

Software Requirements Specification for Mess Management System

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1 Introduction

1.1 Purpose

The purpose of this document is to articulate the detailed requirements for the development of a comprehensive Mess Management System. This system is intended to streamline the management of day-to-day activities within a college mess, promoting efficient resource utilization and enhancing the overall dining experience for students.

1.2 Intended Audience and Reading Suggestions

This document is intended for use by the developers, testers, and faculty who will be evaluating the final product.

1.3 Project Scope

The Mess Management System will encompass various components, including buying supply, workers' details, feedback recording, equipment and infrastructure management, food wastage tracking, and menu planning.

1.4 References

IEEE. IEEE Std. 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

2 Overall Description

2.1 Product Perspective

Currently, there is no proper software available to manage student feedback and mess administration. The mess workers maintain the records manually in a book which is not safe as the data may be lost, and it is also difficult to manage large amounts of data. This product will help solve all these issues by providing the users with a neat and efficient software that will ensure seamless feedback recording and maintenance of huge data records in a safe and organized manner.

2.2 Product Features

Supply Information

- Item Name: The name of the food item or ingredient to be purchased.
- Needed for What Recipe: Specification of the recipe or menu for which the supply is intended.
- Quantity: The required quantity or volume of the supply.
- Monitoring Person: Name or identifier of the person responsible for monitoring the supply.
- Time and Date of Arrival: The anticipated arrival time and date of the supply.
- Supplier Name: The name of the supplier providing the items.
- Cost: The cost associated with the procurement of the supply.

Workers Details

- Name: Full name of the worker.
- ID: Unique identifier for the worker.
- Salary: Compensation or wages provided to the worker.
- Designation: Job title or role within the mess.

Feedback Information

- Student Roll Number: The roll number of the student providing feedback.
- Date: Date on which the feedback is recorded.
- Floor Number: The floor in the mess where the student has taken the food.
- Recipe Name: The name of the recipe for which feedback is given.
- Infrastructure complaints: feedback about the infrastructure like chairs, tables, cutlery, etc.
- Food complaints like:
 1. Insects/Unwanted Substances Found in Food
 2. Too Oily and Spicy
 3. Food Got Over
 4. Raw/Uncooked
 5. Less Vegetables/Pulses (for selected recipes)
 6. Any Other Remarks/Issues

Machines,utensils and infrastructure details

- Type: The type of equipment or infrastructure (e.g., Tables, Chairs).
- Number of Replacements Needed: The quantity of equipment that requires replacement.
- Floor Number Where Needed: The specific floor within the college premises where replacements are needed.
- Existing Quantity: The current quantity of the equipment.

Food wastage per day

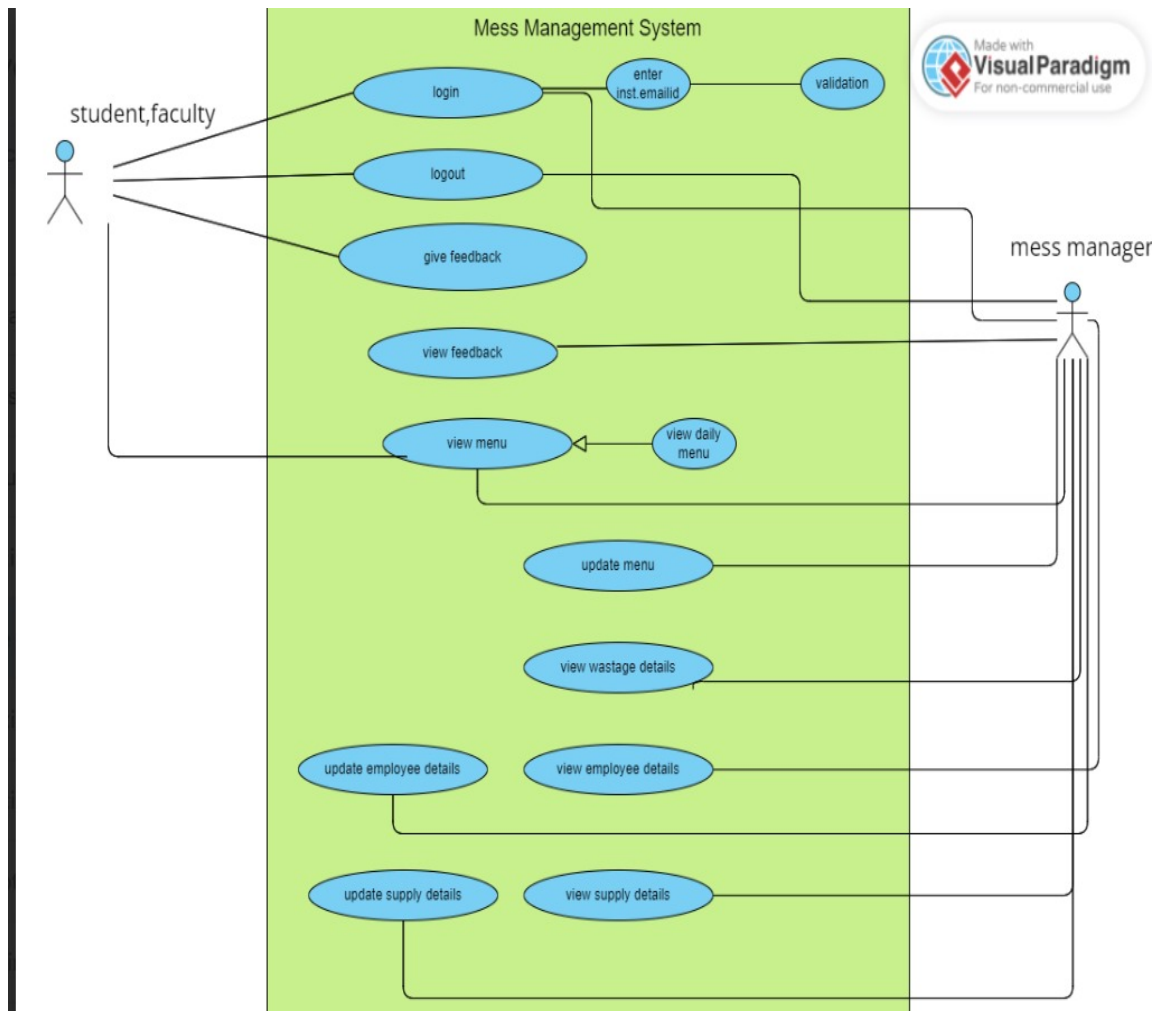
- Date: Date on which the food wastage occurred.
- Quantities: Amounts of each recipe wasted.
- Recipe Name: The name of the recipe contributing to the wastage.
- Floor Number: The floor within the college hostel where the wastage occurred.

Menu table

- Recipes: List of recipes available in the mess.
- Day of Week: The specific day of the week when a particular recipe is planned.
- Connected with Supply Table: Verification of supply procurement for the scheduled recipes

2.3 User Classs and Characterstics

Two major user classes have been identified



1.mess administration:

- View and update the supply information to ensure if the needed supply is delivered at the specified time and with required quality.
- View and update the worker details like name, salary and designation.

- View the student feedback for recipes and the infrastructure present in the mess in different floors.
- View the food wastage details like amount of food wasted ,the recipe that has got wasted .
- View and update the menu

2. Students and faculty :

- Enter the feedback about infrastructure and food available in the mess
- View the menu and the different recipes being cooked in the mess. The Students, faculty and Mess Admin are expected to have a basic working knowledge of a computer in order to use this software. The User Interface will be quite intuitive, so any advanced knowledge will not be necessary.

2.4 Operating Environment

Windows 11,8 GB RAM,64 bit processor,256 GB Hard disk Linux (with ubuntu desktop version 22.04LTS) 8 GB RAM ,2Ghz dual core processor ,256 GB hard disk.

2.5 Design and Implementation Constraints

2.5.1 User Interfaces :

The Interface will be in the form of a webpage. It is designed to be functional and minimal in its styling. It will be developed using PHP.

2.5.2 Hardware Interfaces :

A webserver will be required so that the students and the mess admin can connect to it to exchange information. The server has a database to store all the data entries. The Server will have to have a highspeed 1 Gigabit ethernet connection to the college's local network.

2.5.3 Software Interfaces :

The server will have a MySQL relational database. The server side logic will be developed using Ruby On Rails including connecting to and accessing the database and processing requests.

2.5.4 Communications Interfaces :

The main communication protocol will be HTTP. This will be used to transfer information back and forth from the client to the server. HTTP GET and POST will be used to send the information.

3 System Features

3.1 Login

3.1.1 Description

Logging in to the web app using institute email id.

3.1.2 Stimulus/Response Sequences

The user will be directed to login page from the home page when they click on the login icon , where they should login through their institute mail id. The user input will be validated and they will be redirected to a main page with different options.

3.2 Log out

3.2.1 description

Logging out of the web app .

3.2.2 Stimulus/Response Sequences

The user will be directed to the home page when they click on the log out icon.

3.3 Give Feedback

3.3.1 Description

Used for recording the user feedback about the food and the infrastructure available in the mess.

3.3.2 Stimulus/Response Sequences

On clicking the “give feedback” option in the option list, the user will be asked to enter the feedback about the food, complaints about the infrastructure along with the day and date , and recipe name .

3.4 View Feedback

3.4.1 Description

Viewing the feedback given by the student/faculty .

3.4.2 Stimulus/Response Sequences

On clicking the “view feedback” option in the option list, the mess manager will be able to view the entered feedback about the food, complaints about the infrastructure along with the day and date , and recipe name, floor number.

3.5 View menu , view daily menu

3.5.1 Description

Viewing the entire mess menu, viewing todays menu .

3.5.2 Stimulus/Response Sequences

Software Requirements Specification for Mess Management System
Page 10 On clicking the “view menu” option in the option list, the mess manager ,students and faculty will be able to view the entire mess menu for all days with details like recipe name and which part of the menu it is (lunch, dinner or break fast) .on the same page an option to view only today’s menu will also be provided.

3.6 Update menu

3.6.1 Description

Updating the details available in the menu.

3.6.2 Stimulus/Response Sequences

On clicking the “update menu” option in the option list, the mess manager will be able to update details like recipe name and which part of the menu it is (lunch, dinner or breakfast) for the entire menu as required.

3.7 View wastage details

3.7.1 Description

Viewing details about amount of food that got wasted on the particular day.

3.7.2 Stimulus/Response Sequences

On clicking the “wastage” option in the option list, the mess manager will be able to view details like amount of wastage, recipe that got wasted . Software Requirements Specification for Mess Management System Page 11

3.8 View employee details

3.8.1 Description

Viewing the details about the employees working in the mess.

3.8.2 Stimulus/Response Sequences

On clicking the “employee details” option in the option list, the mess manager will be able to view details like employee name , salary and designation etc.

3.9 Update employee details

3.9.1 Description

Updating the details about the employees working in the mess.

3.9.2 Stimulus/Response Sequences

On clicking the “update employee data ” option in the option list, the mess manager will be able to change details like employee salary and designation etc. add / remove employee names and ids from the employee data table.

3.10 View supply details

3.10.1 Description

Viewing the details about the supply/ingredients needed for preparing the different recipes in the mess.

3.10.2 Stimulus/Response Sequences

On clicking the “supply details” option in the option list, the mess manager will be able to view details like ingredient name , cost ,amount, supervisor who manages the arrival and quality of the obtained supply, date of arrival etc.

3.11 Update supply details

3.11.1 Description

Updating the details about the ingredients needed for cooking .

3.11.2 Stimulus/Response Sequences

On clicking the “update supply data ” option in the option list, the mess manager will be able to add/remove any ingredient which is not needed to be procured or change the name of the supervisor who will supervise the arrival of the supply.

4 External Interface Requirements

4.1 User Interfaces

The User Interface will be developed in compliance with the WCAG. Software Requirements Specification for Mess Management System
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4.2 Software Interfaces

The web frontend will communicate with the server side through the http protocol, the server side logic will communicate using ODBC with the MySql database.

5 Other Nonfunctional Requirements

5.1 Performance Requirements

The web interface should be able to serve around 20 requests per second .each page will load within 2 seconds .the web app should have optimized code ,use the updated HTTP/2 protocol, implement network , database and http caching .

5.2 Safety Requirements

To ensure database safety ,it should use practices like SQL injection protection, cross -site scripting(XSS) protection, database firewalls, regular data encryptions and similar others.it should restrict access to sensitive files like student feedback and also validate user input.

5.3 Security Requirements

The server on which the Mess Management System resides will have its own security to prevent unauthorized write/delete access.

5.4 Software Quality Attributes

- Reliability: The system should consistently perform its intended functions accurately and reliably.
- Scalability: The system should be able to handle increasing amounts of data and user traffic without a significant decrease in performance.
- Compatibility:should be able to get executed in any platform.
- Data Integrity: should implement proper validation checks, constraints, and data integrity measures within the database schema and application logic to prevent data corruption or loss.
- Flexibility: The system should be flexible enough to accommodate changes in requirements or business rules without requiring extensive rework.

6 Other Requirements

Should satisfy the following database query optimization requirements:

1. Indexing: Proper indexing on frequently queried columns can significantly improve query performance by allowing the database engine to locate and retrieve relevant data more efficiently.(use views /temporary tables to store output of frequently executed queries).
2. Query Tuning: ensures that they are written in an optimal manner, reducing execution time and resource consumption.
3. Normalization: helps maintain data integrity and reduces redundancy.
4. Query Caching: Implementing query caching mechanisms can greatly reduce the overhead of executing repetitive queries.
5. Optimized Joins: Efficient join strategies help in combining data from multiple tables effectively, avoiding unnecessary overhead and improving query performance.

6.1 Appendix A: Glossary

HTTP: Hyper Text Transfer Protocol

ODBC : Open Database Connectivity

PHP: Personal Home Page (Hypertext Pre Processor)

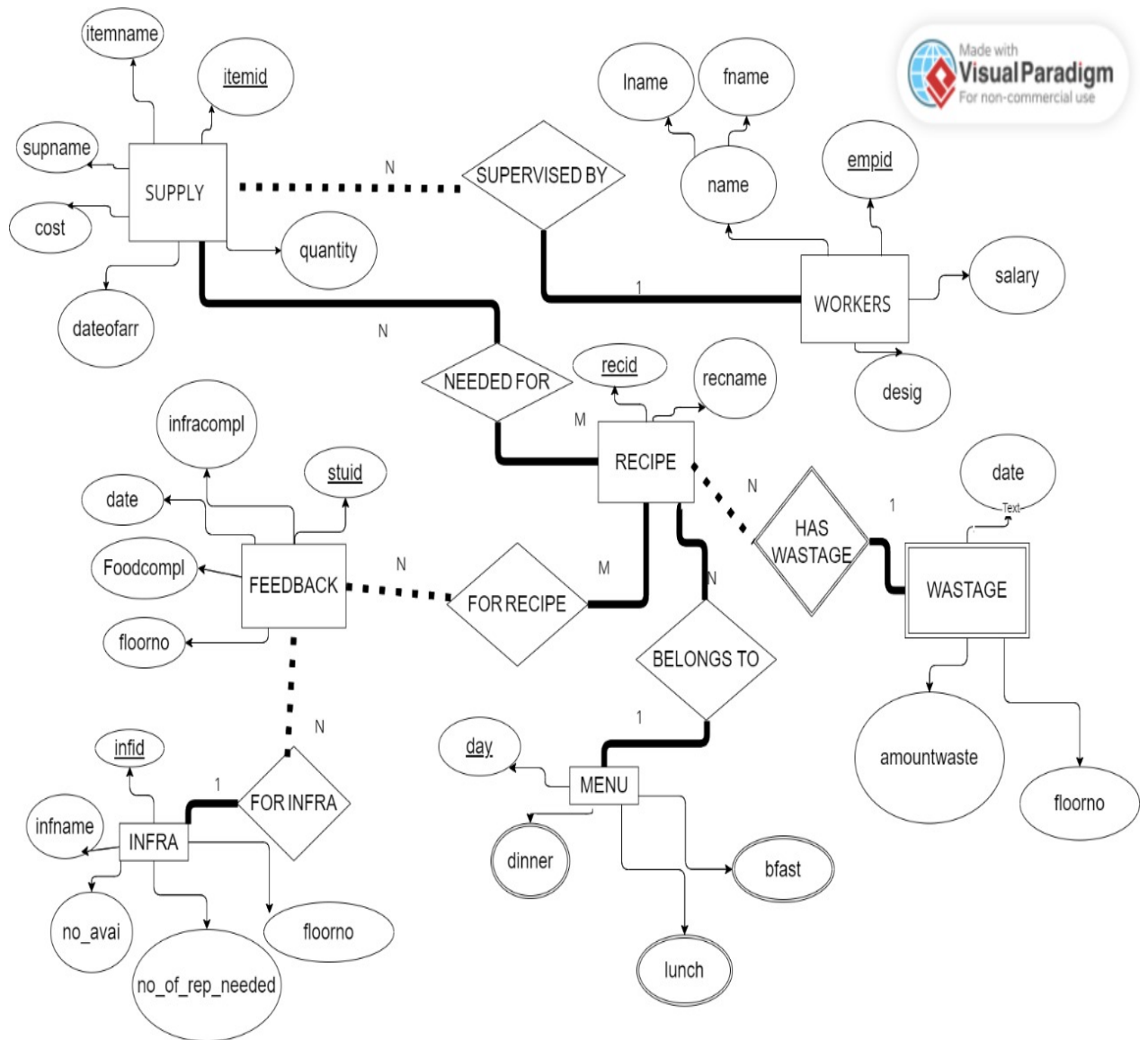
RAM: Random Access Memory

SQL: Structured Query Language

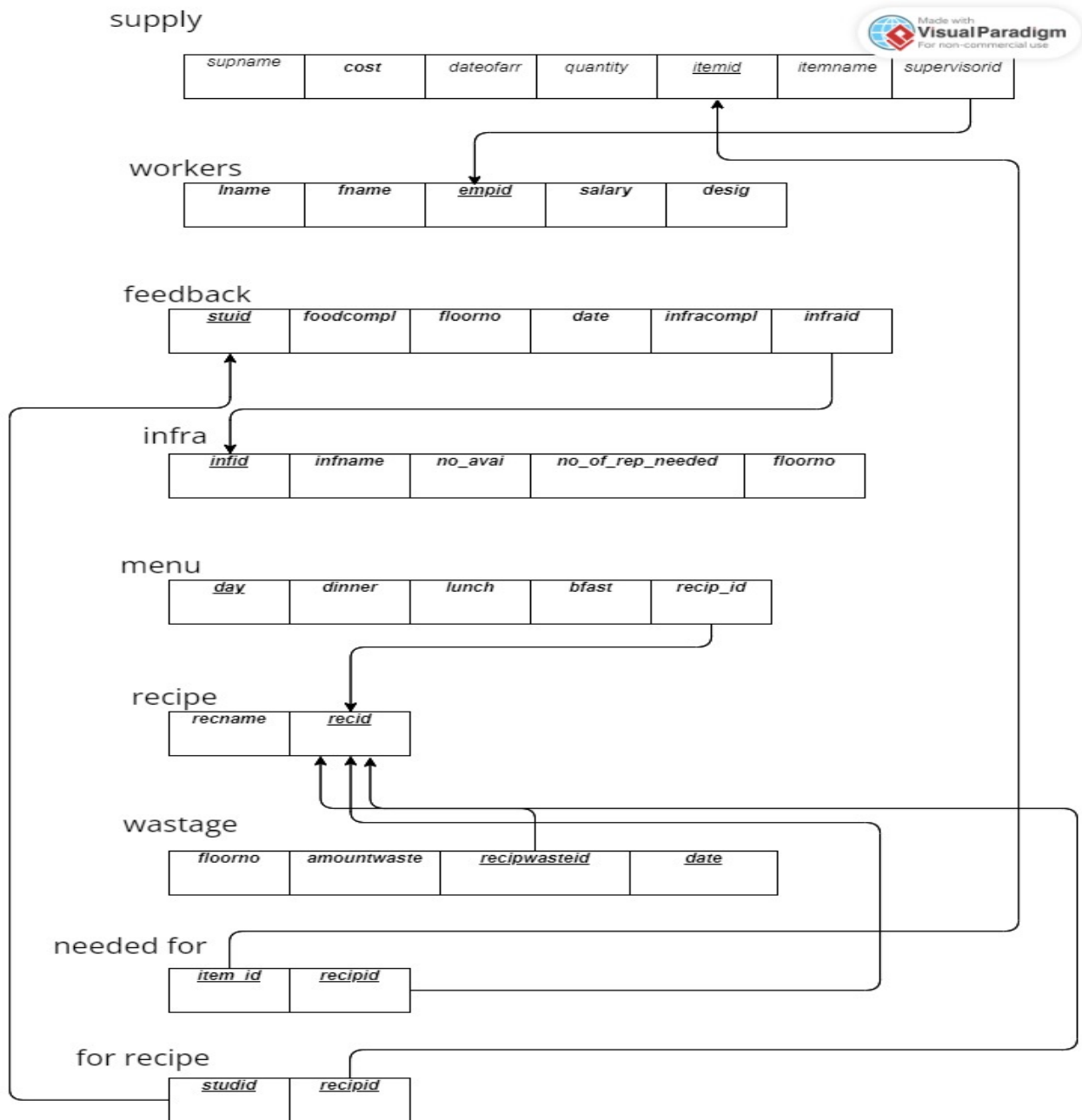
WCAG : Web Content Accessibility Guidelines

6.2 Appendix B: Analysis Models

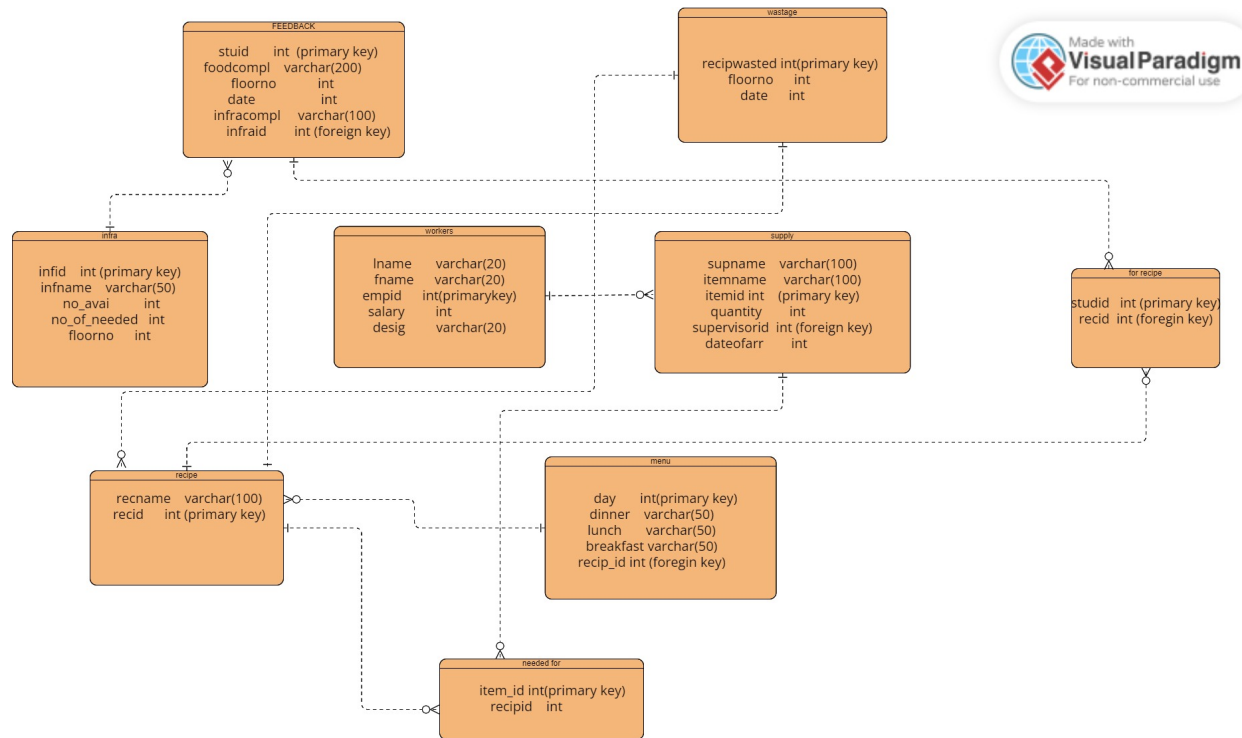
Entity relationship diagram (ER MODEL)



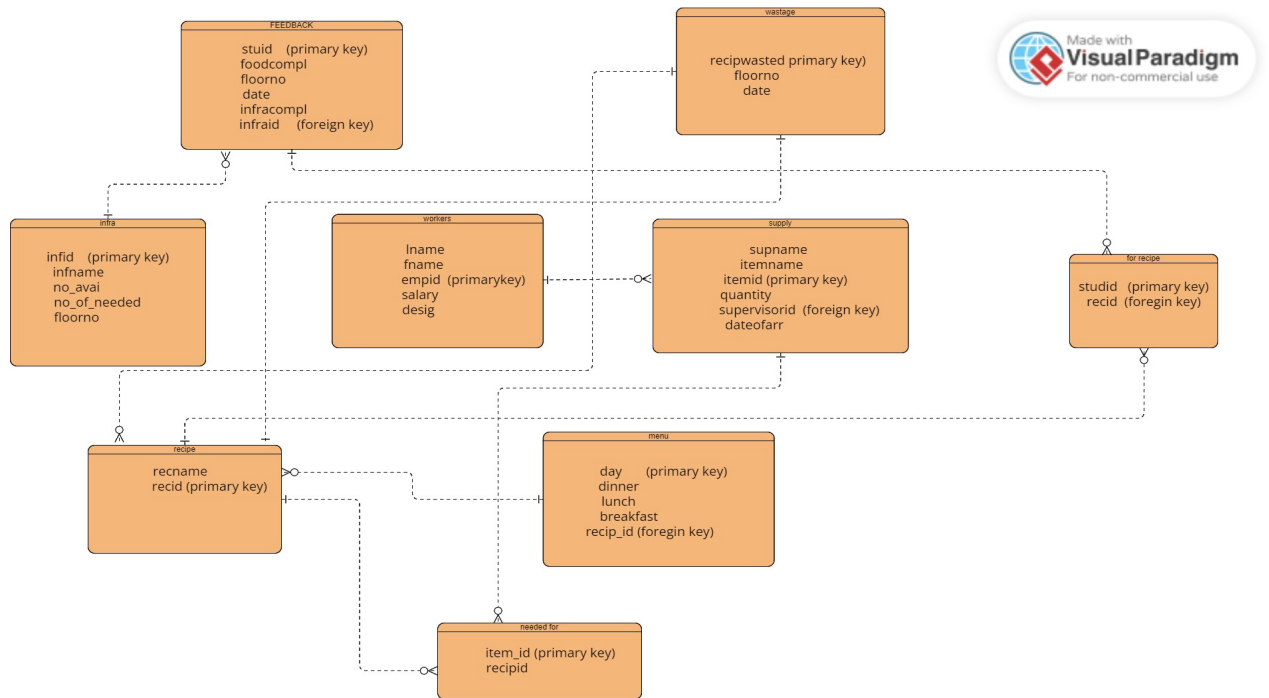
Entity relationship Schema



Physical data model



Logical data model



Conceptual data model

