**Food Order Management System**

**1. Overview**

The Food Management System (FMS) is designed to efficiently handle food inventory, orders, payments, and user management. The system ensures streamlined operations for restaurants, cafeterias, or food delivery businesses. It follows the Model-View-Controller (MVC) architecture and supports Java (Spring MVC) or ASP.NET Core MVC frameworks.

The system consists of the following primary modules:

1. User Management

2. Food Product Management

3. Order Management

4. Payment Management

**2. Assumptions**

The system will be deployed locally using MySQL or SQL Server as the database.

Role-based access control will be implemented for Admin, Restaurant Staff, and Customers.

ORM tools like Hibernate (Java) or Entity Framework (ASP.NET) will be used.

A responsive and user-friendly interface will be provided.

**3. Module-Level Design**

**3.1 User Management Module**

Purpose:

Manages user accounts, authentication, and authorization.

**Controller:**

User Controller:

1.Register User ()

2.Login User ()

3.Logout User (),

**Model:**

**.user Entity**

1.User Id (PK)

2.name

3.email

4.password (hashed)

5.role (ADMIN, STAFF, CUSTOMER)

**3.2 Food Item Management Module**

**Purpose:**

Handles the addition, modification, and removal of food items.

**Controller:**

Food Controller

1.Add Food Item ()

2.update Food Item ()

3.get Food Item by Id ()

4.get All Food Items ()

5.delete Food Item ()

**Model:**

Food Item Entity

1.Food Id (PK)

2.name

3.description

4.price

5.category

6.availability Status

**3.3 Order Management Module**

**Purpose:**

Manages customer orders, status updates, and tracking.

**Controller:**

Order Controller:

1.Place Order ()

2.update Order Status ()

3.get Order by Id ()

4.get All Orders ()

5.cancel Order ()

**Model:**

1.Order Entity

2.Order Id (PK)

3.Customer Id (FK)

4.Total Amount

5.order Status (PLACED, PREPARING, COMPLETED, CANCELLED)

6.order Date

**3.5 Payment Management Module**

Purpose:

Handles order payments and transactions.

Controller:

1.Payment Controller

2.Process Payment ()

3.Get Payment Details ()

Model:

1.Payment Entity

2.Payment Id (PK)

3.Order Id (FK)

4.Amount Paid

5.Payment Status (SUCCESS, FAILED, PENDING)

6.Payment Date

**4. Database Schema**

CREATE TABLE User (

User Id INT AUTO\_INCREMENT PRIMARY KEY,

name VARCHAR (100),

email VARCHAR (100) UNIQUE,

password VARCHAR (255),

role ENUM ('ADMIN', 'STAFF', 'CUSTOMER')

);

CREATE TABLE Food Item (

Food Id INT AUTO\_INCREMENT PRIMARY KEY,

name VARCHAR (100),

description TEXT,

price DECIMAL (10,2),

category VARCHAR (50),

availability Status ENUM ('AVAILABLE', 'OUT\_OF\_STOCK')

);

CREATE TABLE Order Table (

Order Id INT AUTO\_INCREMENT PRIMARY KEY,

customer Id INT,

total Amount DECIMAL (10,2),

order Status ENUM ('PLACED', 'PREPARING', 'COMPLETED', 'CANCELLED'),

order Date DATETIME,

FOREIGN KEY (customer Id) REFERENCES User(user Id)

);

CREATE TABLE Inventory (

Inventory Id INT AUTO\_INCREMENT PRIMARY KEY,

Food Id INT,

Stock Quantity INT,

Last Updated TIMESTAMP,

FOREIGN KEY (food Id) REFERENCES Food Item(food Id)

);

CREATE TABLE Payment (

Payment Id INT AUTO\_INCREMENT PRIMARY KEY,

order Id INT,

amount Paid DECIMAL (10,2),

payment Status ENUM ('SUCCESS', 'FAILED', 'PENDING'),

payment Date DATETIME,

FOREIGN KEY (order Id) REFERENCES Order Table (order Id)

);

CREATE TABLE Report (

Report Id INT AUTO\_INCREMENT PRIMARY KEY,

Report Type ENUM ('SALES', 'STOCK', 'CUSTOMER\_ANALYSIS'),

Generated Date DATETIME

);

**5. Deployment Details**

1. Install MySQL or SQL Server.

2. Install required SDKs: JDK 17 (Java) or .NET SDK 7.0 (ASP.NET).

3. Configure the database using the provided schema.

4. Modify application properties for database connection.

5. Deploy using Apache Tomcat (Java) or Kestrel (ASP.NET Core).

**6. Conclusion**

The Food Management System (FMS) follows an MVC architecture for efficient user, food, order, inventory, and payment management. The system enhances operational efficiency for restaurants and food businesses while ensuring smooth customer interactions.