FOOD MANAGEMENT SYSTEM

Database Design Document

V 1.0

By

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REVISION HISTORY

22/04/24	*V 1.0*	*NO CHANGES*	

Instructions:

Place latest revisions at top of table.

The Revision History pertains only to changes in the content of the document or any updates made after suggestion from approving authority. It does not apply to the formatting of the template. Remove the blank rows.

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CHAPTER 1: PROJECT OVERVIEW

1.1. INTRODUCTION:

The “Food Management System” is a project that makes it easier to handle food items in places like restaurants or food banks. It helps keep track of food stock, when food items go bad, and how they are used. This is important because old ways of doing this can be slow, make mistakes, and lead to food being wasted or going bad. With this system, everyone involved - from the kitchen staff to the managers and suppliers - can manage food items better, waste less food, and use resources more effectively.

1.2. PROBLEM STATEMENT:

Right now, managing food items can be tough. People often have to keep track of everything by hand, there’s no one place to store all the information, and it’s hard to keep an eye on when food will go bad. These problems can lead to mistakes, food being wasted, and things not running smoothly. A lot of the time, people are using paper records or separate spreadsheets, which can be hard to keep up-to-date and accurate.

The Food Management System wants to fix these problems. It plans to do this by having one place where all the information is stored. This makes it easier to keep track of what food is in stock. It can also let people know automatically when food is about to go bad. Plus, it can create detailed reports about everything that’s going on.

1.3. PROJECT OBJECTIVES:

Centralized Database Creation:

- Objective: Develop a centralized database to store food inventory data, including item details, quantities, and expiration dates.
- Measurable: Complete database setup within semester.
- Achievable: Feasible within available resources.
- Relevance: Directly addresses the need for organized data storage.

Automated Expiration Date Tracking:

- Objective: Efficiently track food expiration dates and provide automated alerts for approaching expirations.
- Measurable: Operational within semester.
- Achievable: Attainable with the right approach.
- Relevance: Addresses the critical issue of food safety.

Reporting Functionality:

- Objective: Generate reports on food usage, wastage, and inventory levels for data-driven decision-making.
- Measurable: Develop and validate reporting functionalities within semster.

- Achievable: Aligned with project resources.
- Relevance: Facilitates informed decision-making.

Inventory Management Efficiency Improvement:

- Objective: Enhance overall inventory management processes by providing tools for tracking, ordering, and replenishment.
- Measurable: Achieve a improvement in efficiency within semester.
- Achievable: Realistic given the project context.
- Relevance: Solves identified problems related to food management.

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1.4. DOCUMENT OBJECTIVES:

Introduction:

- Purpose: Provide an overview of the project and its significance.
- Content: Briefly describe the need for efficient food inventory management and introduce the system's objectives.

Problem Statement:

- Purpose: Clearly state the challenges or issues the system aims to address.
- Content: Explain the existing problems related to food inventory tracking, wastage, and data management.

Project Objectives:

- Purpose: Specify the goals of the system.
- Content:
  - Centralized Database Creation: Describe the objective of creating a centralized database for food inventory data.
  - Automated Expiration Date Tracking: Detail the goal of efficient expiration date tracking.
  - Reporting Functionality: Highlight the importance of generating relevant reports.
  - Inventory Management Efficiency Improvement: Discuss the objective of enhancing overall inventory management processes.

Database Schema:

- Purpose: Explain the structure of the database.
- Content: Present the tables, fields, and relationships relevant to food inventory data.

Conclusion:

- Purpose: Summarize the project's achievements and impact.
- Content: Reflect on the successful implementation of the system and its benefits for food management.

CHAPTER 2: DETAILED DATABASE DESIGN

2.1. ENTITY:

In the "Entities" section, identify and define the entities that are central to the database project. Begin by identifying the entities that are relevant to your database project. These could be objects, concepts, or events that you need to keep track of in your database system. For each identified entity, provide a clear and concise definition. Describe what the entity represents in the context of your database project and its role within the system.

Sr. No	Entity Name	Description
01	Order Detail	This entity represents the details of an order placed by a user.
02	Order	This entity represents the order placed by a user.
03	Menu	This entity represents the menu items available for order
04	Payment	This entity represents the payment details for an order.
05	Menu Type	This entity represents the type of menu items.
06	Customer	This entity represents the customer who places the order.
07	Rating	This entity represents the rating given by a customer to a menu item.

2.2. DATA DICTIONARY:

In the "Attributes" section, identify and define the specific characteristics or properties of each of the entities in the database. Provide a list of attributes associated with the chosen entity. Each attribute should represent a specific piece of information or characteristic that have to be stored in the database. Specify the data type for each attribute to indicate the kind of data it will store. Common data types include text, numbers, dates, Boolean values. Identify any constraints or rules that apply to the attribute values. This may include constraints such as required fields, unique values, minimum or maximum lengths, or format requirements. For each attribute, provide a clear and concise definition or description. Explain what the attribute represents and its significance within the context of the entity.

2.2.1. Order Detail:

Sr. No	Name	Data Type	Constraint	Description
1	OrderDetailID	Integer	Primary Key, Unique	Identifier for each order detail
2	OrderID	Integer	Foreign Key to Order	Identifier referencing the order to which the detail belongs
3	MenuItemID	Integer	Foreign Key to Menu	Identifier referencing the menu item included in the order detail
4	Quantity	Integer		Quantity of the menu item included in the order detail
5	Price	Decimal		Price of the menu item per unit
6	SpecialInstructions	Text		Additional instructions or comments for the order detail

2.2.2. Order

Sr. No	Name	Data Type	Constraint	Description
1	OrderID	Integer	Primary Key, Unique	Identifier for each order
2	CustomerID	Integer	Foreign Key to Customer	Identifier referencing the customer who placed the order
3	OrderDate	Date		Date when the order was placed

2.2.3. Menu

Sr. No	Name	Data Type	Constraint	Description
1	MenuItemID	Integer	Primary Key, Unique	Identifier for each menu item
2	MenuName	Text		Name of the menu item
3	Description	Text		Description of the menu item
4	Price	Decimal		Price of the menu item per unit
5	MenuTypeID	Integer	Foreign Key to Menu Type	Identifier referencing the type of menu item

2.2.4. Payment

Sr. No	Name	Data Type	Constraint	Description
1	PaymentID	Integer	Primary Key, Unique	Identifier for each payment
2	OrderID	Integer	Foreign Key to Order	Identifier referencing the order associated with the payment
3	PaymentAmount	Decimal		Amount of payment made
4	PaymentDate	Date		Date of the payment
5	PaymentMethod	Text		Method used for payment (e.g., credit card, cash)

2.2.5. Menu Type

Sr. No	Name	Data Type	Constraint	Description
1	MenuTypeID	Integer	Primary Key, Unique	Identifier for each menu type
2	TypeName	Text		Name or category of the menu type

2.2.6. Customer

Sr. No	Name	Data Type	Constraint	Description
1	CustomerID	Integer	Primary Key, Unique	Identifier for each customer
2	FullName	Text		Full name of the customer
3	Address	Text		Address of the customer
4	Phone	Text		Phone number of the customer
5	Email	Text	Unique	Email address of the customer

2.2.7. Rating

Sr. No	Name	Data Type	Constraint	Description
1	RatingID	Integer	Primary Key, Unique	Identifier for each rating
2	MenuItemID	Integer	Foreign Key to Menu	Identifier referencing the menu item being rated
3	CustomerID	Integer	Foreign Key to Customer	Identifier referencing the customer who gave the rating
4	RatingValue	Integer		Numerical value representing the rating given
5	Review	Text		Additional comments or review given by the customer

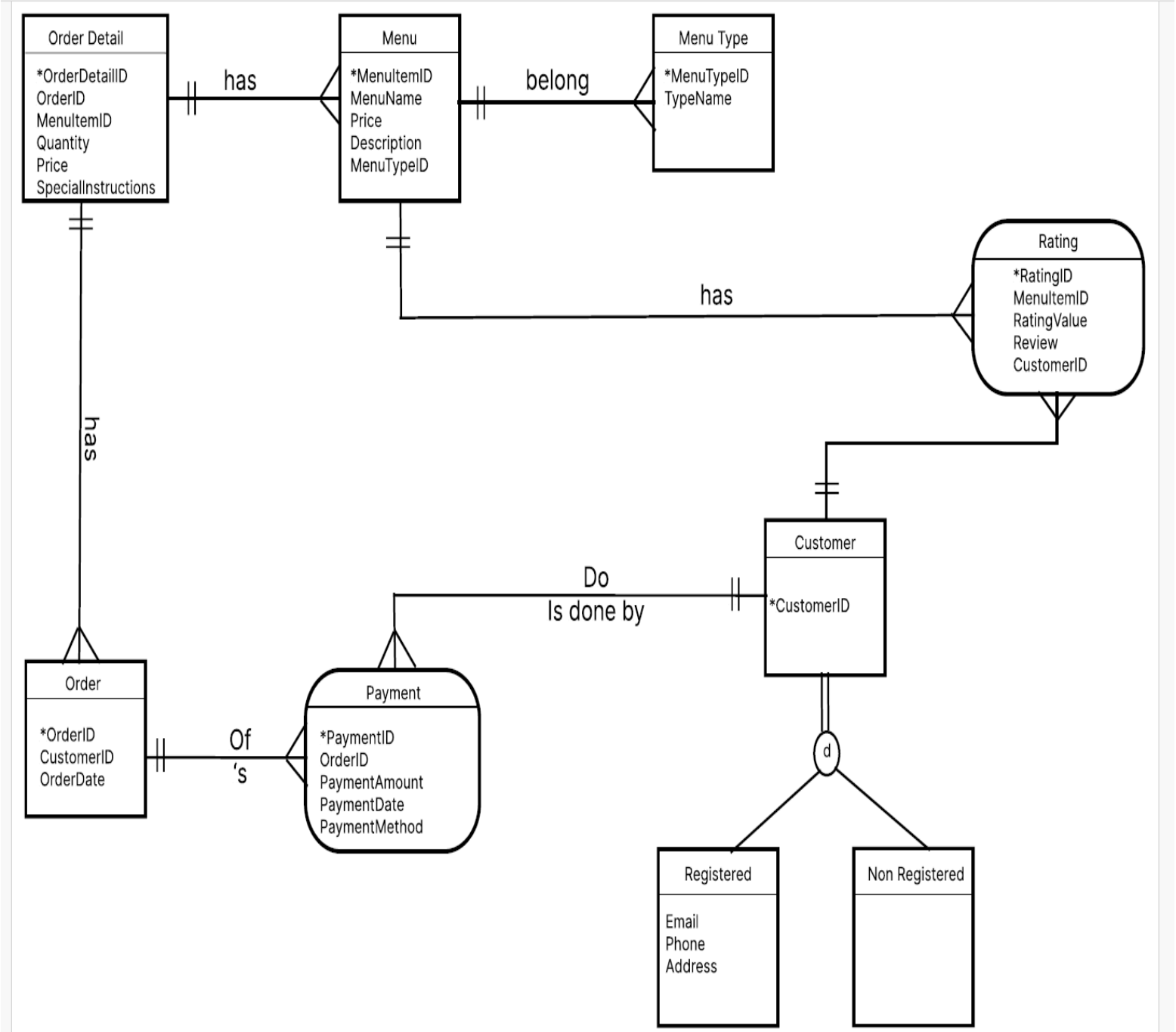
2.3. RELATIONSHIPS:

In the "Relationships" section, define the connections or associations between entities in the database. Begin by specifying the entities involved in the relationship. Clearly state the names of the entities to provide context for the relationship that will be defined. Identify the type of relationship between the entities. Describe the nature of the relationship and the cardinality (e.g., each entity instance may have one or multiple related instances).

Sr. No	Participating Entities	Relation	Business Rule
1	Order Detail - Order	Many-to-One	Each order detail is associated with one order through OrderID.
2	Order Detail - Menu	Many-to-One	Each order detail is associated with one menu item through MenuID.
3	Payment - Order	One-to-many	Each payment is done for one or many orders through OrderID.
4	Menu Type - Menu	One-to-Many	Each menu type can have multiple menu items through MenuID.
5	Rating - Menu	One-to-Many	Each menu item can have multiple ratings through MenuID.
6	Rating - Customer	One-to-Many	Each customer can give multiple ratings through CustomerID.
7	Payment - Customer	One-to-Many	Each Payment is placed by one customer through CustomerID.

2.4. ENTITY RELATIONSHIP DIAGRAM:

Draw the ERD Diagram of your project. List all the entities, attributes, relationships, primary keys of the entities and show the cardinalities between the entities. List any assumption that you made during making the ERD. Select a tool for creating your ERD. You can use specialized software such as Microsoft Visio, Lucidchart, or online ERD tools. Make sure that all the text, relationship, cardinalities are readable in the picture.



REFERENCES

Provide a list of all the sources cited or consulted during the development of database project. This section serves to acknowledge the contributions of other authors and researchers, as well as to enable readers to locate the sources for further information. Ensure that references are formatted according to IEEE referencing style. Also provide the in-text citations of the references

Formatting Guidelines:

- *Level 1 Heading: Font Style: Times New Roman, Font Size: 18, Color: Black, Case: All Caps, Align: Right, Numbering Style: CHAPTER 1… Should appear in Table of Content*
- *Level 2 Heading: Font Style: Times New Roman, Font Size 16, Color Black, Case: All Caps, Align: Lef,t Numbering Style: 1.1, 1.2 … Should appear in Table of Content*
- *Level 3 Heading: Font Style: Times New Roman, Font Size 14, Color Black, Case: Capitalize each word, Align: Left, Numbering Style: 1.1.1, 1.1.2 … Should Not appear in Table of Content*
- *Paragraph: Font Style: Times New Roman, Font Size 12, Color Black, Case: Sentence Case, Align: Justified, Should Not appear in Table of Content, Add space before and after paragraph.*
- *Insert caption to the picture with figure number.*