PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

B. Tech (CSE) – 5th Semester – Aug-Dec 2024

UE22CS303 - Software Engineering

DESIGN DOCUMENT

Restaurant Management System

Team #: __3_____

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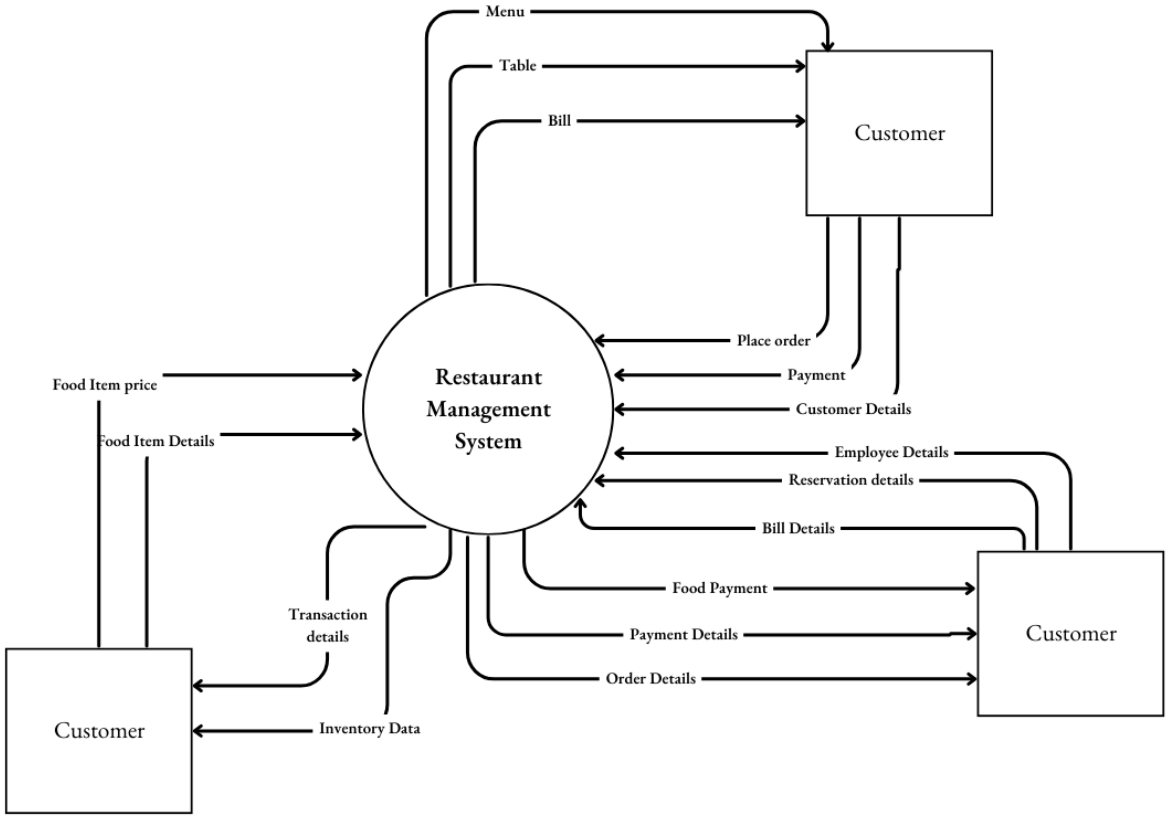
General Instructions (Delete these instructions from the document before submission) :

- Formatting Guidelines : Submit in pdf format
- Naming convention : **Design SRN1-SRN2-SRN3-SRN4** (Write SRNs in ascending order)
- Don't forget to fill the Project Title on the **first page** as well as the **footer**

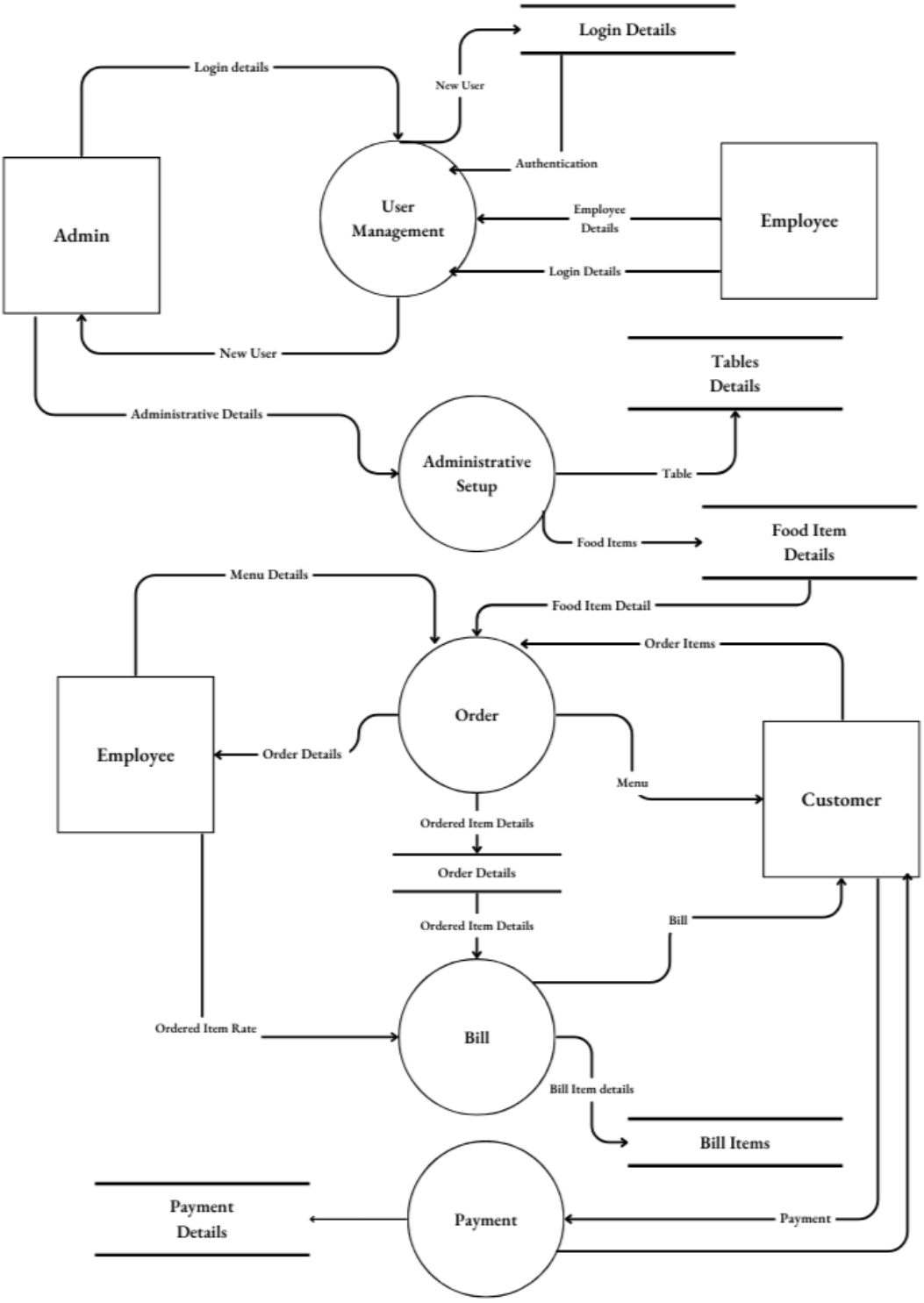
Design Diagrams

Diagrams of Levels of DFD

Level 0



Level 1


Login Details
Login details
New User
Authentication
Admin
User Management
Employee Details
Employee
Login Details
New User
Tables Details
Administrative Details
Administrative Setup
Table
Food Items
Food Item Details
Menu Details
Food Item Detail
Order Items
Order
Employee
Order Details
Menu
Customer
Ordered Item Details
Order Details
Ordered Item Details
Bill
Ordered Item Rate
Bill
Bill Item details
Bill Items
Payment Details
Payment
Payment

Architectural Design

The Restaurant Management System is designed to streamline operations by connecting staff and customers through a ***client-server architecture****.*

The Front End (Client side):

Overview:

The client-side interface allows both restaurant staff and customers to interact with the system through a web app or mobile application. This component is responsible for user interactions, managing orders, reservations, and displaying relevant data and real-time updates.

Key Responsibilities:

- *User Authentication:*
  Manage login and logout functionality for both customers and staff (e.g., servers, managers).
- *Form Submissions:*
  Allow users to submit forms for table reservations, order placements, and feedback.
- *Displaying Real-Time Data:*
  Provide visual representations of key data such as order statuses, table availability, and sales metrics via charts or graphs.
- *Notifications and Alerts:*
  Send real-time notifications for order completions, reservation confirmations, or important updates such as delays or table assignments.
- *Secure Communication:*
  Ensure secure and encrypted communication with the backend server for all

data-related interactions such as placing orders, fetching reservations, and managing restaurant operations.

The Backend (Server-Side)

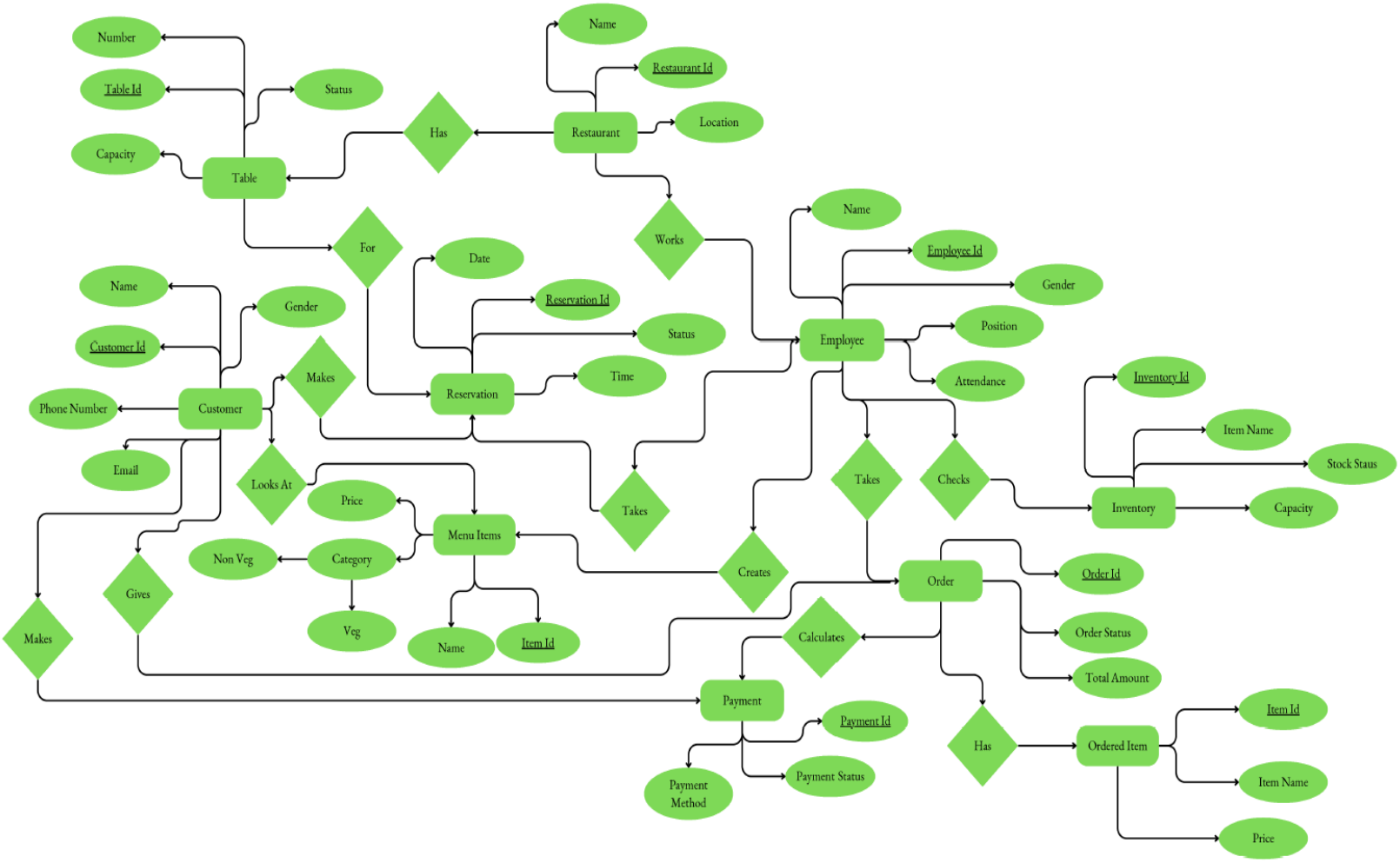
Overview:

The backend is responsible for managing all the business logic, data processing, and communication with the database. It handles order processing, reservations, staff management, and ensuring that the system runs smoothly and securely.

Key Responsibilities:

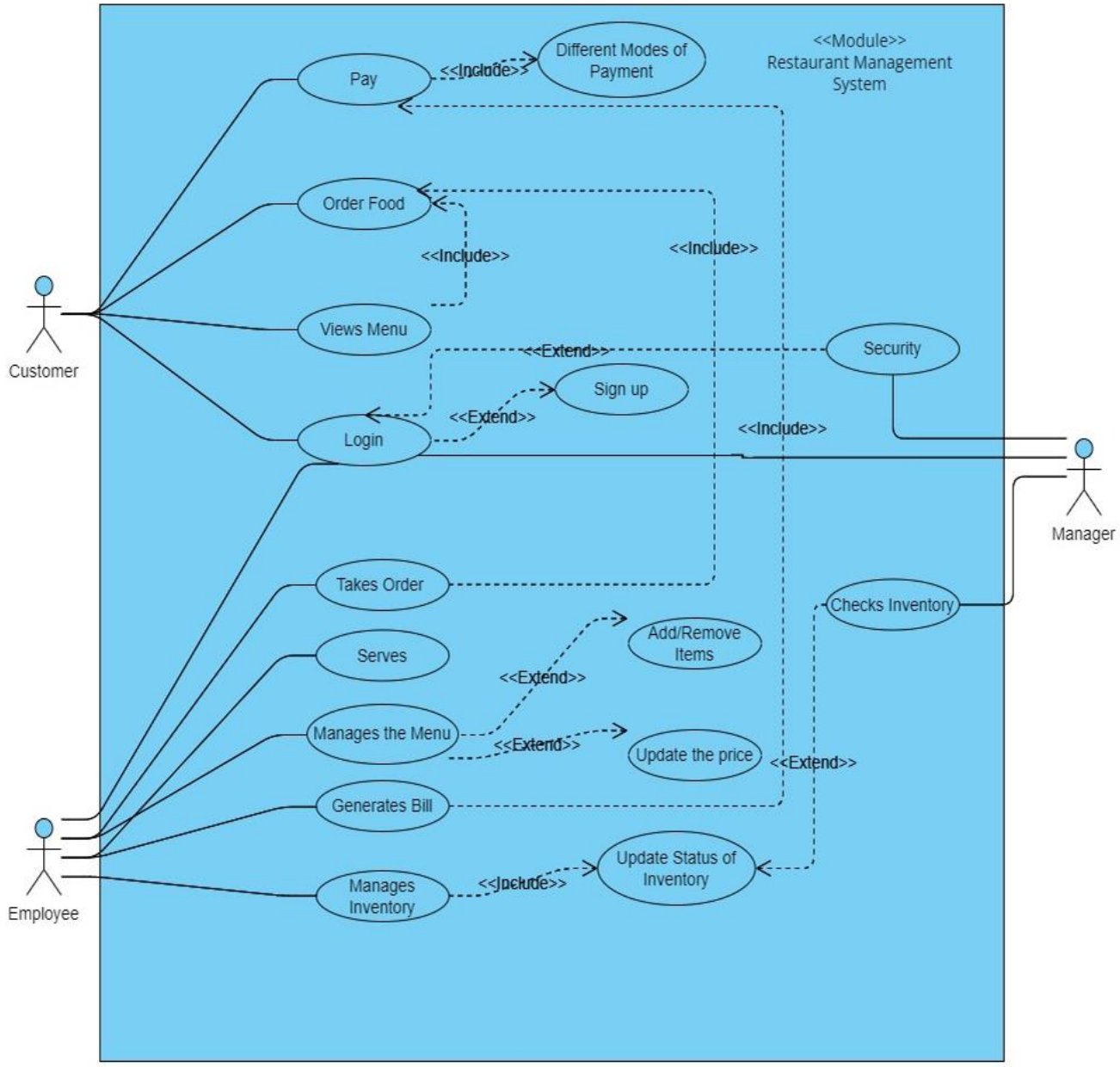
- *User Authentication and Authorization:*
  Verify and authorize user access based on roles (e.g., customers, kitchen staff, managers).
- *Data Processing and Storage:*
  Process and store data related to customer orders, reservations, payments, and staff duties in a centralized SQL database.
- *Data Consistency and Business Rules:*
  Maintain data integrity and ensure that business rules are applied (e.g., alerting staff when a table is overbooked or inventory is running low).

ER Diagram:


Number
Table Id
Status
Capacity
Table
Has
Name
Restaurant Id
Restaurant
Location
For
Date
Works
Name
Employee Id
Gender
Reservation Id
Status
Employee
Position
Attendance
Name
Gender
Customer Id
Makes
Time
Reservation
Phone Number
Customer
Email
Looks At
Price
Takes
Takes
Checks
Inventory Id
Item Name
Stock Staus
Inventory
Capacity
Menu Items
Non Veg
Category
Creates
Order
Order Id
Gives
Veg
Name
Item Id
Calculates
Order Status
Total Amount
Makes
Payment
Payment Id
Has
Ordered Item
Item Id
Payment Status
Item Name
Payment Method
Price

UML

Use Case Diagram



Class Diagram