be referred to from software design specification.

3.2 Hardware Interfaces

Brew Day! is a web application and thus no hardware interfaces are identified. Supported device types include all the electronic devices having a browser along with an internet connection. These may include laptops, personal computers, mobile devices, tablet devices, smart televisions, refrigerator displays, car displays, and others. As mentioned before, communication protocols used for the web are TCP/IP and HTTP protocols, to render the website, and the same will be used for our application.

3.3 Software Interfaces

The main software interface involved in this application is going to be the interface between the web application and the database. This communication between the web application and the database consists of operations concerning both reading and modifying the data, which means

that the communication will be two-way communication. Recipe data will be fetched by the web application from the database, and correspondingly new recipes can be added to the database through the web application. Similarly, collecting ingredients and equipment, and modifying ingredients and the equipment will be done through the same interface.

3.4 Communications Interfaces

Browser is an essential requirement for the user to have. The server will implement the typical client-server communication with the users on their respective devices through the browser. HTTP protocol will be used for the application to be rendered on the user's browser.

4. System Features

This section organizes the functional requirements for the project by system features, and the major services provided by the application Brew Day!

4.1 Access to Recipes

4.1.1 Description and Priority

Main functionality of the application which allows home brewers to read the brewing recipes.

4.1.2 Functional Requirements

REQ-1: The system shall provide the Recipes option in the Menu on the Home page.

REQ-2: After clicking on the Recipes option, user should be able to view all the recipes stored in the database.

REQ-3: User should be able to skip through the current recipe to view the next recipe.

4.2 Edit the Brewing Recipes

4.2.1 Description and Priority

This functionality of the application allows home brewers to make changes to the brewing recipes.

4.2.2 Functional Requirements

REQ-1: The system shall provide the Edit Recipe option.

REQ-2: After clicking on the Edit Recipe option, user should be able to modify the recipe.

REQ-3: The corresponding changes should be reflected back in the database, and visible next time the recipe is accessed.

4.3 View the Ingredients involved, and Equipment needed

4.3.1 Description and Priority

This functionality of the application allows home brewers to obtain the list of ingredients required for the brewing process, and equipment needed for the same.

4.3.2 Functional Requirements

REQ-1: The system shall provide the list of ingredients needed for the brewing process for a particular beer.

REQ-2: The system shall also provide the list of equipment required to prepare the corresponding beer.

4.4 Add New Recipes

4.4.1 Description and Priority

Main functionality of the application which allows home brewers to add a new brewing recipe.

4.4.2 Functional Requirements

REQ-1: The system shall provide the Add Recipe option.

REQ-2: After clicking on the Add Recipe option, user should be provided with appropriate text fields and text boxes to enter the recipe and its details.

REQ-3: Newly entered recipe should be persisted in the database, and should be accessible from the Recipes option from the Menu.

4.5 Modifying the Batch size

4.5.1 Description and Priority

This functionality of the application should allow the users to update the batch size.

4.5.2 Functional Requirements

REQ-1: The system shall provide the Update Batch Size option.

REQ-2: After clicking on Update Batch Size option, user should be able to update the batch size.

REQ-3: After changing the batch size, corresponding changes in the ingredients involved for that batch of the brew should be reflected automatically.

4.6 Delete the Recipes

4.6.1 Description and Priority

This functionality of the application should allow users to remove a brewing recipe.

4.6.2 Functional Requirements

- REQ-1: The system shall provide the Delete Recipe option.
- REQ-2: After clicking on the Delete Recipe option, user should be able to delete a recipe.
- REQ-3: After deleting the recipe, corresponding changes should be reflected in the database.

4.7 What Should I Brew Today?

4.7.1 Description and Priority

Main functionality of the application that suggests home brewers a new recipe each day.

4.7.2 Functional Requirements

- REQ-1: The system shall provide 'What Should I Brew Today?' option in the Menu on the Home page.
- REQ-2: After clicking on the option, user should be able to view the suggested brewing recipe.
- REQ-3: Recipe should be suggested taking care of the available ingredients, such that it maximizes the use of the available ingredients, also considering the equipment capacity.

4.8 Update the Ingredients

4.8.1 Description and Priority

This feature of the application allows the home brewers to modify and change the ingredients pertaining to a brewing recipe.

4.8.2 Functional Requirements

- REQ-1: The system shall provide Change Ingredients option.
- REQ-2: After clicking on the option, user should be able to modify the ingredients for the selected brewing recipe.
- REQ-3: Modification can be implemented to occur automatically, or can be implemented to be done manually by the user.

4.9 Notes pertaining to each recipe

4.9.1 Description and Priority

This feature of the application allows the home brewers to store notes pertaining to each brewing recipe.

4.9.2 Functional Requirements

- REQ-1: The system shall provide Notes option.
- REQ-2: After clicking on the option, user should be able to add or edit or delete notes for the selected brewing recipe.
- REQ-3: The corresponding changes should be reflected back in the database, and visible next time the recipe is accessed.

4.10 Access the brew log

4.10.1 Description and Priority

This feature of the application allows the home brewers to access the brew log for a particular beer, that is, when was the beer last brewed along with the records of the quantity, the time and date.

4.10.2 Functional Requirements

- REQ-1: The system shall provide View Brew Logs option.
- REQ-2: After clicking on the option, user should be able to view the brewing details for the selected brewing recipe.
- REQ-3: These details should be stored in the database, and retrieved from the database back when requested by the user.
- REQ-4: Brew log should not be editable by the user.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Brew Day! being a web application, shall be run from a web server. The product should take an initial load time depending on the internet connection strength which is also dependent on the device used to access the application. Database updates should take not more than a few seconds as long as a steady internet connection is maintained.

5.2 Safety Requirements

No safety requirements are identified which are concerned with possible loss, damage, or harm that could result from the use of the Brew Day! application.

5.3 Security Requirements

Any guest visiting the web application can have access to read the brewing recipes, but only authenticated users (home brewers) will be able to edit or delete the existing recipes, and add a new recipe. The communication between the client and the server should be secure. The login information should be encrypted. Login using invalid credentials should not be allowed, and if a legitimate user forgets his/her password, they should be given an option for resetting the password in a reliable and authorized manner. The application should not use browser cookies to store any valuable or confidential information.

5.4 Software Quality Attributes

The application should be accessible through all the web browsers, and adapted to the screen size of the device on which the application is being rendered. Graphical user interface must be designed with the usability of the user as the priority. The application should be available to its users round the clock, which means that the web server and the database server should be up and running 24 hours a day and 7 days a week.

The correctness of the algorithm used to fulfill requirement 4.7 should be verified and validated properly. Interoperability for this application is simply the ability of the application to be accessible by users from different browsers on different operating systems and different devices like mobile phones, personal computers, desktop devices, and tablet devices. To ensure that the final product meets all the requirements and quality attributes, application should be thoroughly tested across various platforms and different devices.

6. Other Requirements

The application (code) should be written in such a way that adding new features to the application by other developers is easy, which means that maintainability, reusability, and application extendibility is taken care of. A proper balance should be made between ease of learning and ease of use, and this is left at the developer's judgement. The web application is required to be written using English language. Adding another language option can be considered by the developer team if feasible. The application needs to be built using open source frameworks and tools, and shall be available open source for the use by others.

Appendix A: Glossary

Term	Definition
Batch size	The amount of beer that needs to be prepared
Brew log	Record of the date and amount of recipe each time user brews
Data-centric application	An application based on structured and consistent information such as found in a database
HTTP	Hypertext Transfer Protocol is an application-layer protocol for transmitting hypermedia documents like HTML (Hypertext Markup Language).
IEEE	Institute of Electrical and Electronics Engineers; An organization that develops global standards in broad range of industries
SRS	End product of requirement elicitation and analysis; means of translating ideas from the clients/stakeholders into formally specified set of requirements
TCP/IP	Transmission Control Protocol/Internet Protocol; set of networking protocols that allows two or more computers to communicate