SOFTWARE REQUIREMENTS SPECIFICATION

For

RECIPE RECOMMENDATION SYSTEM

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1. Introduction

1.1 Purpose

The primary objective of this document is to outline the requirements for the Recipe Recommendation System. This document provides detailed descriptions of both functional and non-functional requirements based on the client's needs. The purpose of this project is to create a user-friendly environment for managing recipe details and user preferences. The system aims to facilitate recipe recommendations based on user history and preferences, using JavaFX for the graphical interface and incorporating a database for data storage.

1.2 Document Conventions

- Entire document should be justified.
- Convention for Main title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 14
- Convention for Sub title
  - Font face: Times New Roman
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  - Font Size: 12
- Convention for body
  - Font face: Times New Roman
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1.3 Scope of Development Project

The Recipe Recommendation System aims to provide users with personalized recipe suggestions based on their preferences and history. The system will enable users to input their food preferences, rate recipes, and receive recommendations. It will be developed using Java for its advantages in performance, cross-platform compatibility, and development tools.

1.4 Definitions, Acronyms and Abbreviations

JAVA -> platform independence
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification

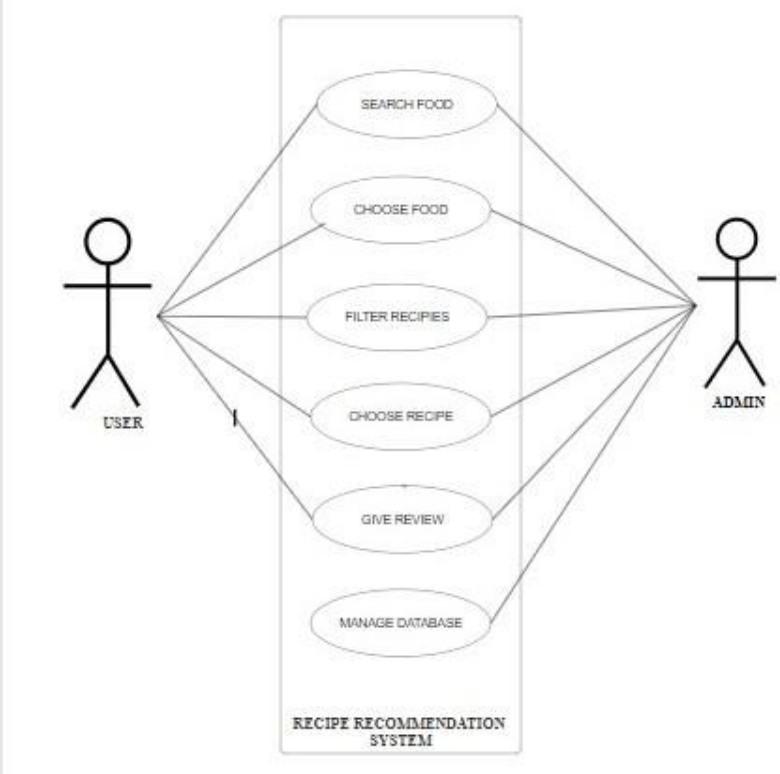
1.5 References

- Websites
  - https://shlomo-berkovsky.github.io/files/pdf/UMAP11a.pdf
  - https://github.com/mberrien-fitzsimons/recipe_recommendation_system
  - https://towardsdatascience.com/building-a-recipe-recommendation-system-297c229dda7b

2. Overall Descriptions

2.1 Product Perspective

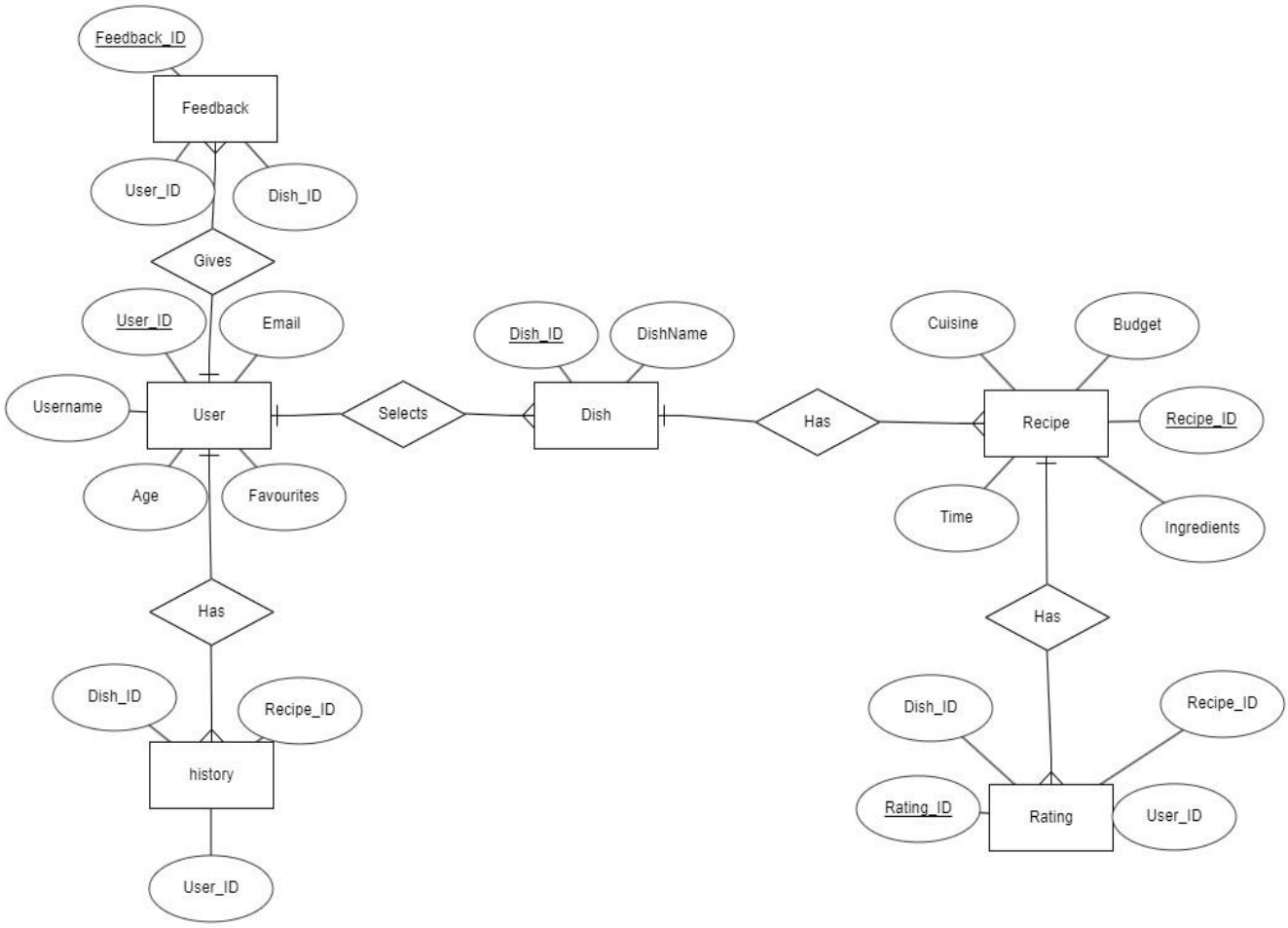
Use Case Diagram of Recipe Recommendation System



This diagram illustrates the basic overview of the Recipe Recommendation System. Users can search for recipes, rate them, and receive personalized recommendations based on their interactions and preference

2.2 Product Function

Entity Relationship Diagram of Library Management System



The Recipe Recommendation System provides real-time information about recipes and user preferences. It manages recipe recommendations, user ratings, and interactions. Librarians (administrators) can add/update recipes and manage user accounts.

2.3 User Classes and Characteristics

The system will have two main user classes:

2.3.1 Regular Users

- Individuals seeking recipe recommendations.
- Can create and manage profiles.
- Can explore and save recipes.

2.3.2 Administrators

- System administrators responsible for managing user data.
- Can access and modify the database.

- Monitor system performance.

2.4 Operating Environment

The product will be operating in windows environment. The Recipe Recommendation System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer,Google Chrome,and Mozilla Firefox.Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.
The hardware configuration include Hard Disk: 40 GB, Monitor: 15" Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc.

2.5 Assumptions and Dependencies

The assumptions are:-

- The coding should be error-free.
- The system should be user-friendly.
- The information must be stored in a database accessible by the system.
- The system should provide fast access to the database.
- Users may access the system from any computer with internet browsing capabilities.

The dependencies are:-

- Specific hardware and software configurations.
- Proper understanding of the product by end-users.
- Regular maintenance of the server and database.

2.6 Requirement

Software Configuration:-

- Frontend: Java
- Backend: SQL Server
- Operating System: Windows NT, Windows 98, Windows XP
- Language: Java Runtime Environment, NetBeans 7.0.1
- Database: MS SQL Server

Hardware Configuration:-

- Processor: Pentium(R) Dual core CPU
- Hard Disk: 40GB
- RAM: 256 MB or more

2.7 Data Requirement

Inputs include queries to the database, and outputs include solutions for the queries. The system will display user account details, including the time, date, and currently borrowed recipes.

3. External Interface Requirement

3.1 GUI

Graphical Interface:

- The software should provide a visually appealing graphical interface for both users and administrators.
- Administrators should be able to perform tasks such as creating, updating, and viewing recipe details.

Quick Reports:

- Users should be able to view quick reports, such as recently recommended recipes or recipes saved between specific dates.

Stock Verification and Research:

- The system should provide a stock verification feature for ingredients or recipes.
- Users should be able to search for recipes based on different criteria, including cuisine type, ingredients, or dietary preferences.

Customizable User Interface:

- The user interface must be customizable by the administrator to accommodate changes in layout or branding.

Standardized Design:

- All modules provided with the software should seamlessly fit into the graphical user interface.
- The design of different interfaces should follow a standardized template for consistency.

Simple Design:

- The design of the user interface should be simple and intuitive, promoting easy navigation for users and administrators.

User management Integration:

- The user interface should seamlessly interact with the user management module.
- A dedicated section of the interface should be allocated for the login/logout module.

Login Interface:

- Users should have the option to register by providing necessary details.
- After registration, users can log in using their username and password.
- In case of incorrect username or password entry, the system should display an error message.

Search Functionality:

- Users can enter the type of dish or specific ingredients they are interested in.
- The system should allow users to search for recipes based on entered keywords.

Categories View:

- Users should be able to view categories of recipes, such as cuisine types or meal categories.
- Administrators should have the capability to add, edit, or delete recipe categories.

Control Panel Administrators:

- The control panel for administrators should facilitate the addition or removal of users.
- Administrators should be able to manage recipe resources, including adding, editing, or removing recipes.
- Lending options, such as saving or recommending recipes, should be manageable from the control panel.

4. System Features

The primary features of the Recipe Recommendation System include:

- User Registration and Authentication
- Preferences Input for Dietary Restrictions
- Dynamic Recipe Recommendation Algorithm
- Saved Recipe Management
- User Feedback and Ratings

5. Other Non-functional Requirements

5.1 Performance Requirement

- The System response time for recipe recommendations: < 10 seconds
- Concurrent user support: Minimum 10 users
- The system should provide fast and accurate recipe recommendations.
- Efficient handling of simultaneous user requests.

5.2 Safety Requirement

- Data encryption for user credentials and preferences
- Regular system backups to prevent data loss

5.3 Security Requirement

- Secure user authentication using encryption
- Regular security audits to identify and address vulnerabilities

5.4 Requirement attributes

- The system should be scalable to accommodate future feature enhancements.
- Regular software updates to address bugs and improve performance.
- User-friendly installation process.

5.5 Business Rules

- Users must provide valid credentials for registration.
- Ratings and feedback should adhere to community guidelines.

5.6 User Requirement

- Users should be able to navigate the system without technical difficulties.
- Administrator tools should be comprehensive for effective system management.

6. Other Requirements

6.1 Data and Category Requirement

- User and recipe data should be organized by categories.
- The system should handle diverse cuisine types.

6.2 Appendix

- A: Admin, Abbreviation, Acronym, Assumptions
- B: Books, Business rules
- C: Class, Client, Conventions
- D: Data requirement, Dependencies
- G: GUI
- K: Key
- R: Requirement, Requirement attributes
- S: Safety, Scope, Security, System features
- U: User, User class and characteristics, User requirement

6.3 Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

- Administrator: A login id representing a user with user administration privileges to the software
- User: A general login id assigned to most users
- Client: Intended users for the software
- SQL: Structured Query Language; used to retrieve information from a database
- SQL Server: A server used to store data in an organized format
- Layer: Represents a section of the project
- User Interface Layer: The section of the assignment referring to what the user interacts with directly
- Application Logic Layer: The section of the assignment referring to the Web Server. This is where all computations are completed
- Data Storage Layer: The section of the assignment referring to where all data is recorded
- Use Case: A broad level diagram of the project showing a basic overview
- Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system's cases, their attributes, and the relationships between the classes
- Interface: Something used to communicate across different mediums
- Unique Key: Used to differentiate entries in a database

6.4 Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes' structure and their relationships toeach other frozen in time represent the static model. In this project there are certain main classes which are related to other classes required for their working. There are different kinds ofrelationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities.