SOFTWARE REQUIREMENTS SPECIFICATION

For

Recipe Recommendation System

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1. Introduction

1.1 Purpose

The main objective of this document is to illustrate the requirements of the project

1.2 Recipe recommendation system. The document gives the detailed description of the both functional and non-functional requirements proposed by the client. The purpose of this project is to providea friendly environment to select the food for daily schedule main purposeof this project is to maintain easy food recommendation system using computers and to provide food combinations. This project describes the hardware and software interface requirements using ERdiagrams.

1.3 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
  - Font style: Bold
  - Font Size: 12
- Convention for body
  - Font face: Times New Roman
  - Font Size: 12

1.4 Scope of Development Project

Recipe Recommendation System is basically used for selecting the multiple combinations for daily cooks based on user preferences and history so that the users can get an idea about for managing a daily cooking schedule. The project is specifically designed for the primarily individuals who have a passion for cooking and culinary exploration. The product will work as a complete user interface for recipe management process for ordinary users. Recipe recommendation System can be used by any individual who has busy daily schedules to manage his/her day-to-day idea for making food based on user preferences. It is especially useful for any people engaged in many other activities where modifications in the schedule can be done easily according to requirements.

The project can be easily implemented under various situations. We can add new schedules as and when we require, making reusability possible as there is flexibility in all the time.

The language used for developing the project is Java as it is quite advantageous than other languages in terms of performance, tools available, cross platform compatibility, libraries, cost (freely available), and development process.

1.5 Definitions, Acronyms and Abbreviations

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

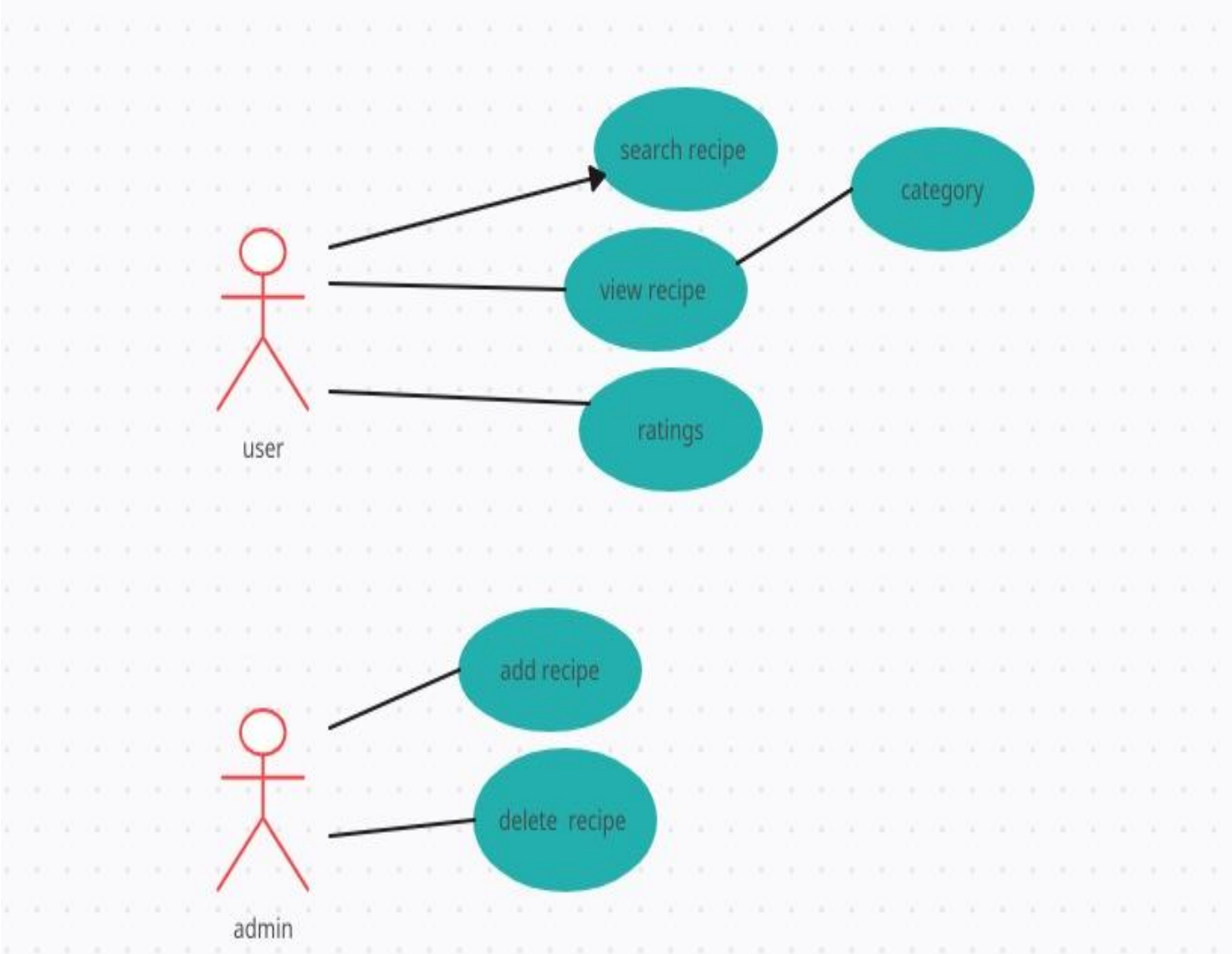
1.6 References

- Websites
- GitHub - Flourishlove/Recipe-Recommendation: A web app which recommends recipes to different users, satisfy their nutrition need and flavor at the same time
- Building a Recipe Recommendation System | by Jack Leitch | Towards Data Science
- Building a Recipe Recommendation System | Jack Leitch (jackmleitch.com)

2. Overall Descriptions

2.1 Product Perspective

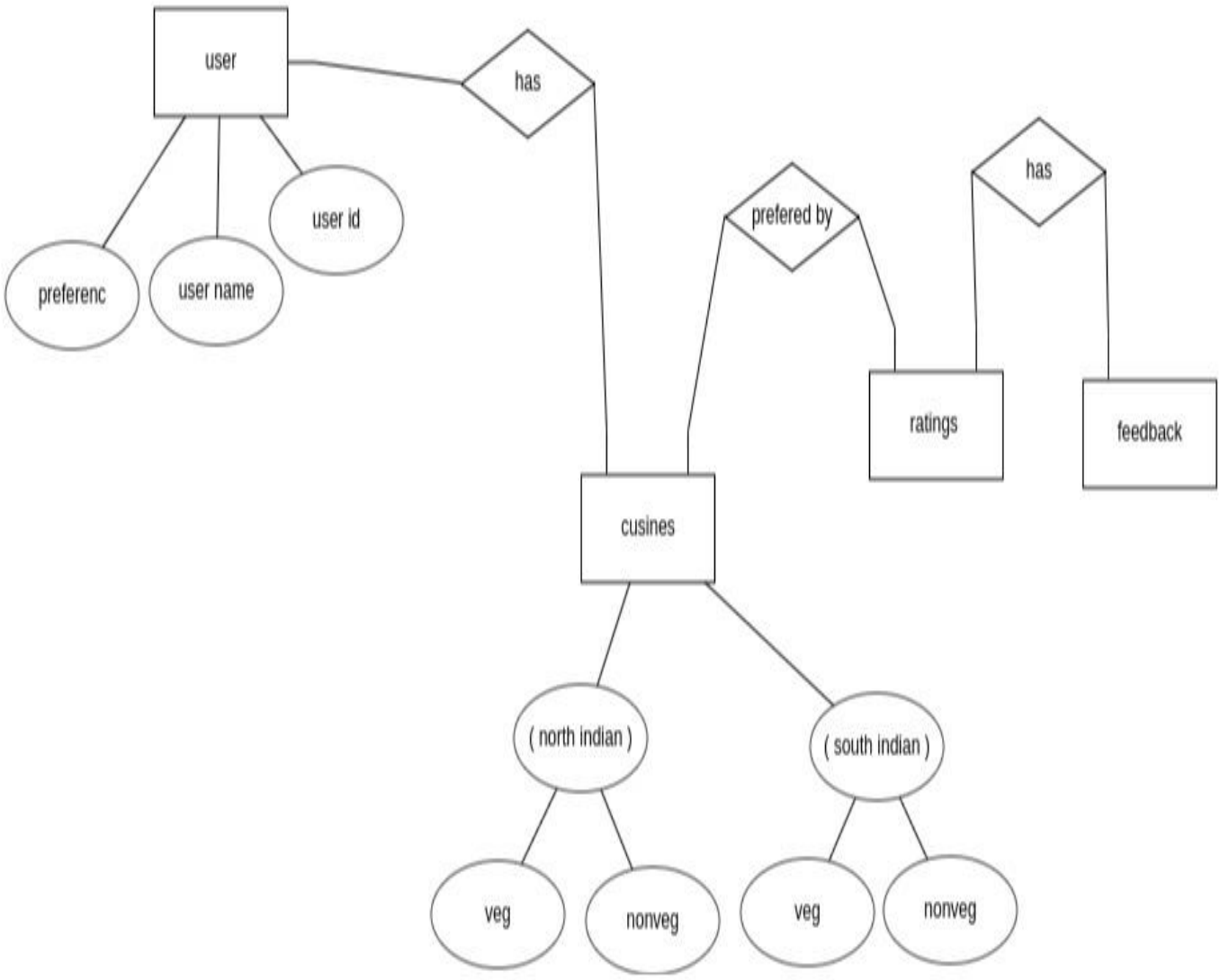
Use Case Diagram of Library Management System



The users of the system can request issue/renew/return of new schedule for which they would have to follow.

2.2 Product Function

Entity Relationship Diagram of Recipe recommendation System



The Recipe Recommendation system offers real-time access to a wide array of recipes and user preferences. The primary goal of this project is to streamline the culinary experience by minimizing manual effort. This software is adept at managing recipe collections, tracking user favorites, calculating nutritional values, and generating comprehensive reports for record-keeping tailored to the end user's needs. The system administrator, potentially a head chef or culinary expert, will oversee user interactions and curate the recipe database. The status of users saved and tried recipes is maintained within the system's database. User profiles and their culinary preferences can be retrieved by the administrator as needed. Additionally, valid users have the privilege to view and manage their account details, including their personalized recipe recommendations and dietary restrictions. This system

simplifies the process of discovering and organizing recipes, making it an essential tool for any culinary enthusiast or professional.

2.3 User Classes and Characteristics

The system provides different types of food varieties based on the type of users [Old Man/Teenager/children]. The user will be acting as the controller and he will have all the access to change the recommendations of food varieties manually. The system is completely acts upon the user preferences and history.

The features that are available to the Librarian are:-

- Users can specify their preferred cuisine, such as North Indian or South Indian, to receive personalized recommendations.
- Allow users to input dietary preferences like vegetarian, vegan, or gluten-free to tailor recommendations accordingly.
- Users can indicate their preferred meal types, such as breakfast, lunch, or dinner, for more targeted suggestions.
- Provide an option for users to specify ingredient preferences or exclusions based on their taste or dietary restrictions.
- Track users' historical interactions and recipe selections to improve future recommendations based on their preferences.
- Allow users to rate recipes and provide feedback, contributing to the refinement of the recommendation algorithm.

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 so that it is easy to use for the users.
- The information of all users be stored in a database that is accessible by the website.
- The system should have more minimum capacity and provide fast access to the database.
- The system should provide search facility and support quick transactions.
- The Recipe Recommendation System is running 24 hours a day.
- Users may access from any computer that has Internet browsing capabilities.

- Users must have their correct usernames and passwords to enter into their online accounts and do actions.

The dependencies are:-

- The specific hardware and software due to which the product will be run
- On the basis of listing requirements and specification the project will be developed and run
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored.
- The information of all the users must be stored in a database that is accessible by the Recipe recommendation system.

Requirement

Software Configuration:-

This software package is developed using java as backend which is supported by sun micro system. Microsoft SQL Server as the back end to store the database.

Operating System: Windows 11

Language: Java(Backend)

Database: MYSQL Server (Back end)

Hardware Configuration:-

Processor: Ryzen 5

RAM: 256 MB or more

Data Requirement

The inputs consist of the query to the database and the output consists of the Recipes for the query. The output also includes the user receiving the details of their accounts. In this project the inputs will be the preferences and also user's history as fired by the users like create an account, selecting recipes and putting into account. Now the output will be visible when the user requests the server to get details of their account in the form of time, date and which recipes are currently in the account.

External Interface Requirement

GUI

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the details of the recipe.

- It allows user to recommend .
- It provides stock verification and search facility based on different criteria.
- The user interface must be customizable by the administrator
- All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
- The design should be simple and all the different interfaces should follow a standard template.

- The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

Login Interface:-
In case the user is not yet registered, he can enter the details and register to create his account. Once his account is created he can 'Login' which asks the user to type his username and password. If the user entered either his username or password incorrectly then an error message appears.

Search:-
The member or user can enter the type of recipe he is looking for and the title he is interested in, then he can search for the required recipe by entering the recipe name.

Categories View:-
Categories view shows the categories of recipe available and provides ability to the admin to add/edit or delete category from the list.

User Control Panel:-
This control panel will allow admin to add/remove users; add, edit, or remove a resource. And manage lending options.

System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

- User authentication and validation of members using their unique member accounts.
- Proper accountability which includes not allowing a member to see other member's account. Only administrator will see and manage all member accounts

Other Non-functional Requirements

Performance Requirement

The proposed system that we are going to develop will be used as the Chief performance system within the different recipe which interacts with the user. Therefore, it is expected that the database would perform functionally all the requirements that are specified by the admin.

- The performance of the system should be fast and accurate.
- Recipe Recommendation System shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period. Thus it should have inbuilt error testing to identify invalid username/password
- The system should be able to handle large amount of data. Thus it should accommodate high number of recipe and users without any fault.

Safety Requirement

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

Security Requirement

- System will use secured database
- Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints.
- Proper user authentication should be provided.
- No one should be able to hack user's password.
- There should be separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

Requirement attributes

- There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes.
- The project should be open source.
- The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database.
- The user be able to easily download and install the system.

Business Rules

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither admin nor member should cross the rules and regulations.

User Requirement

The users of the system are members who act as administrator to maintain the system. The members are assumed to have basic knowledge of the computers and internet browsing. The administrators of the system should have more knowledge of the internals of the system and is able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.

The admin provides certain facilities to the users in the form of:-

- Backup and Recovery
- Forgot Password
- Data migration i.e. whenever user registers for the first time then the data is stored in the server
- Data replication i.e. if the data is lost in one branch, it is still stored with the server
- Auto Recovery i.e. frequently auto saving the information
- Maintaining files i.e. File Organization
- The server must be maintained regularly and it has to be updated from time to time.

Other Requirements

Data and Category Requirement

There are different categories of users namely Admin, students etc. Depending upon the category of user the access rights are decided.It means if the user is an administrator then he can be able to modify the data,delete, append etc. All other users except the admin only have the rights to retrieve the information about database. Similarly there will be different categories of recipe available. According to the categories of recipe their relevant data should be displayed. The categories and the data related to each category should be coded in the particular format.

Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Business rules; C: Class,, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; N: Non-functional Requirement; O: Operating environment; P: Performance,Perspective,Purpose; R: Requirement,Recipes, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

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

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 to each 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 of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here ‘recipes’ is the most important class which are related to other classes.