Cook Book: Recipe Search

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DECLARATION

I hereby declared that I have developed this report entirely on the basis of my personal efforts under the sincere guidance of my supervisor. All the sources used in this report have been cited and the contents of this report have not been plagiarized. No portion of the work presented in this report has been submitted in support any application for any other degree of qualification to this or any other university or institute of learning.

Shahzaib Iftikhar

Project Brief

Project Title:

        Cook Book

Developed By:

        Shahzaib Iftikhar

Supervised By:

        Ms. Ifrah Farrukh Khan

Operating System:

        Windows 10

Document Design Tool:

        MS Word 2013

Dedicated To

The Holiest Man Ever Born,

PROPHET MUHAMMAD (S.A.W.A.S)

&

To

My PARENT AND FAMILY

I am most indebted to my parents and my family, whose affection has always been the source of encouragement for me, and whose prayers have always been a key to my Success

&

To

THOSE LOVED ONES AND FRIENDS

Who always worried and prayed for my success and gave me continuous moral support and encouragement.

&

To

MY HONORABLE TEACHERS

Who have been a beacon of knowledge and a constant source of inspiration for my whole life span.

ACKNOWLEDGEMENT

Abstract

Cook Book is web based application for recipe searching. Cook Book is an application that enables user to search recipes of cooking items. Recipes of the cooking items include different ingredients. User will provide different ingredients and against these ingredients a list of recipes will be displayed to the user. String searching is used to develop that searching. After implementing the searching the system is evaluated against a different query set. The searching is set against a query set and then result is to find the recipes of the cooking item. For persuasion of the user a dynamic ingredient suggestions has been provided which is generated in response to every query along with the suggestions for the given ingredients.

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Chapter 1: Software Project Management Plan

1.1 Introduction

In this chapter SPMP (Software Project Management Plan), a plan is described which will be followed for our final year project for the degree of BS Computer Science. The project „Cook Book‟ is basically a web based project.

1.2 Project Overview

The name of the project is „Cook Book‟. This will be a web-based application for searching about recipes. This product will be available for free for common people so that they can access cooking recipes. Cooking recipes are shown to the user according to their need.

1.3 Project Deliverables

Possible project deliverables are given below.

- Architecture.

- Evaluation Mechanism which will be used to evaluate the product.

- Cooking Recipes collection.

- Product design.

- Design implementation.

- Implementation of algorithm.

1.4 Software Process Model

We will be using waterfall process model. Requirements are pretty clear that‟s why we are using waterfall software process model.

1.4.1 Roles and Responsibilities

Since I am the only one who is dealing with this project so my responsibilities are to complete all tasks define in time table before time.

My roles are:

- Do analysis.

- Propose comprehensive solution.

- Design interface.

- Implementation of algorithm.

1.4.2 Tools and Techniques
- MS word for documentation.

- Notepad++, Sublime

- PHP Storm

1.5   Project Management Plan
Following are the tasks for our project.

1.5.1 Problem Analysis
Problem analysis consists of some of sub tasks.

1.5.2 Problem Understanding
In this phase I shall be dealing with the problem understanding. Discussing it with supervisor and having complete understanding of the project.
.

1.5.3 Problem Survey
After understanding the problem, I shall be doing survey of the problem. Collecting information about the similar problems and their solution and will matching solution with our problem.

1.5.4 Proposed Solution
After having understanding of problem and having survey I then require to propose a solution for our problem.

1.6   Cook Book Collection
In this phase we will be collecting cooking recipes.

1.6.1   Finding Resources

In this task I shall be finding resources from where we can collect the cooking recipes. These resources can be either be different cooking recipes sites or our own collection of recipes.

1.6.2   Understanding of Cook Book

The cooking recipes collected from previous task are need to be proper, clear, and understood.

1.7   Architecture

This phase involves the architecture design of our problem. This task involves some of the sub task described below.

1.7.1   Diagrammatic View

In this task I shall be describing architecture of our system in the form of diagram.
.

1.7.2   Describing Architecture

In this task I shall be describing the architecture of my project. The diagram obtained from very previous task will be explained in detail.

1.8   Implementation

In this phase I shall be dealing with the implementation of our product. Probably a period of 4 months will be given to this phase.

1.9   Finding and Results

After implementation of product the last task will be its evaluation. Query set will be made to evaluate the system and at the end conclusion will be provided.

1.10 Gant Chart
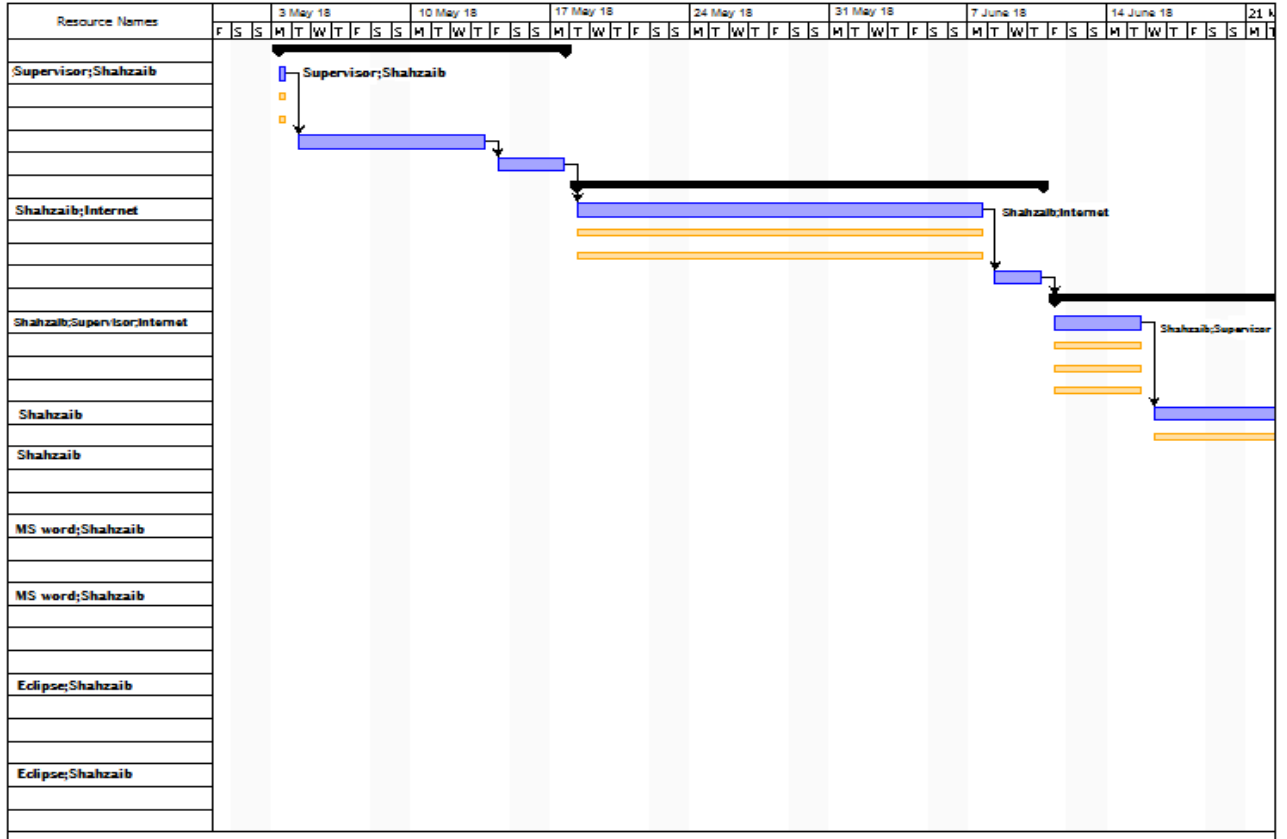
Figure 1.0.1 Gantt chart (1)
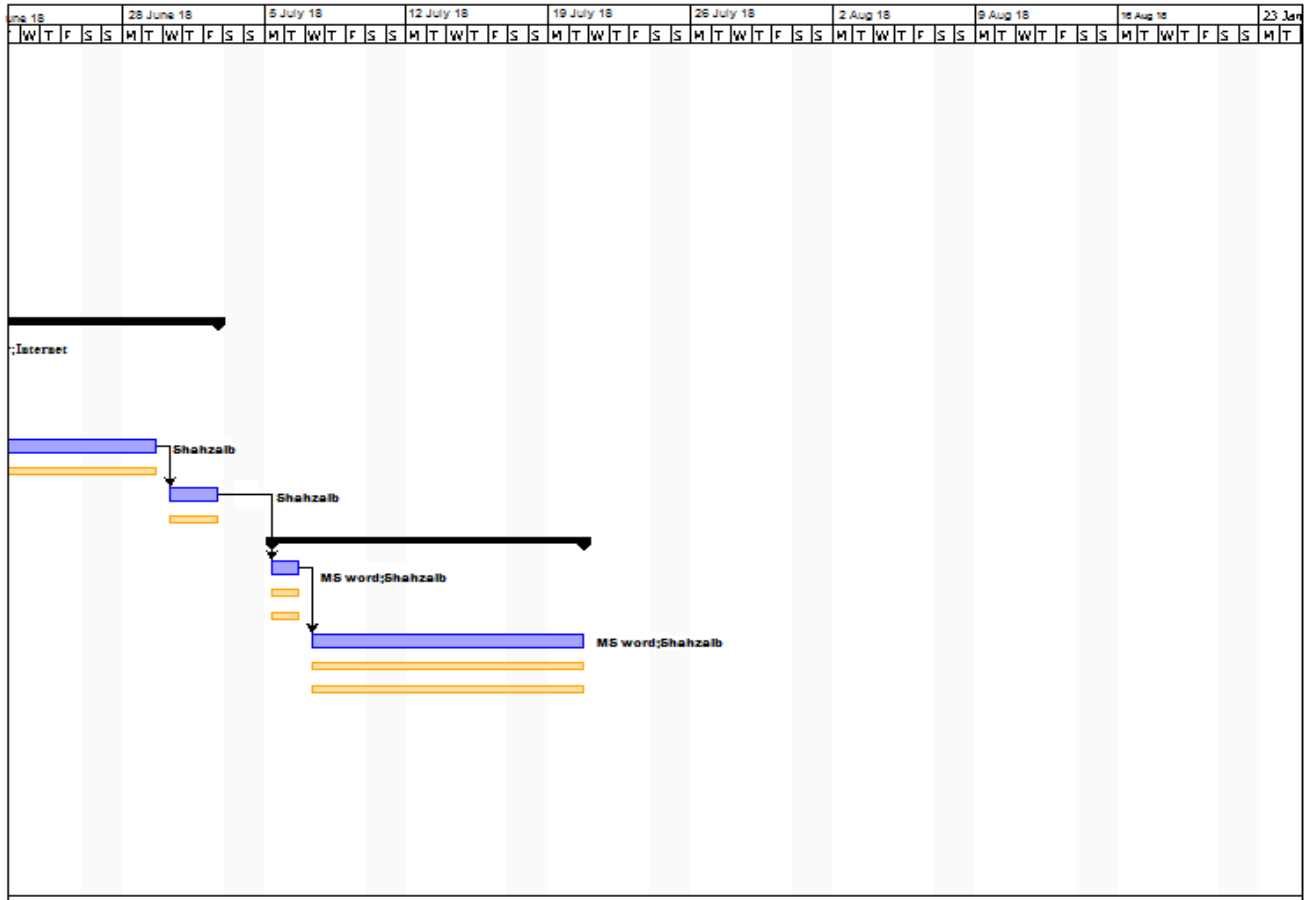
Figure 1.0.2 Gantt chart (2)

Chapter 2: Cook Book Introduction

2.1 Introduction

Cooking is the most talented work so everyone cannot do it. For some people cooking is hobby and for some people cooking is just time pass. Nowadays everyone is trying preparing new items irrespective of their interest. For some people cooking is business and for some people likes to tasting new food items. I am going to develop a website for people who want to try or prepare new food items. This may help people for getting information about cooking recipes and can make decisions about their desired recipes by searching recipe through website.

2.2 Recipes

Recipe is a set of instructions that describes how to prepare or make something or recipe is a list of ingredients and set of instructions that tells you how to cook something. Recipes also used in medicine. In medical recipe used in sense that a doctor will usually begin a prescription. But here will discuss only the recipes which are about cooking. A recipe sweet tea is shown below.

Figure 2.1 Recipe Example

2.3   Scope

The aim of this project is to construct an web based application by use of which a user can learn various kinds of the recipe. This system can be beneficial for a restaurant or to the instructor who teaches the cooking as they can spread their recipe to the other. Cook book recipe search is a web-based application for searching recipes. Recipes of the cooking items include different ingredients. User will provide different ingredients and against these ingredients a list of recipes will be displayed to the user. String searching is used to develop this search engine. The searching is set against a query and then result is to find the recipes of the cooking item. Different ingredients or single ingredient will be provided by the user. These ingredients or ingredient is/ are than matched with the cooking recipes. If the ingredients/ingredient provided by the user matches with the recipes that system holds then a number of recipes are retrieved. These retrieved recipes are than displayed according to rating.

2.4   Motivation

Cooking Information is knowledge for cooks or the people who likes cooking and wants to prepare the new food items irrespective of their interest. This project will help the common people to access the cooking recipes according to their desire without paying any dues as some cooks do when you try to get their recipes or new cooking recipe. With the help of this cookbook every person can access cooking recipes. Cook Book includes recipes of different sites. The motivation is to develop a cookbook recipe search which provides access to cooking recipes to even common citizen.

2.5   Existing System

In this I will be explaining some system made on existing Cook Book or recipe management systems search engines and will try to explain the mechanism they are using for their recipes. Moreover, I will be describing what technique they are using for text processing also will suggest what techniques we are going to use for the implementation of our search engine.

2.5.1 MyRecipeBook App

There are some recipe management systems search engine like MyRecipeBook App. MyRecipeBook application is a very useful app for the people who love to cook and try out new recipes. It provides user flexibility to search recipes from a database. User is given choice to create personal cookbook where user can create, view recipe and delete recipe. The interface is clean and simple of this application.

MyRecipeBook App introduced on April 2017 [1]. The app development consists of five parts. First part is devoted to data gathering and software requirements specification. Second part is dedicated to design phase, include application and the database. Third part is the implementation phase. Fourth step was testing the application. Last and fifth phase is the deployment phase.

The implementation is about designing activities, which is similar to pages in web applications, creating the database inside the project and linking the GUI (Graphical User Interface) with the functionalities and the database. Every time implemented functionality is tested by the application developer on GenyMotion Emulator (it helps the mobile application developers to test their products within a safe, virtual environment) and their android phone so as to get a real-life representation. Application developer managed one more thing which is to made the mobile application compatible with phones supporting different versions.

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Chapter 3: Specification Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces
Types of user interfaces are mention below.

- Command line

- Graphical user interface

- Menu driven

- Form based

- Natural language

According to the need of our project we use two user interfaces.

- **Graphical User Interface** (in which user interact devices through graphical icon and visual indicators).

3.1.2 Hardware Environment
System: Pentium 4 2.4 GHz

Hard drive: 40 GB (min)

Monitor: VGA color

Mouse: user choice

Ram: 512 MB (min)

3.1.3 Software Environment
Operating system: Windows 7 ,8,8.1,10

Coding language: Php, html.

Tool: Notepad++, Sublime, Php Storm.

3.2 Software Product Features
The goal of this step is to ensure that the requirements are consistent, precise and complete to ensure that we meet the final outcome expectations.

There are two types of requirements:

- Functional

- Non-functional requirements.

The functional requirements are the ones that describe the functions of the software product whereas, the non-functional requirements are the ones that present the software product constraints and properties.

But here we discuss only the functional requirements to describe the functionality of the software product.

3.2.1 Functional Requirements

Some of the functional requirements for the software product are:

Following is the table of product functions

User	Non-Register User	System
Login	Register Account	Fetch data
Search recipe(s)	Search recipe(s)	
View recipe(s) result	View recipes result	
Save recipe(s)		
Logout		

3.3 Use Cases

The use case diagram, list of use case and their description is as follows:

3.3.1 Use case diagram

Use case diagram defines a set of actions (use cases) that systems (subject) should or can achieve in association with one or more external users of the system (actors).
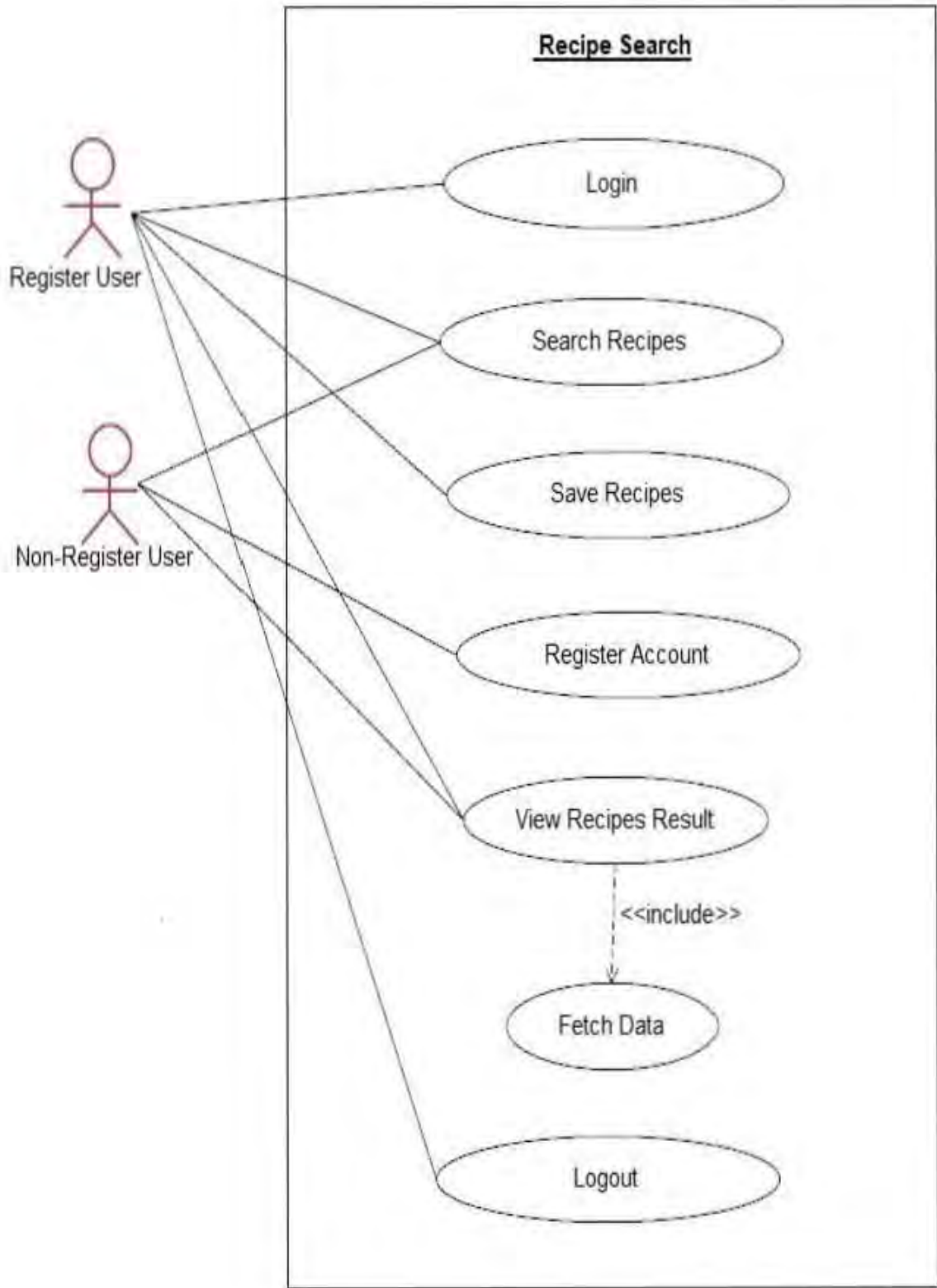
Figure 3.1 Use Case Diagram

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3.3.2 Use Case Description

The use case details include primary actor, pre and post conditions, main and alternative scenarios.

UC-1 Register Account

The following table describes use case "Register Account" in detail.

Table 3.1 UC-1 Register Account

Primary actor	Non-Register User.
Goal in context	Non-Register User will be able to create new user"s account.
Pre-condition	Non-Register User must have opened the sign up page.
Post-condition	New user"s account has been created successfully.
Main Success Scenario	1) User presses the sign up option. 2) System shows "Register account" model. 3) User inputs account details. 4) System displays account"s registered message.
Alternative Scenario	*Server is down. *Internet is not available. 4a) User do not fill all required fields. a) System prompts user to fill all required fields
Technology	1. Mouse and Keyboard for input. 2. Screen for display output.
Frequency	Many times a day.

UC-2 Login

The following table describes use case "Login" in detail.

Table 3.2 UC-2 Login

Primary actor	Register User
Goal in context	Register User will be able to login account.
Pre-condition	User is required to have an account.
Post-condition	User successfully has logged in.
Main Success Scenario	1) User enters email address and password. 2) User clicks the login button. 3) System displays the main page.

Alternative Scenario	*Server is down.
	
	1a) User enters incorrect credentials.
	
	   a) System prompts user to enter correct username.
	
	2a) User submits information without filling all required fields.
	
	   a) System asks user to fill all required fields.

Technology	1. Mouse and Keyboard for input. 2. Screen for display output.
Frequency	Many times a day.

UC-3 Search Recipes

The following table describes use case "Search Recipes" in detail.

Table 3.3 UC-3 Search Recipes

Primary actor	Register user, Non-register user
Goal in context	Users will be able to search recipes.
Extension	Search result is greater than and equal to one.
Pre-condition	Users must have opened the main page.
Post-condition	User search recipes have been successfully.
Main Success Scenario	1) System shows "Search recipes" model. 2) User inputs recipe ingredient(s) details. 3) System sends the search queries to database. 4) Then it gets back all results came from the database. 5) System shows the result by comparing all the results according to the search criteria.
Alternative Scenario	2a) User do not fill all required fields. a) System prompts user to fill all required fields.

UC-4 Logout

The following table describes use case "Logout" in detail.

Table 3.4 UC-4 Logout

Primary actor	Register user
Goal in context	User will be able to logout account.
Pre-condition	User is required be logged in.
Post-condition	User successfully has been logged out.
Main Success Scenario	1) User presses "Logout" button. 2) System displays login screen.
Alternative Scenario	*Server is down. *Internet is not available.
Technology	1. Mouse and Keyboard for input. 2. Screen for display output.
Frequency	Many times a day.

UC-5 View Recipes Result

The following table describes use case "View Recipes Result" in detail.

Table 3.5 UC-5 View Recipes Result

Primary actor	Register user, Non-register user.
Goal in context	Users will be able to view the recipes.
Pre-condition	Users must have searched the recipe.
Post-condition	User has successfully viewed search recipes.
Main Success Scenario	1) User clicks search button. 2) User views the search recipes results.
Alternative Scenario	*Server is down. *Internet is not available.
Technology	1. Mouse and Keyboard for input. 2. Screen for display output.
Frequency	Many times a day.

UC-6 Save Recipes

The following table describes use case "Save Recipes" in detail.

Table 3.6 UC-6 Save Recipes

Primary actor	Register user
Goal in context	Users will be able to save recipe.
Pre-condition	Users must have login first.
Post-condition	Recipe saved successfully.
Main Success Scenario	1) User inputs recipe ingredients details. 2) User presses save button. 3) Recipe will save in list against logged in user.
Alternative Scenario	*Server is down.
Technology	1. Mouse and Keyboard for input 2. Screen for display output 3. Internet connection
Frequency	Many times a day.

3.4　Database Requirement

MySQL database will use for this system to store all information. It will allow the user information to be stored and then display in various forms to each user. Tables will communicate and share information.

Figure 3.2 demonstrates a system's entities and the relations between those entities.
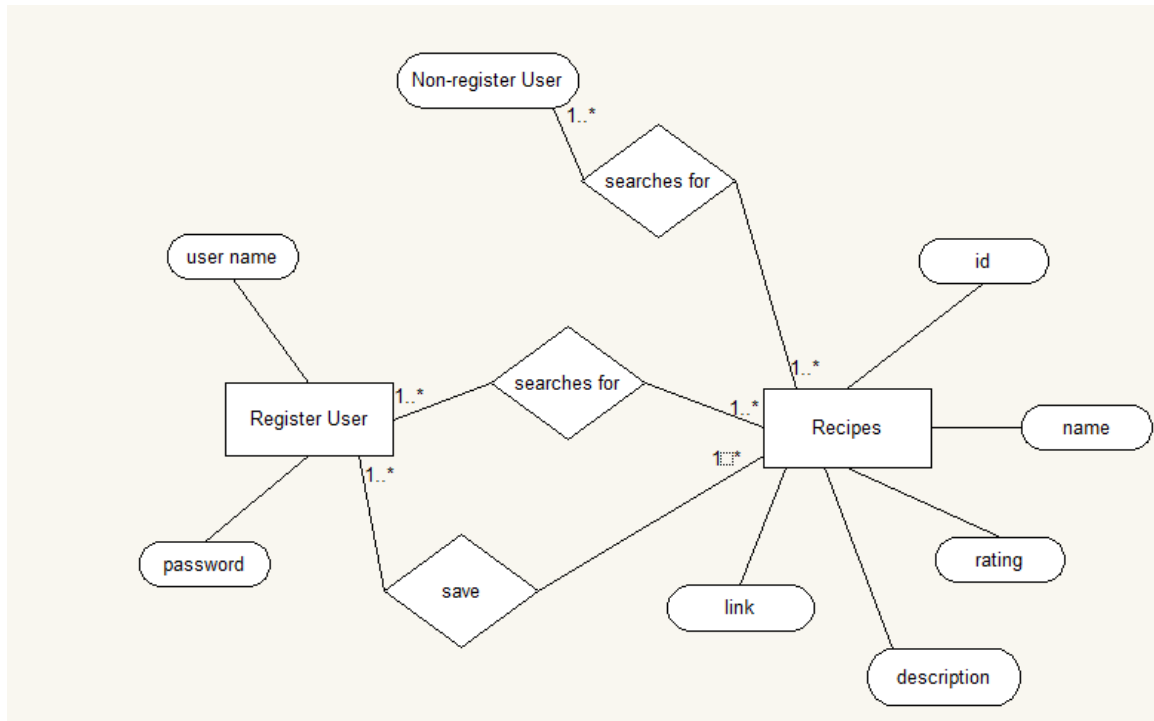
Figure 3.2 Entity Relationship Diagram

3.5　Software System Attributes

There are a number of attributes of software that can serve as requirements. It is important that required attributes be specified so that their achievement can be objectively verified. Basically, these are non-functional requirements.

3.5.1　Non-Functional Requirements

Some of the non-functional requirements in our software system are:

- **Usability Requirements***:*
1. The application shall be easy to use and intuitive.

2. The application shall have a user-friendly interface.

3. GUI shall be simple and clear.

- **Performance Requirements**:
1. The application shall be fast and robust when loading.

2. The program shall not allow more than 10 min/year of failure.

- **Reliability Requirements**:
1. The application shall not produce an incorrect output.

- **Portability Requirements**:
1. The software shall work in web platforms.

- **Security Requirements**:
1. The application shall be protected from any external danger or attacks.

Chapter 4: Design Description

4.1 Introduction

In this chapter architecture of our application will be discussed. Searching applications on the internet are the most relevant and commonly used tools in searching, accessing and gathering information. Because of much information out there, topic-specific web based searching applications are being developed to be selective in searching and finding only the most relevant information [3]. The idea behind this is information retrieval that provides the representation, organization, storage and access to information items [4]. To improve the quality of information retrieval, we have to improve the means that were used for searching on the Web. Search engines contain three key parts**:**

(1) A databank of information items.

(2) An actual program designed to search those information items.

(3) A sequence of programs responsible for how the results will be presented [6].

 To use searching applications, searchers submit queries as sequences of terms that describe the content, they are interested in. In return, these applications generate pages of results containing lists of relevant Web contents, including hypertext links to access them. Searching applications reduce the problem of finding content among billions of pages. Currently, they can generate a set of results in under a second. The speed of search engines keeps rapidly increasing while their efficiency is becoming more and more important [7].

For the implementation of our application first and very important thing is the rating of the recipes which the user will search. Rating is very important in every searching application. After discussing the architecture of our application evaluation measures will discuss that will be taken after the implementation of this product. In the process of information retrieval user will provide its information need, this information will be in the form of query. There will be a collection of recipes. As I am using database for storing the contents of the recipes so that I shall be using database index (a structure that improves the speed of data retrieval operations on the database table.) Each recipe is different from the other on the basis of recipe id. Detail about indexing

is described in section 4.3. Once recipes are indexed then user enters his/her information need in the form of a query, his/her query is processed and on the basis of rating, a list of relevant recipes is retrieved. These retrieved recipes will then display according to their rating. The recipe which is most relevant and has more rating is displayed on the top and the second most is displayed on the second number and so on. Figure 4.1 shows the diagrammatic view of architecture of a recipe searching.

Below is the architecture of a recipes retrieval system.
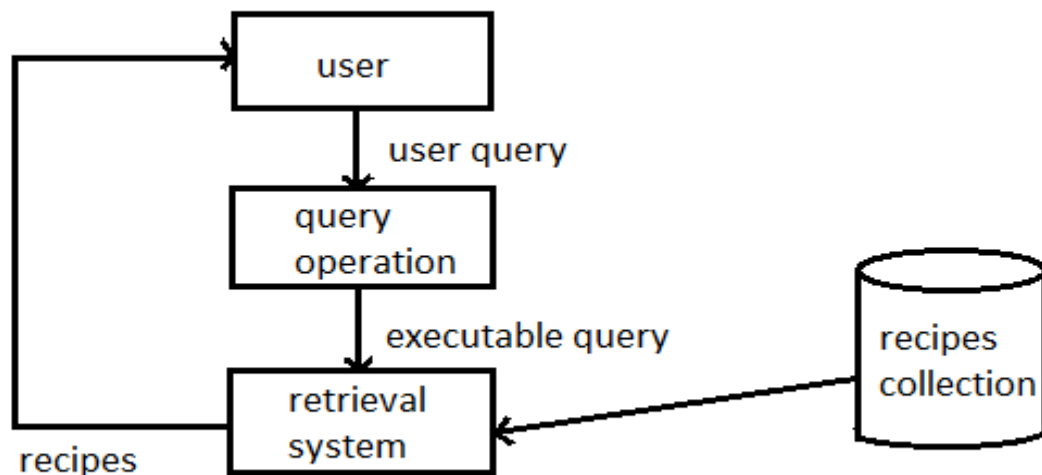
Figure 4.1 Recipe Retrieval System Architecture

4.2   Query processing

In query processing, we will actually understand how these queries are processed. The query processing in a database management system receives as input a query request in the form of text, parses it, generates an execution plan, and completes the processing by executing the plan and returning the results to the user.

Typically, a query processor consists of four sub-components each of them corresponds to a different stage in the lifecycle of query. But for better results I will

add two more functions after the query in high level language before sending it to the parser and translator sub component of query processing.

```
Query in high level
language
        |
        v
  +----------------+
  |  Tokenization  |
  +----------------+
        |
        v
  +----------------+        +------------------+
  |  Stop words    | <----- |  stop words list |
  |  removal       |        +------------------+
  +----------------+
        |
        v
  +----------------+
  |  parser and    |
  |  translater    |
  +----------------+
        |  internal representation of query
        v
  +----------------+
  | query optimizer|
  +----------------+
        |
        v
  +----------------+        +------------------+
  | query evoluation| <---- |                  |
  | engine         |        |    database      |
  +----------------+        +------------------+
        |
        v
  result of query
```
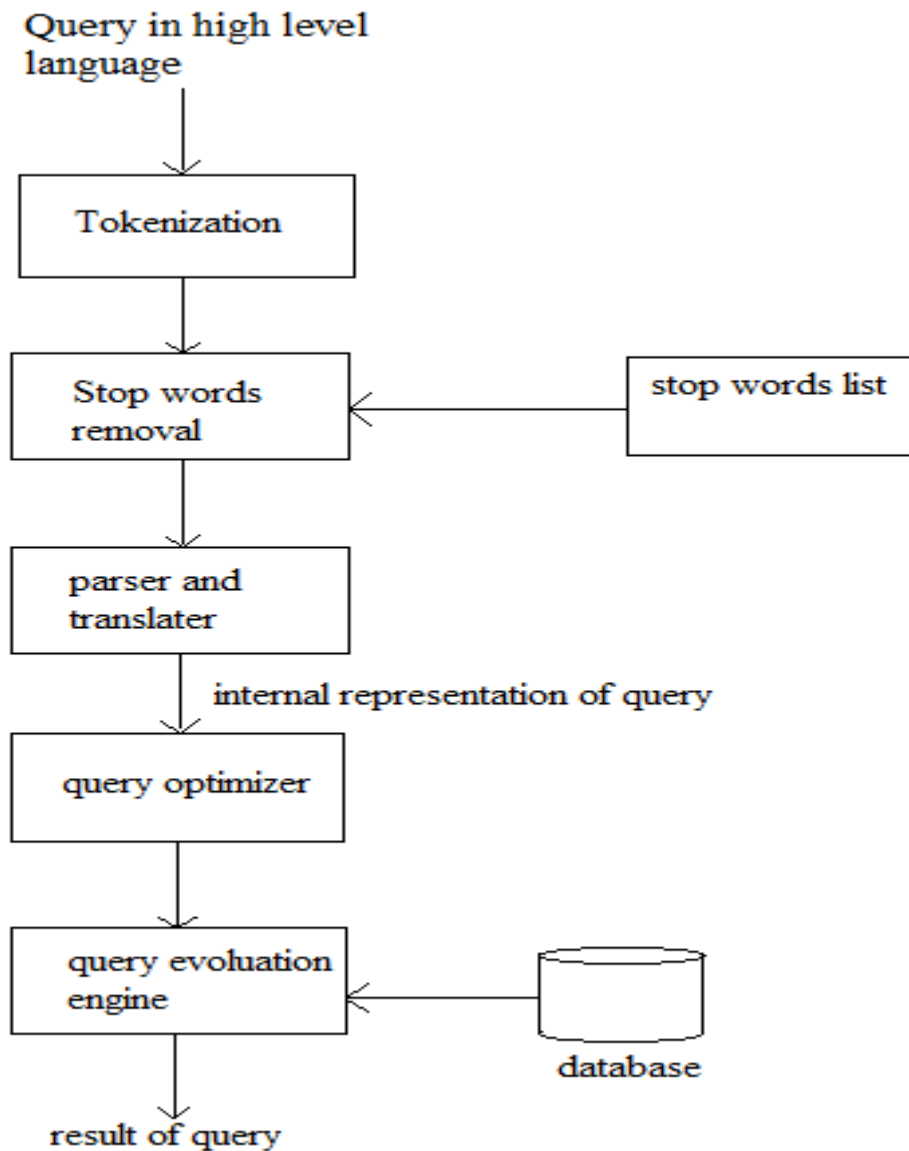
Figure 4.2 Query Processing

In the above diagram,

• The first step is to transform the query into a standard form.

• After this tokenization performed on the query.

• After the tokenization the stop words will remove from the query.

- A query is translated into SQL and into a relational algebraic expression. During this process, Parser checks the syntax and verifies the relations and the attributes which are used in the query.
- The fifth step is Query Optimizer (the component that analyzes Structured Query Language (SQL) queries and determines efficient execution mechanism. The most efficient query plan is selected and used to run the query). In this, it transforms the query into equivalent expressions that are more efficient to execute.
- The sixth step is Query evaluation. It executes the above query execution plan and returns the result.

Following are the techniques of text mining which are performed in our system after the query in high level language.

4.2.1 Tokenization

Chopping a sequence of characters into the collection of words is referred to as tokenization. The use of tokenization is getting or identifies the meaningful keywords

Input: ¼ cup milk

Output: | 1/4 | | cup | | milk |

4.2.2 Stop Words Removal

Some frequent words that are used in recipe search which may have little value but they will appear most of the times, these words are referred to as stop words. So, the removal of these words (stop words) is necessary. Example of stop words are a, an, is, the etc.

4.3 Rating

Rating is the most important step in the searching applications in the information retrieval system. When a user enters some keywords, then these keywords are processed and related recipes against these keywords are retrieved. The number of recipes that are retrieved from the keywords can be very large. Most rated recipes

should appear first and second most rated recipe should be displayed after the high rated recipes and so on. Recipes in this project are rated using star rating and recipes which are related to given keywords might be many but 10 recipes are displayed to the user among all the retrieved recipes, and these first 10 recipes are shown on the basis of rating as described above. Like in other search engines like Google if we query something it gets millions of results but displays only some of them in first list, the recipes which are displayed in top e.g. results=10 list are on the basis of their ranking. (Fig 4.5). The rating that is used for ranking the results is Star Rating. We will be using Star Rating that is discussed below.
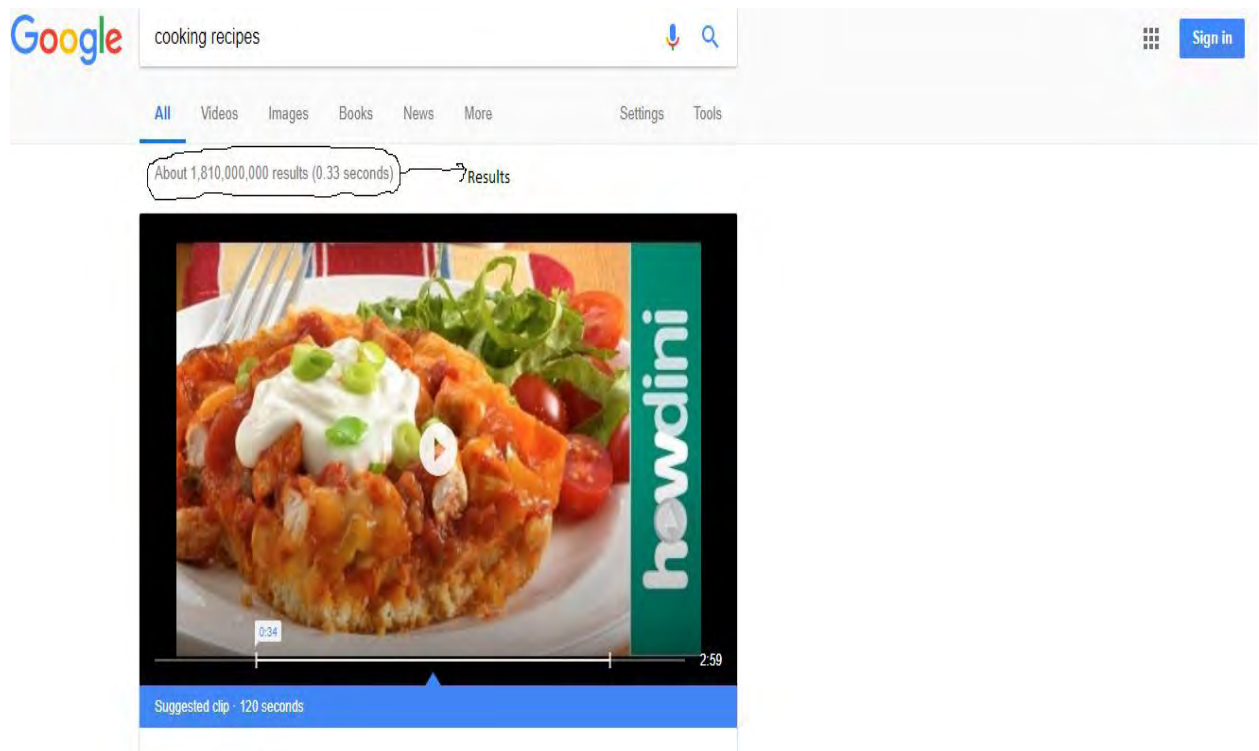
Figure 4.3 Retrieval Results Example (Google)

- **Star Rating**

A Star Rating is determined by more than 200 criteria that have been ranked by Australian travelers according to what's important to them. The rating is independently verified ensuring customers can have confidence in the rating assigned to each property. Star Ratings are an internationally recognized symbol for quality accommodation standards. They are used in more than 70 countries worldwide and

reflect the cleanliness, quality and condition of guest facilities. Star Ratings are a mark of quality: if a property has a 1 Star Rating, you can be assured that the property has met the standards expected of a quality 1 Star property; if a property has a 5 Star Rating, it has met the standards expected of a quality 5 star property. The 'star' symbols are a licensed trademark and can only be used by properties that have been licensed to use them by the Australian Tourism Industry Council (ATIC). Star Ratings are your safeguard against 'self-ratings' - properties that have assessed their own quality standards. Star Ratings are awarded to six distinct accommodation categories: Hotels, Motels, and Serviced Apartments.

4.4 Evaluation Measures (Information Retrieval)

Evaluation measure process determined whether the information retrieval system which has been implemented as intended and resulted in certain outputs. In other words evaluation measures determine how well the search results satisfied the user's query intention. The user provides an information need in the form of keywords and receives the results. In this chapter we will discuss the evaluation of system that processes only the measure in which the user input desired query and receives the results back.

After discussing the architecture of the searching applications, we start designing our product. System design for our system includes dataflow diagrams and architecture diagram. There are two data flow diagrams, each representing the flow of the search engine made for the recipes. Since we got two major functions of our product, one is searching application results and second is query formulation so for these functions we have an architecture diagram. This architecture diagram describes the search engine working.

4.5 Data Flow Diagram

Since there are two Data Flow diagrams so figure 4.4 shows Data Flow diagram for Level 0 and figure 4.5 shows Data Flow diagram for Level 1 for search engine.

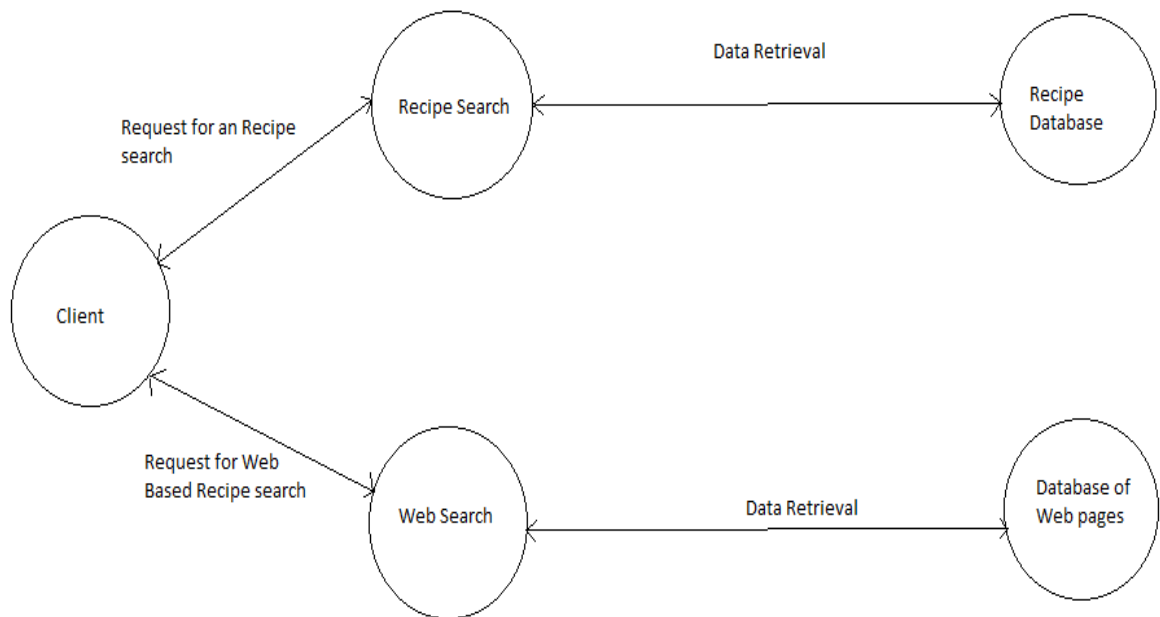*Figure 4.4 Data Flow Diagram Level 0 For Recipe Search Engine*

Figure 4.5 Data Flow Diagram Level 1 for Recipe Search Engine
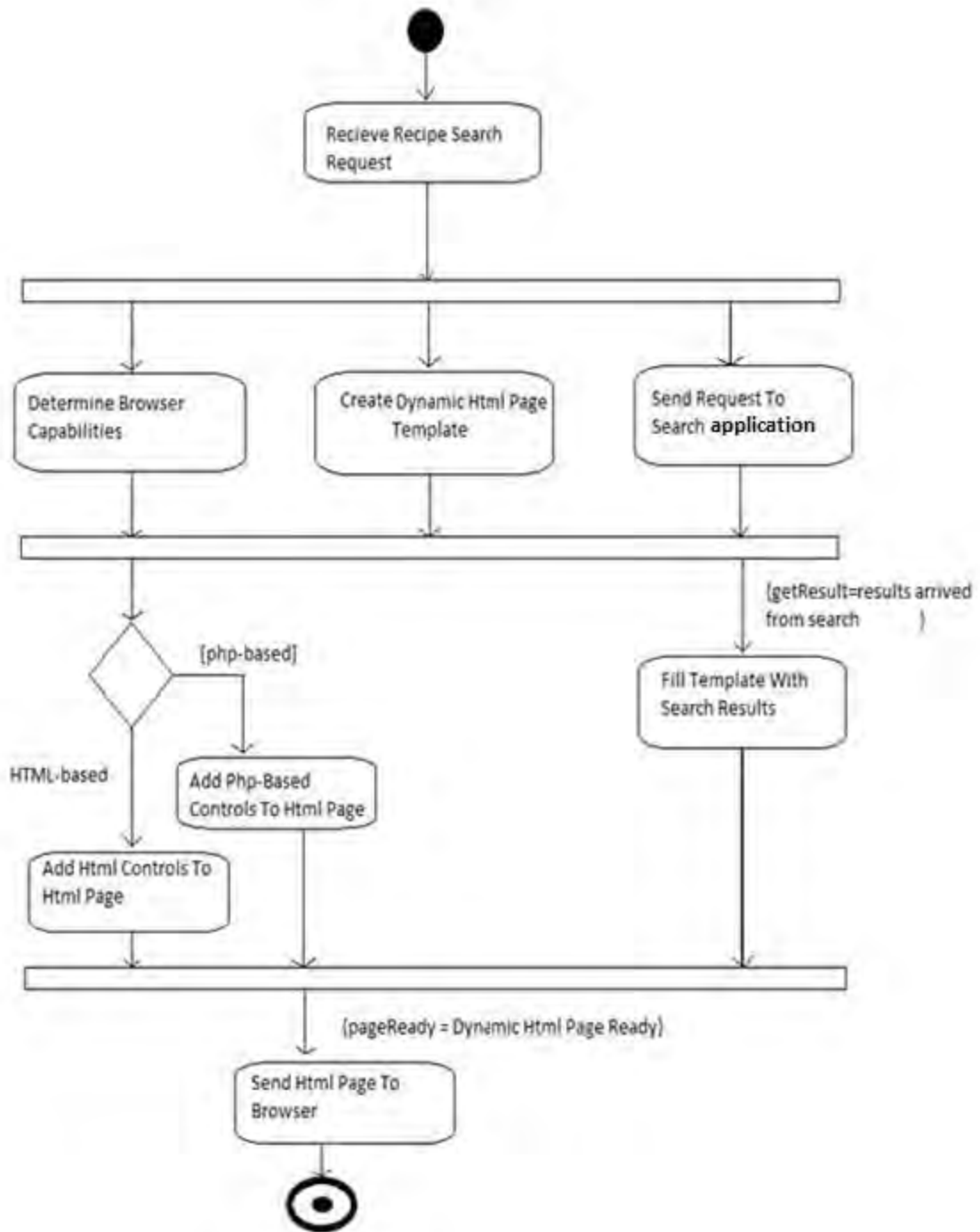
4.6 Activity Diagram

Figure 4.6 Activity Diagram for Recipe Search Engine

Chapter 5: Recipes Collection

5.1 Introduction

In this chapter we will be moving our discussion forward towards recipes collection phase, this phase is a first step towards search engine implementation phase. Since we are going to build a „Recipe Search Application", the first step will be collection of valid recipes. For this, there will be a need resource(s) from where we can collect valid recipes also the method used in the collection phase will be described. Moreover, we will store each valid recipe to some database through scrapping i.e., chicken soup recipes, chicken soup recipes and recipes which requires some quantity of cup milk etc. and will describe what kind of recipes the database will contain.

5.2 Collecting Recipes

Before collecting recipes, we must be clear what we are looking for i.e., what recipes are referred as valid recipes? As described earlier in section 2.2, a valid recipe is a set of instructions that describes how to prepare or make something or valid recipe is a list of ingredients and set of instructions that tells you how to cook something. These recipes involve some ingredients. The most commonly valid recipes used in information retrieval systems depends upon the choice of user or cook.

Now after the understanding of a valid recipe we start to collect valid recipes. We will be dealing with recipes of dishes only. There are a huge number of cooking recipes made by different websites but for this application we will be considering only some recipes to be indexed in database. These recipes can be found at website of food network **https://www.foodnetwork.com** and **https://www.splendidtable.org**. These recipes are in document format (text). There were two ways of getting those recipes, by downloading each recipe one by one and the other option was to build a web scraper. We preferred making a web scrapper.

5.2.1 Web Scrapping

Web scraping also known as web data extraction, is an automated software technique of extracting information from web. We made web scraper in php using php functions. This scrapper is used for pulling data out of HTML and XML files or the

websites which are using the json schema. The general idea for web scraping is to extract data from web and convert it to a suitable format which can be analyzed.

Now we described what technique used for getting valid recipes from the source. The sources from where all the recipes are collected are an official website of splendid table and food network. Php programming language is used for making web scraper. The IDE used for Php programming is Notepad++. One can get confused in the difference between web crawler and web scraper. Web crawler also known as web spider, is a software program that visits the websites and reads their pages and other information to build entries for a search engine index. Whereas web scraping also known as web data extraction, is an automated software technique of extracting information from web for example to download the files from web and reading the related information. I made web scraper for downloading the recipes from the website of Splendid Table and Food Network.

Chapter 6: Implementation Of System

6.1   Introduction

In this phase we will be going towards implementation of our system. We will be providing tools that are used in implementation phase and language used. Ingredient suggestion also has been provided for this system. It will make an ingredient suggestion for the recipes containing multiple ingredients. This ingredient suggestion is provided to the user from the ingredients present in database of the system.

6.2   Language Selection

- **PHP**

PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

- **HTML**

HTML is hypertext mark-up language is used for developing front end of our web application. Bootstrap is also used with it in order to make the user interface more attractive.

- **CSS**

Cascading-Style Sheet or CSS is not a programming language. It is a markup language used with HTML to design the user interface of a website (the style is applied to the markup language throughout the same sections of similar parts).

- **JavaScript**

JavaScript is an object-oriented programming language used to create interactive effects within web browser.

- **jQuery**

It is a fast, small, and feature-rich JavaScript library. It makes things like HTML recipe traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browser.

6.3 Tools

Tools that are used in the implementation are:

- Notepad++, Sublime
- PHP Storm

6.4 IDEs

PhpStorm will be used for the implementation of the system. This IDE will be used for making front end of our system and execution of query and generating results (ranked results) and rest of the function. Below are some of the screen shots of the front end of the Cook Book Recipe Search.
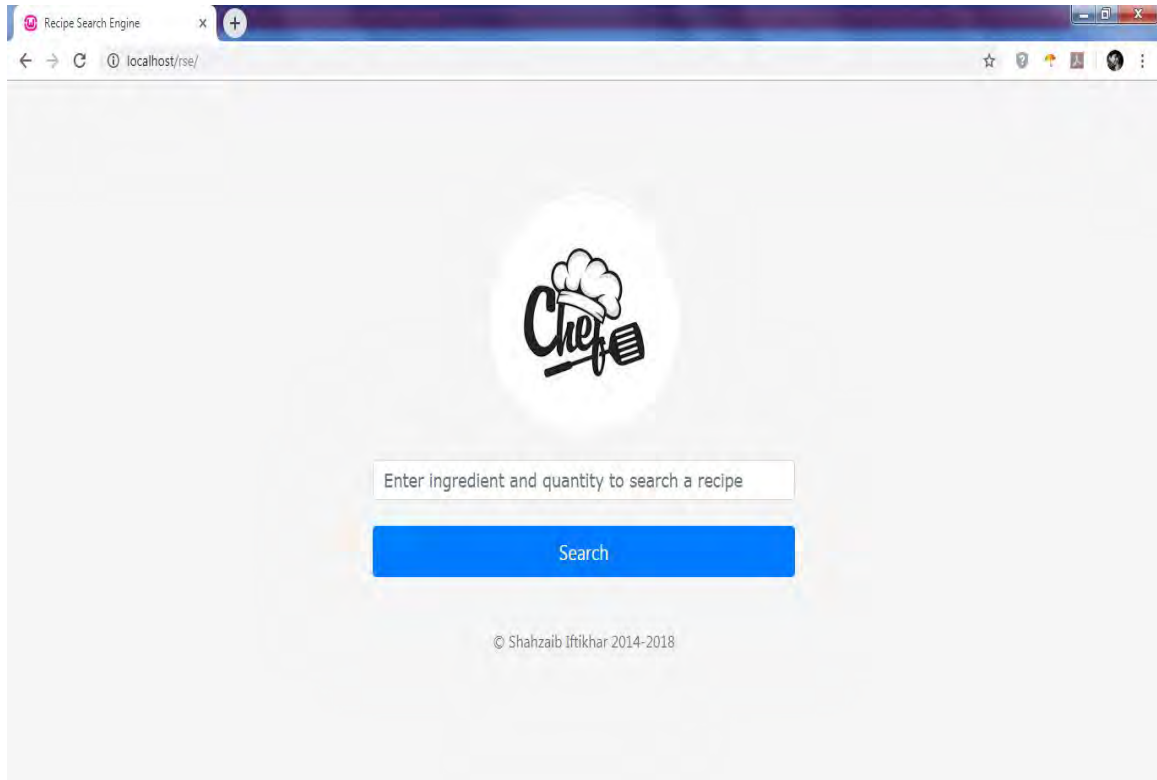
Figure 6.1 Main Page

When user enters some query, a list of ranked recipes is returned. Figure 6.2 shows the list that is returned on the response of a query.
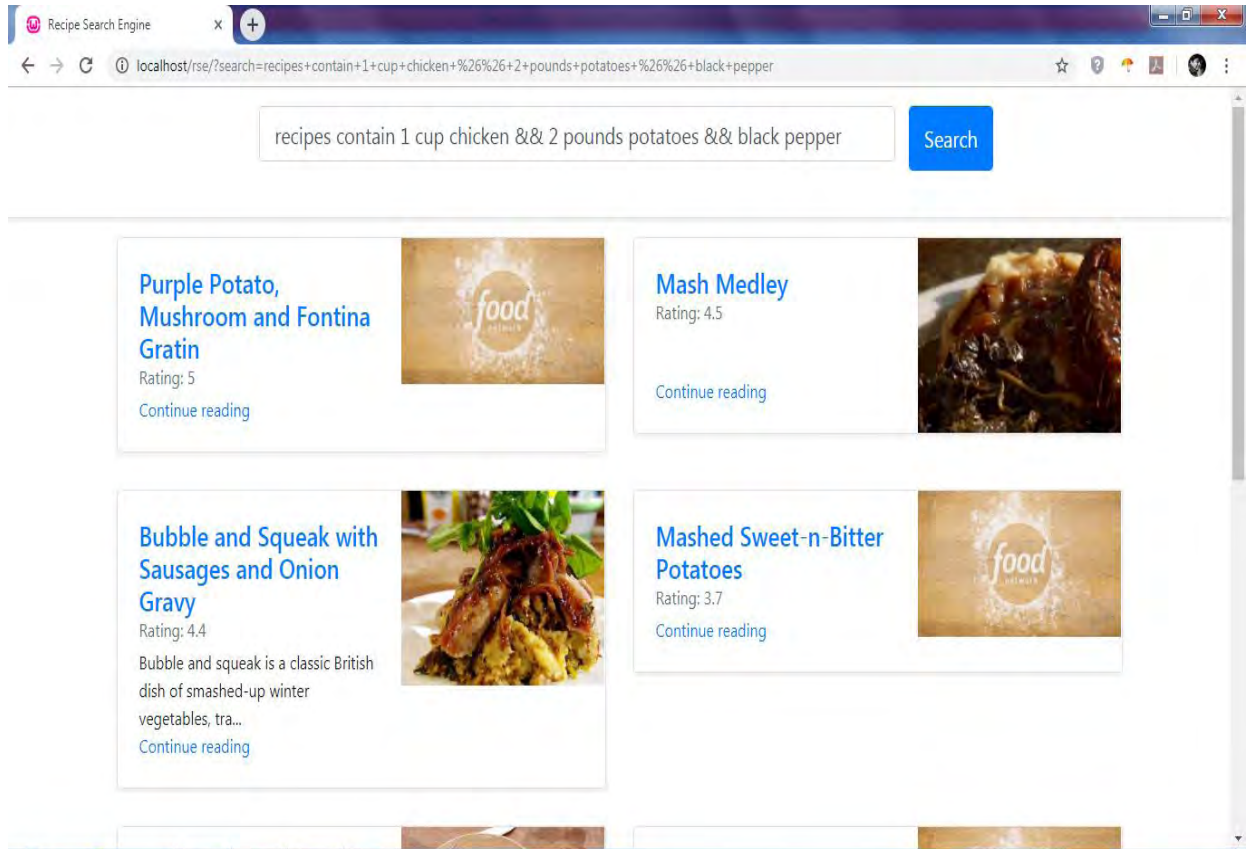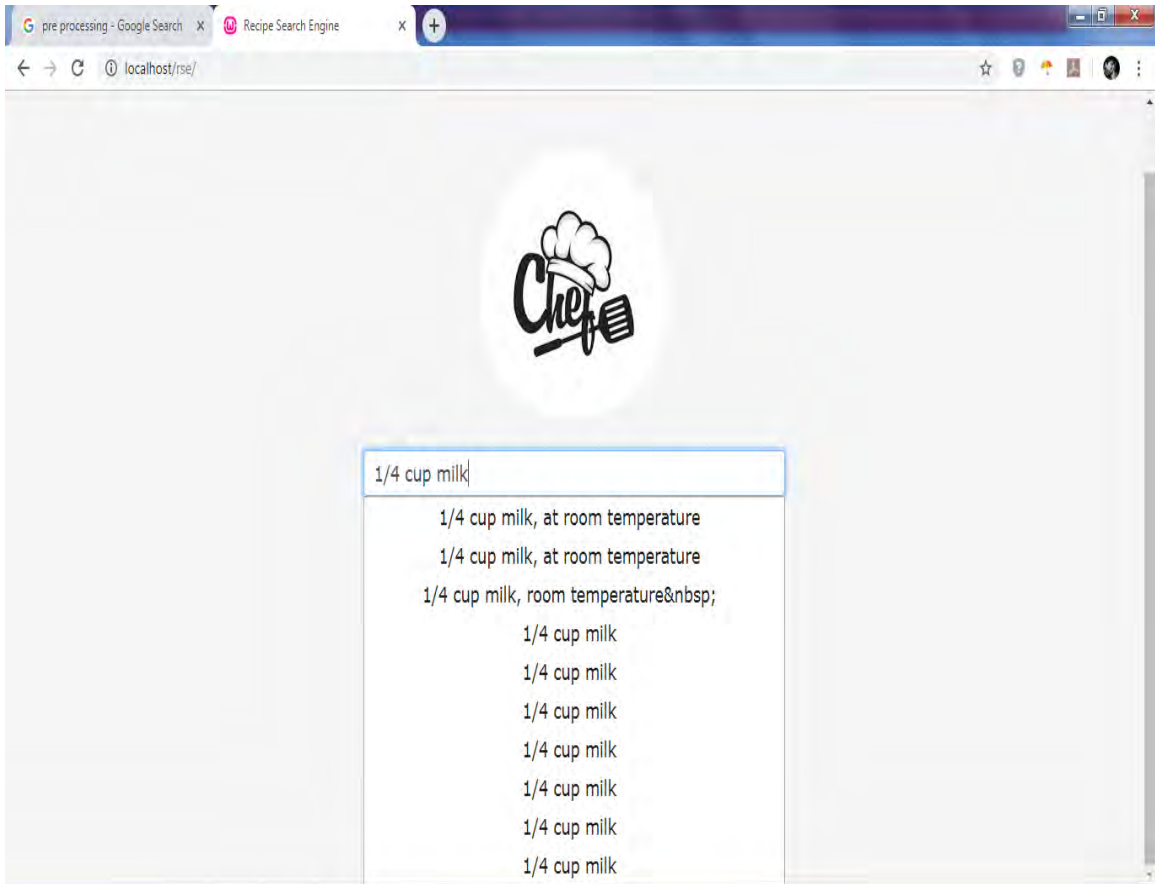
Figure 6.2 Front end with results

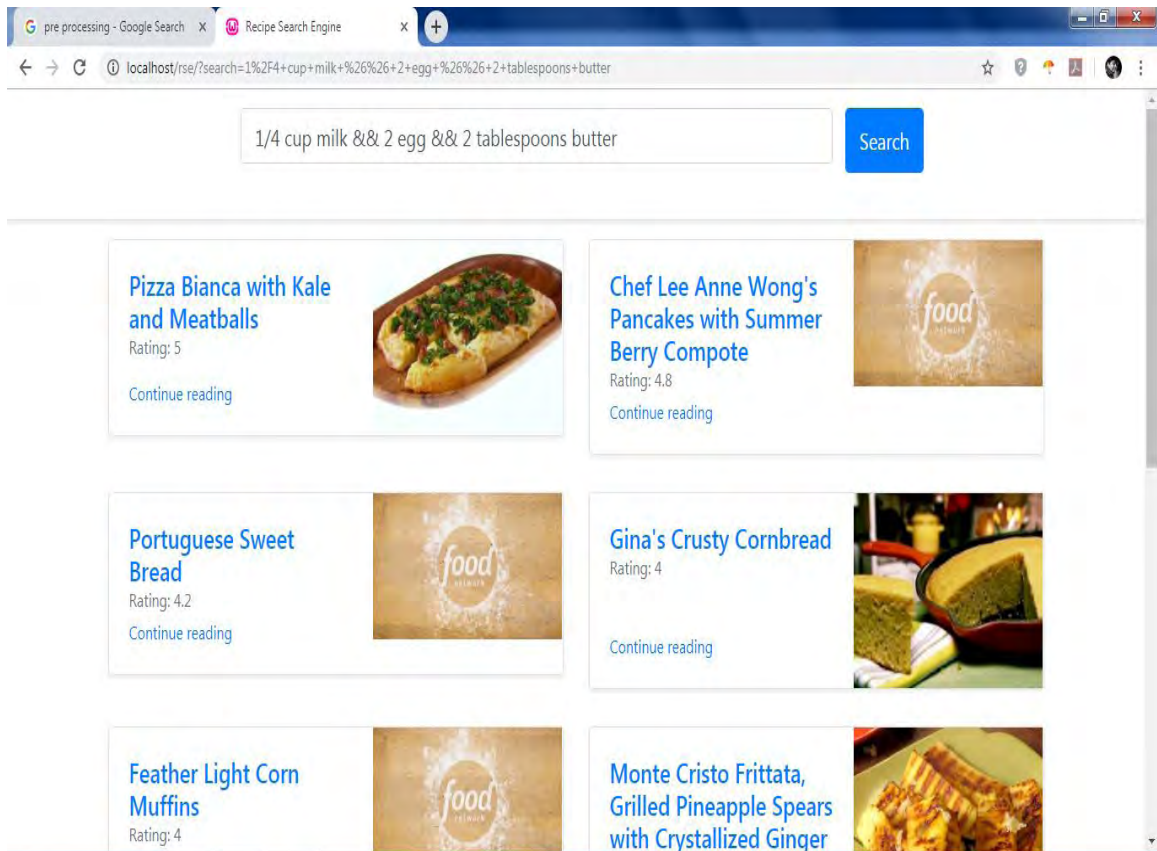*Figure 6.3 Front end with ingredient suggestion.*

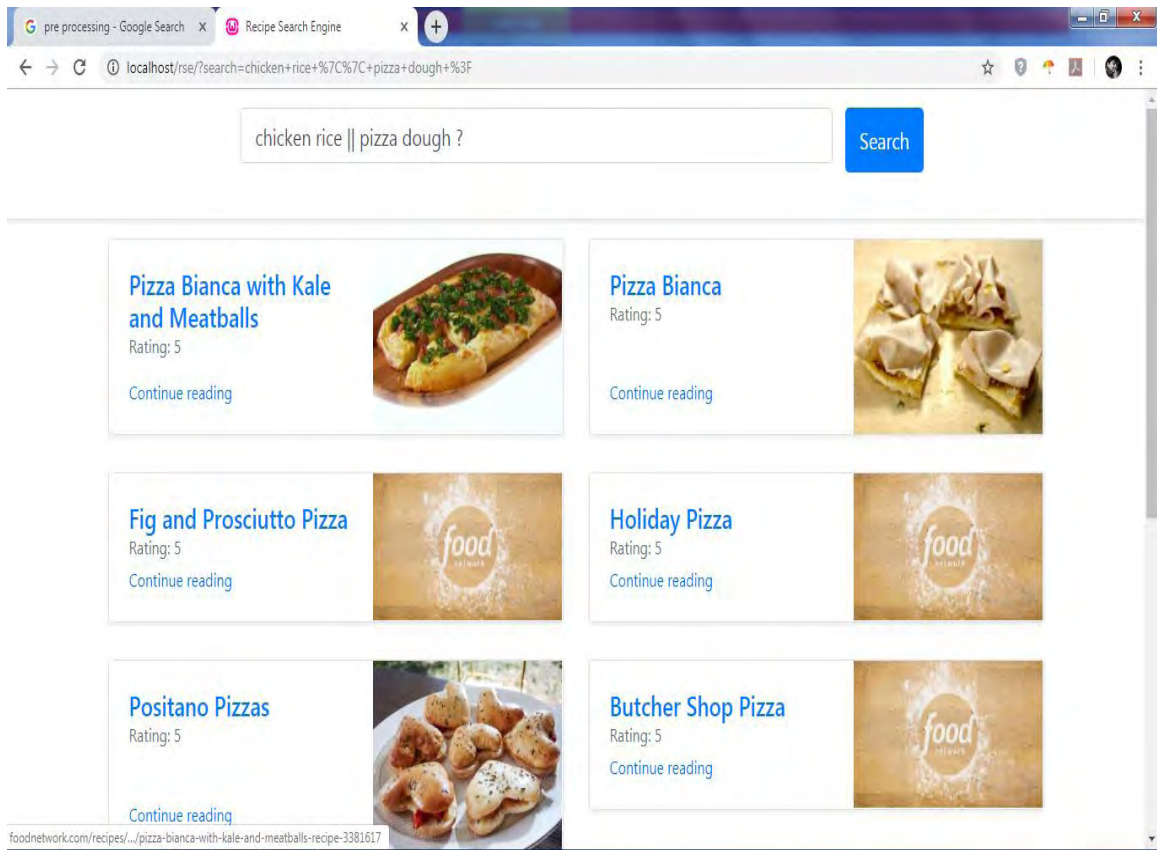*Figure 6.4 Front end && operator results with multiple ingredients*

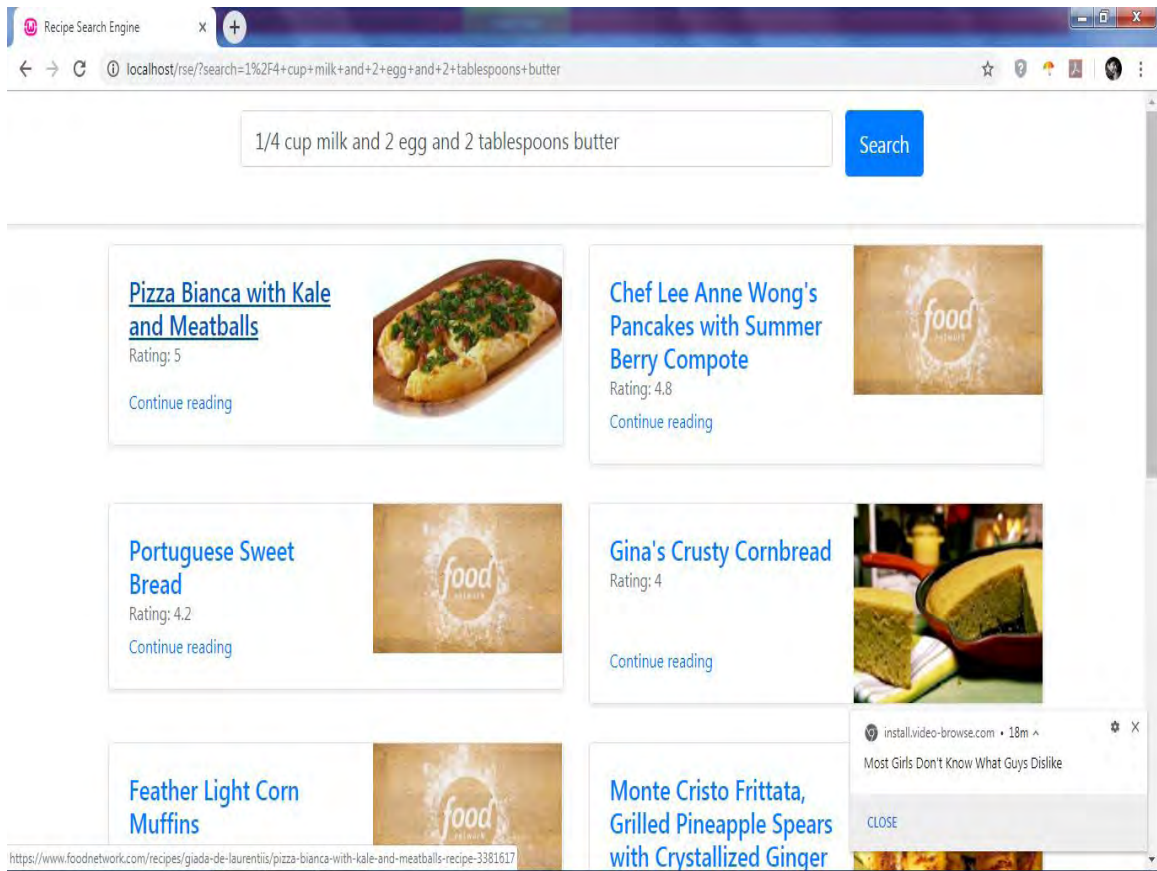*Figure 6.5 Front end || operator results*

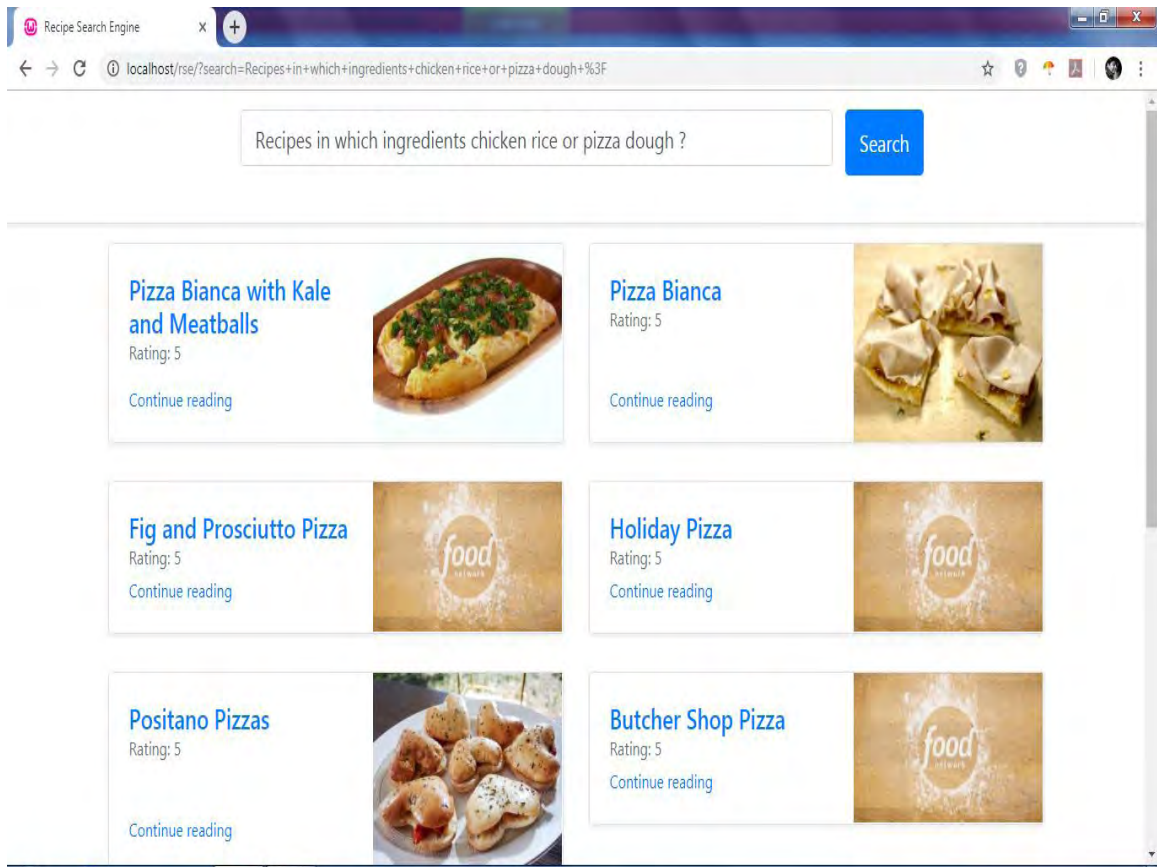*Figure 6.6 Front end multiple ingredients separated by and results*

Figure 6.7 Front end ingredients separated by or results

Chapter 7: Conclusion

7.1   Introduction

In this phase we will be heading towards conclusion of our implemented application. Evaluation measures are already discussed in earlier chapters and will be used in this phase. At the end of this, conclusion will be provided of our system and future tasks.

7.2   Evaluation

Our application is implemented in php language and using star rating value of recipes given by the user to the original websites from where i scrap the data.

7.2.1   Formation of Query Set

For evaluation of our system we must have to have information about a recipe that we need after this we must have a query set. There are various methods of query construction but the most standard information retrieval models use a single source of information for query formulation(a process during which the original keywords is issued by the user is transformed into a structured query representation that is consumed by the search engine.) We choose the method in which we made a system that takes keywords and search all the recipes that contains these keywords in other words ingredients from a database (a database consist of many recipes) and combine them to form a query. Fig 7.1 shows the process of formation of query.
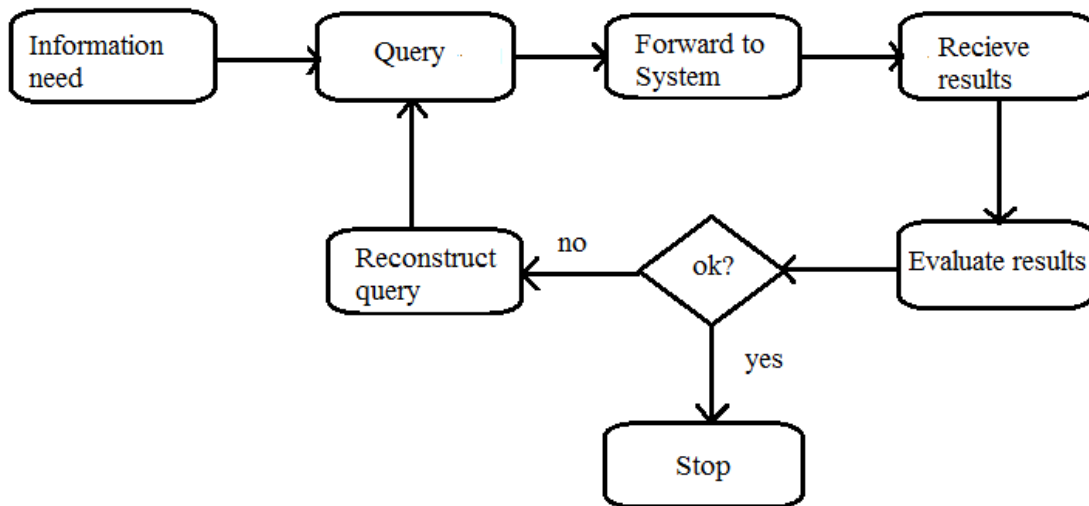
Before using a system for generating queries there is a need to understand what will be the rating criteria of retrieved recipes. For our system the criteria will be the rating of a recipe that is star rating criteria i.e., a query is made up against a quantity entered by the user, and if the retrieved recipe belongs to the same quantity keyword of which the query is, we say the recipe is relevant. Below is the query set shown in the form of table.

Examples

Query No.	Query
q1	What are the recipes that contains 1/4 cup milk && 2 large eggs && 2 tablespoons butter recipe's ?
q2	1/4 cup milk && 2 egg && 2 tablespoons butter
q3	How to make cake"s?
q4	1 cup chicken && 2 pounds potatoes && black pepper

q5	Recipes in which ingredients chicken rice || pizza dough ?
q6	2 potatoes && 3 tablespoons olive oil && 1 teaspoon kosher salt
q7	What are the recipes that contains 1/4 cup milk and 2 large eggs and 2 tablespoons butter recipe's ?
q8	1/4 cup milk and 2 egg and 2 tablespoons butter
q9	1 cup chicken and 2 pounds potatoes and black pepper
q10	Recipes in which ingredients chicken rice or pizza dough ?
q11	2 potatoes and 3 tablespoons olive oil and 1 teaspoon kosher salt

This query set will be used for the evaluation of our application. One by one every query will be executed.

7.3 Conclusion

We are able to successfully scrap the data from various recipe websites and store it on our own database for indexing and to provide a good, efficient and fast search for given keywords from the user using a user interface. These search results are based on the rating model e.g. for a query there are multiple or hundreds of results and we shows only top 10 to the user. Also, user can navigate through all results using the same interface. Our goal was to implement our product using star rating in order to find the best recipes according to the rating. We made a query set and applied a method on it on the basis of star rating given by the users on the websites from where we crawl the data.

7.4 Future Tasks

In future this system can be implemented using some other weighting scheme like SMART and some other schemes and then can be compared with this system in order to get higher precision and accuracy. In future SEO (search engine optimization) can be done on this system to improve the efficiency of this system. In future a user profile can also be made in order to get a new recipe for cooking new food items. Moreover, recipe summarization can also be implemented in order to give a short view of recipe to the user before opening it.

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