Software Requirements Specification

for

Recipe Database Integration Into Google Search Engine

Version 1.1 approved

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I. Revision History

Although the main author(s) are indicated for each section, all team members have revised and edited the entire document. Please reference Section 4, Inspection Report, for details.

Name	Date	Reason For Changes	Version
Chris Wentz	9/30/2012	Document Outline	1.0
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II. Table of Contents

1. Introduction

1.1 Purpose - Andrew

This document outlines the software requirements specification for a Google recipe database integration. Once it is functioning, this database will provide an open, comprehensive, and easy to access recipe resource that will hopefully benefit cooks worldwide.

1.2 System Overview - Andrew & John

Section 2 provides a brief description of the database and search engine proposed by this project. It provides information necessary to understand the specific requirements laid out in Section 3.

In Section 2, the recipe database is compared to similar products available online in order to illustrate the the client base and the need for a simple adaptation of a common search engine. Naturally, the product features that make this product a useful tool will be listed and described for informational purposes. The system, user, and hardware interfaces will be discussed briefly to demonstrate the simplicity of the design and ease of use for most users. Other considerations including constraints, assumptions, and dependencies will be addressed to show the limitations of design. To correctly market the product, user profiles will be developed, analyzed, and incorporated into the design using accounts with different access privileges.

While Section 2 provides the description of the product, Section 3 contains all software requirements that must be fulfilled by the search engine and database comprising this project. Inputs, outputs, and expected functionality are defined for the system in this section along with performance, reliability, and security requirements.

1.3 References - Sean & Chris

About Google: https://www.google.com/intl/en/about/
PHP Reference Material: http://php.net/manual/en/language.references.php
MySQL reference: http://www.tizag.com/mysqlTutorial/

2. Overall Description

2.1 Product Perspective - Andrew

The Google recipe database integration project is an online database dedicated to culinary recipes. Home cooking and exploration of new recipes is becoming more popular than ever, and the ability to quickly and easily find new recipes would be a great appeal. Unlike some search engines, which can provide similar services, the Google

recipe database specialization allows for a more reliable and streamlined method for finding recipes.

2.1.1 System Interfaces - John

There will be two interfaces for the system: a low level and a high level interface. The low level interface will provide direct access to the database stored on the server. This interface will only be used for creating and altering the database structure, adding triggers, and testing queries. Only administrators will have access to this interface which may be implemented solely via the command line.

The second interface will be a high level web interface directly accessible by all users via the internet. The features available will vary depending on the type of account in use by the users, but all users will have the same basic access rights. More information regarding the users privileges and interfaces can be found in 2.1.2 User Interfaces.

2.1.2 User Interfaces - Sean

The initial interaction the user will have with the website will be a an adaptation of Google's search engine that is so popular. There will be a help tab in the bottom left of the page to make sure our users understand how to properly use our search engine. After the user has inputted the recipe data that they wish to search for they will be presented with the image in Fig 1.. The recipes will be displayed in a single list with the info about the recipe including Name, Ingredients and a ranking system. There will also be a time component so the user knows how long they will be committing to this recipe. The button in the upper left hand of the web page will allow the user to log in so they can save their favorite recipes and even add recipes to the database. The user interface will contain a sans serif font for easy web viewing. The interface will be easy to read for all people. This will be achieved by using colors friendly to color blind individuals. The user interface will also contain features for both novice and advanced users as is reflected in Fig 1. A feature for a basic user is displayed in Fig 2. This is a unique ability to dynamically change what the database searches by clicking on each rectangle. You are able to Include one more ingredient, all ingredients or exclude certain ingredients entirely.

The user will have a limited ability to make changes to the website. The user will not be able to make any changes to the configuration or layout of the website. The user will be able to affect changes on a smaller scale but have a large impact. They will be able to add, comment on, and rate the different recipes into the recipe database. This is one of the most important things that the user can do. An active user population will be vital to keeping this web service going.

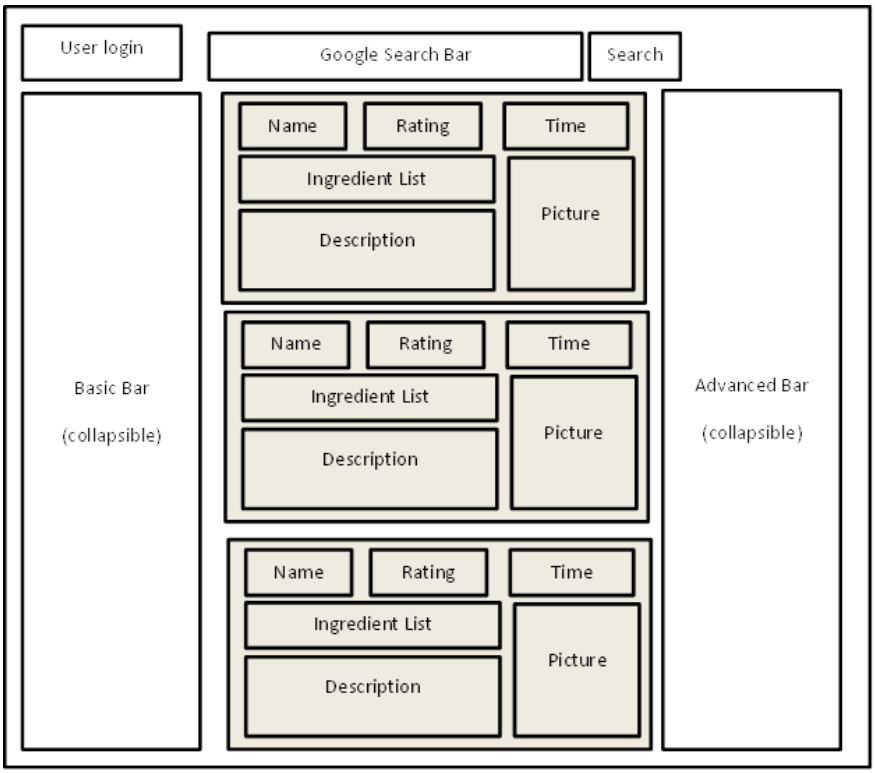

Fig. 1

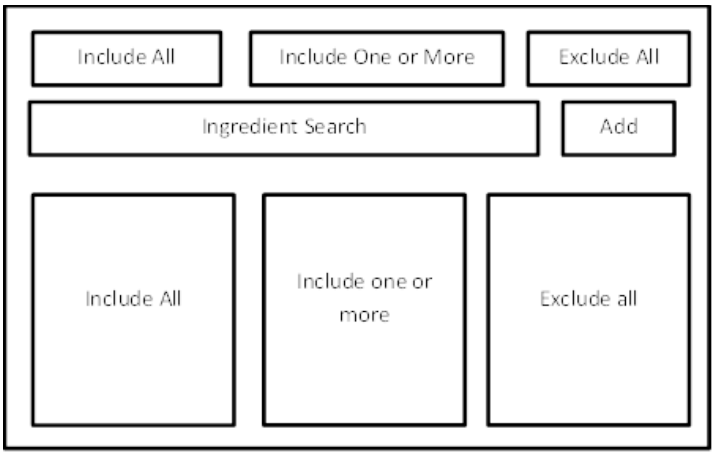

Fig. 2

2.1.3 Hardware Interfaces - John

The hardware required by this project is minimal, as all data will be stored on remote servers and accessed via a high level web interface or a low level command line interface. For ease of maintenance, the servers will be maintained by a third party for a nominal fee. Private servers may be used for testing purposes, but these do not require

explicit hardware interfaces either. No substantial hardware interface is required aside from remote access via command prompts.

2.1.4 Memory Constraints - John

By offloading the maintenance of the servers to a third-party, the constraint is shifted from a memory constraint to a financial constraint. The maintenance costs shall increase as additional memory is required for the system.

2.1.5 Site Adaptation Requirements - John

To reach the widest possible consumer base, all customers with an internet connection and browser should be able to utilize the system. As such the database and search engine shall be designed to run on any operating system supporting a valid internet browser. To accommodate the third-party server provider's hardware choices, the database and interface implementations must also be capable of being implemented on Linux and Windows operation systems.

2.2 Product Functions - Andrew Hale & John

The recipe database and search engine shall provide the following functions for each of the interfaces specified. Some functionality may be restricted by user account.

1. Low level command line interface functions
    a. Allow administrators to change the database structure
    b. Allow administrators to test queries and high level web interface commands

2. High level web Interface
    a. Enable users to search for recipes
    b. Filter recipe results using the following criteria:
        i. ingredients
        ii. recipe type
        iii. cook time
        iv. user rating
    c. Filter ingredients included in the recipes using one or more of the following set functions:
        i. include all
        ii. include at least one
        iii. exclude all
    d. Keep track of current user by providing users accounts
    e. Restrict functionality of interface based on user accounts
    f. Enable uploading of recipes and ingredients
    g. Provide means of changing recipes and ingredient information

h. Allow users to rate recipes
i. Allow moderators to remove inappropriate content
j. Allow administrators to recover deleted content
k. Allow administrators to view recent changes to the database via a trace log
l. Function in tandem with Google's search engine

2.3 User Classes and Characteristics - Andrew & John

The users of the database and search engine will fall under one of the following classes:

1. *Casual cooks*. The casual cook has minimal experience creating culinary dishes and uses search engines like Google to find recipes. This type of user will likely use this product to find recipes that employ particular ingredients or find dishes that work well together.
2. *Frequent cooks*. The frequent cook has considerable experience preparing meals and creating unique dishes via experimentation. Such a user will be prone to upload new recipes to the database, test out existing recipes, and leave feedback for other users regarding his or her experiences.
3. *Moderators*. The moderator has some experience with the culinary arts and has a desire to keep the product from being misused. Such a user will likely be employed by the company to validate suspicious or potentially malicious or inappropriate content (flagged by users) and delete it if necessary.
4. *Administrators*. The administrator will have extensive knowledge of the workings of the product and the underlying database. Such a user will be able to affect all other users as well as the structure of the software to improve efficiency, correct mistakes such as the accidental deletion of an ingredient or recipe, and alter account permissions.

2.4 Constraints - John

The product shall be designed to adhere to the following constraints.

1. All software must be fully documented internally and externally.
2. No personal user information will be collected or stored.
3. The user interface shall be focused on searching and filtering searches such that the target audience will be able to use the software with no more than 10 minutes of training and experimentation.
4. Access to user interfaces shall be restricted by user accounts during standard operation.

2.5 Assumptions - John

The following assumptions were made regarding the design of the product.

1. All ingredients shall be unique.
2. All recipes shall reference existing ingredients.
3. Users may only have a single type of user account.
4. Google will allow its search engine front end to be adapted and incorporated into this project's design.
5. At least one administrator account is open at all times.

6. Users shall submit useful instructions for recipe steps.

2.6 Dependencies - John

Since the database and search engine product comprise a complex software system, an incremental deployment of the design is necessary. The order in which the system will be deployed and tested shall follow the suggestion below. It should be noted at this point that minimal functionality will be present after the upload and search functions are completed, but full functionality requires all steps to be completed.

1. The low level interface and database shall be implemented on the remote servers.
2. A basic high level interface allowing searching of the database and guest access privileges shall be deployed next.
3. Additional high level interface functionality allowing user registration, recipe uploading, and basic search filters will be installed.
4. Moderator and administrator user accounts shall be implemented
5. Commenting, rating, and additional search filters shall be added to the interface.

3. Specific Requirements

3.1 External Interface Requirements - Chris

1. Stylesheet must match that used on Google's web search engine.
2. Database must have the ability to interface with Google's account database.
3. The system be able to work on the google.com domain name with minimal alterations to the test code base.
4. Google ads should be integrated using AdWords where keywords used for targeted ads match the search terms (ingredients).
5. The recipe database's advanced preferences should be able to be integrated into Google's advanced search user preferences.

3.2 System Features - Andrew

Feature 1: Query Database

a. Description: The users queries the database which returns results based on user input parameters
b. Stimulus and Response Sequence:
    i. The user selects the "Search" icon to begin querying the database. This is the default state when users first access the product.
    ii. The GUI will consist of:
        1. A text field for the user to input certain parameters
        2. Search types: Ingredients and Recipe Type
        3. Options to sort searches by Time and/or User Rating
        4. The execute search button
c. Functional Requirements:
    i. The user can implement only one search type/sorting option at a time

ii. The text field will have an upper limit of characters.

Feature 2: Upload Recipe

a. Description: The user shall be able to upload a recipe into the database.
b. Stimulus and Response Sequence:
    i. The registered user selects the “Upload Recipe” icon to begin sequence.
    ii. The GUI consists of:
    iii. Text field to input recipe instructions
        1. Additional Text field to include tags which will be used to integrate the recipe into the database and return search results
        2. A section that takes takes uploaded word or text documents in place of the first text field.
        3. The “Finish Upload Icon”
c. Functional Requirements:
    i. The database can display text files in the database

Feature 3: Rate Recipes

a. Description: A user rates their satisfaction with the recipe on a scale of 0 to 5
b. Stimulus and Response Sequence:
    i. The option to rate recipes will be displayed above their data in the form of five stars
    ii. The user selects a number of stars to fill representing their satisfaction on a scale of 0 to 5 (0 being very satisfied, 5 being very satisfied)
    iii. The overall rating is computed based on the average of these ratings.

Feature 4: Create Account

a. Description: User creates an account which they can use to upload and store recipes.
b. Stimulus and Response Sequence:
    i. The user selects the “Create Account” icon to begin
    ii. The GUI consists of:
        1. Two text fields to input and verify the email associated with the account
        2. Two text fields to input and verify the password to associate with the account
        3. A text field where the use inputs their desired account name
        4. The “Finish Creation Icon” which finalizes the account
c. Functional Requirements:
    i. Users cannot create an account with a name already employed by another user
    ii. It must be possible to test whether the email and password fields are consistent

3.3 Performance Requirements - Chris, John Clark

1. All database queries must return in at most 1.5 s..
2. Images must load in at most 1.5 s.

3. Image upload speeds must meet or exceed 5.0 Mb per second on the server side.
4. System must have 90.00% up time.

3.4 Design Constraints - Chris

1. Must be seamlessly integrated into Google's current interface.
2. Search results must display in the same formatting and style as Google web search results.
3. All user interface components must match Google's branding.
4. Database must be easily integrated into Google's current SQL database system.
5. Application must be scaleable to work across multiple servers and multiple instances of the database.

3.5 Logical Database Requirements - Chris

1. One email cannot be used for multiple accounts.
2. Each recipe has only one author and that author is the only entity other than the administrator that can edit the recipe.
3. Recipes can have multiple images.
4. Each recipe must have at least one ingredient.
5. All users must have a password that meets the password requirement specifications for Google Accounts.
6. Each recipe must have at least one instruction.
7. The average rating of a recipe that's displayed must be the mean value of all ratings associated with that specific recipe.

3.6 Software System Attributes - Sean

This software will be web based and will be available on all platforms. It will be available on Windows, Mac, Linux. The system will be usable on all internet capable devices.