Zewail City of Science, Technology and Innovation
University of Science and Technology
School of Computational Sciences and Artificial Intelligence

CSAI 202 - Fall 2025

Team 1
Restaurant Management System

Final Project Report
(Analysis, Design, and Implementation)

Team Members:

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1 Analysis Phase

1.1 Project Description

This project aims to develop a comprehensive Restaurant Management System using ASP.NET Core MVC. The system facilitates the ordering process for customers and provides management tools for administrators to control menus and orders efficiently.

1.2 System Users

The system supports the following user roles:

- **Customer:** Can browse the menu, filter items by category, add items to the shopping cart, and place orders securely.
- **Admin:** Can manage menu items (Add, Edit, Delete), view customer orders, and manage registered users.

1.3 Functionalities

- Secure User Authentication (Login/Register).
- Dynamic Menu Browsing and Searching.
- Shopping Cart Management (Add/Remove items).
- Order Placement and Status Tracking.

2 Design Phase

2.1 ER Diagram

Below is the Entity-Relationship Diagram (ERD) representing the database structure and relationships.

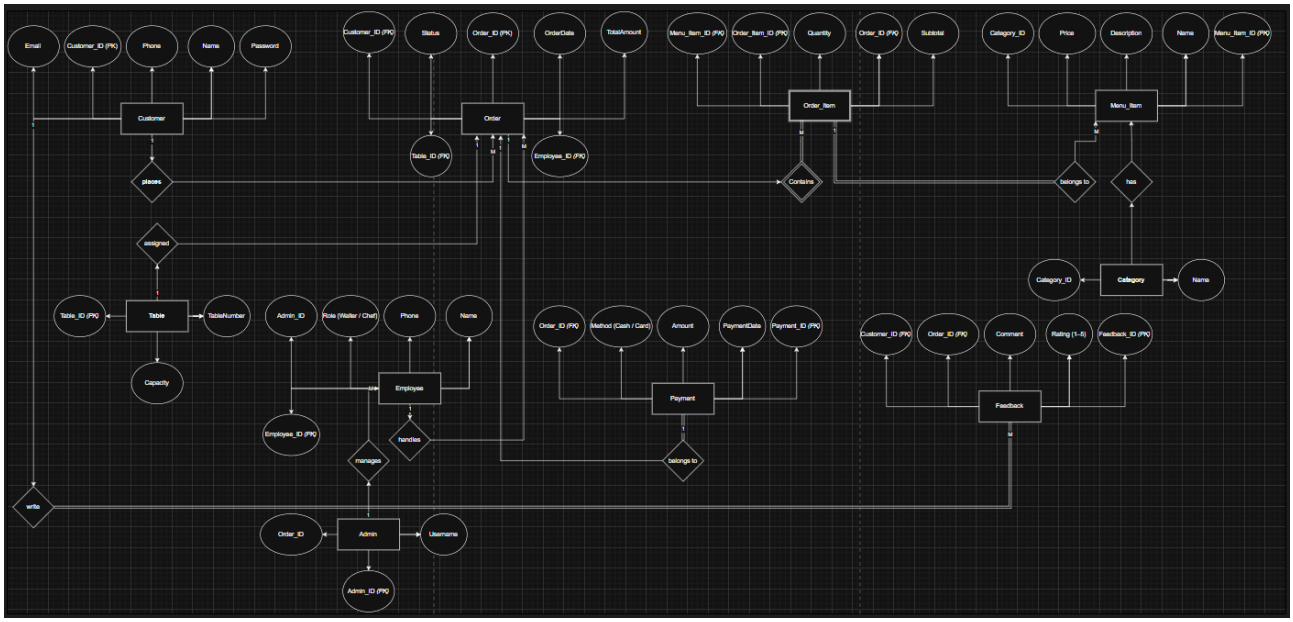

Figure 1: System ER Diagram

2.2 Database Schema

The relational mapping of the database tables is as follows:

- **Customer**(CustomerID, Name, Email, Password, Phone)
- **Order**(OrderID, Date, TotalPrice, CustomerID)
- **MenuItem**(ItemID, Name, Price, Category)
- **OrderDetail**(OrderID, ItemID, Quantity)

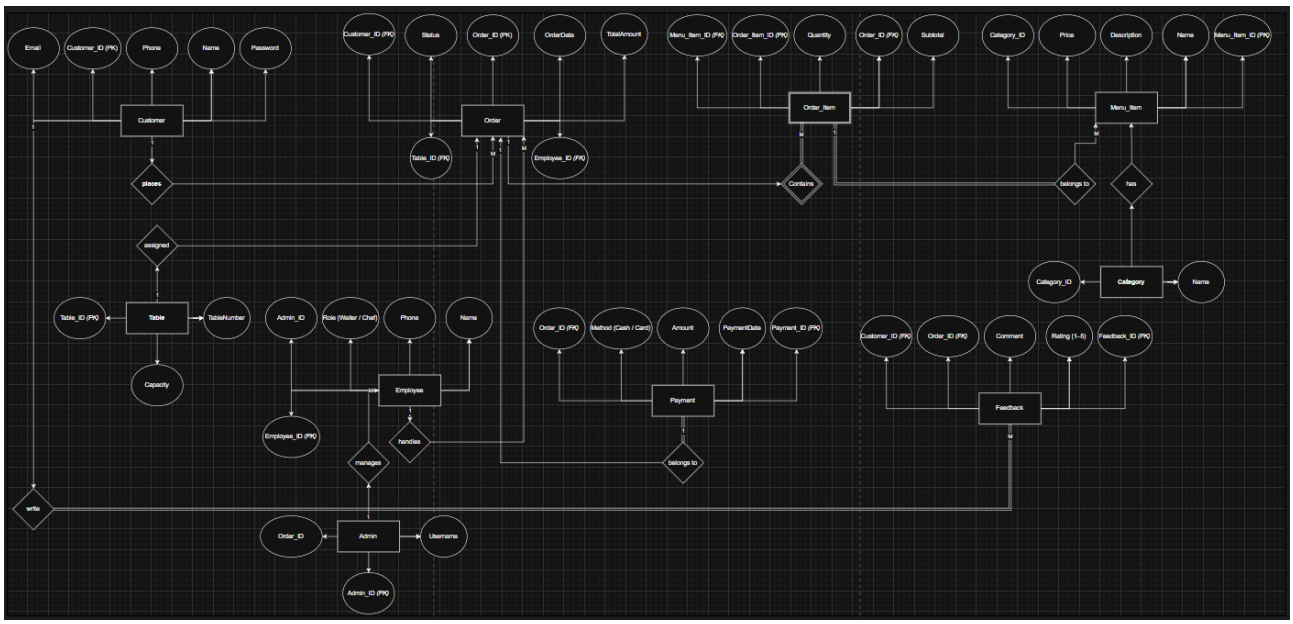

Figure 2: System ER Diagram

3 Implementation Phase

3.1 Technologies Used

- **Backend:** ASP.NET Core MVC (C#)
- **Database:** Microsoft SQL Server
- **Frontend:** HTML, CSS, Bootstrap, JavaScript
- **Tools:** Visual Studio 2022, SSMS, Git/GitHub

3.2 System Screenshots

3.2.1 Home Page

This page serves as the landing page for the restaurant system.

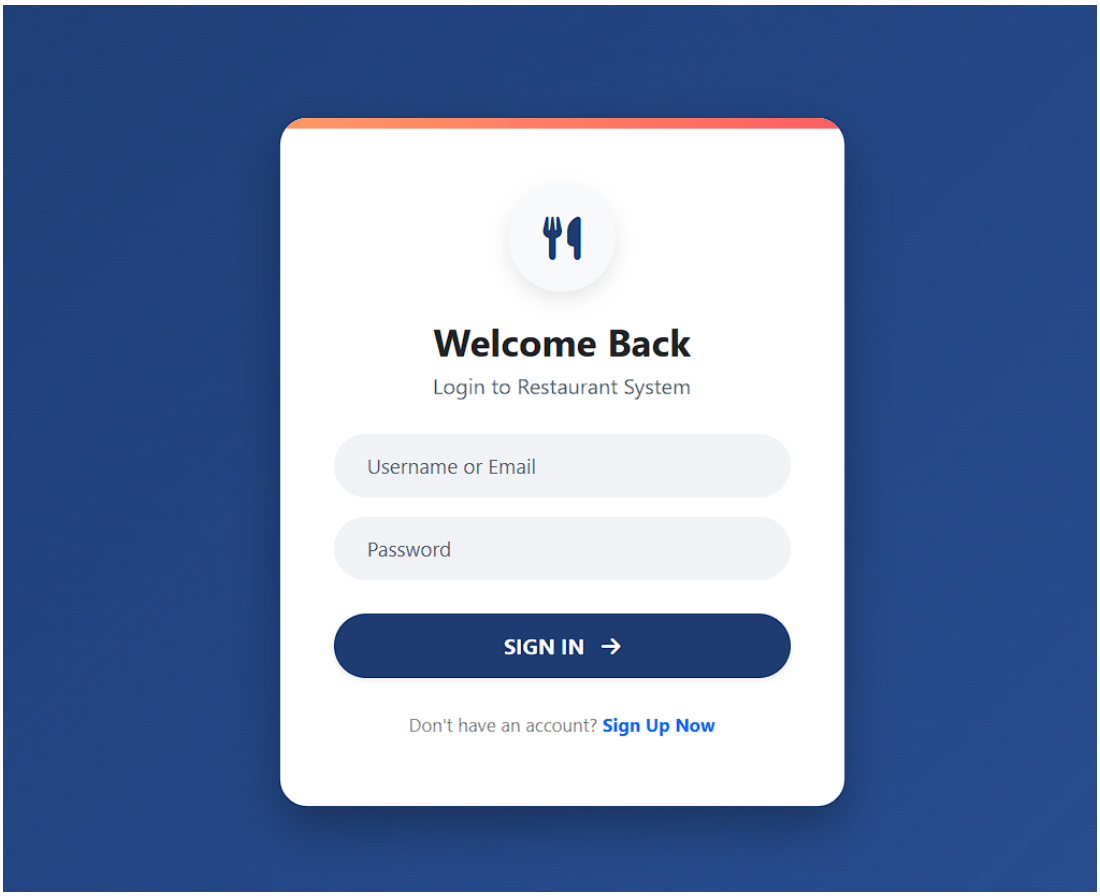

Figure 3: Application Home Page

3.2.2 Menu Page

The menu page displays all available items categorized for easy navigation.

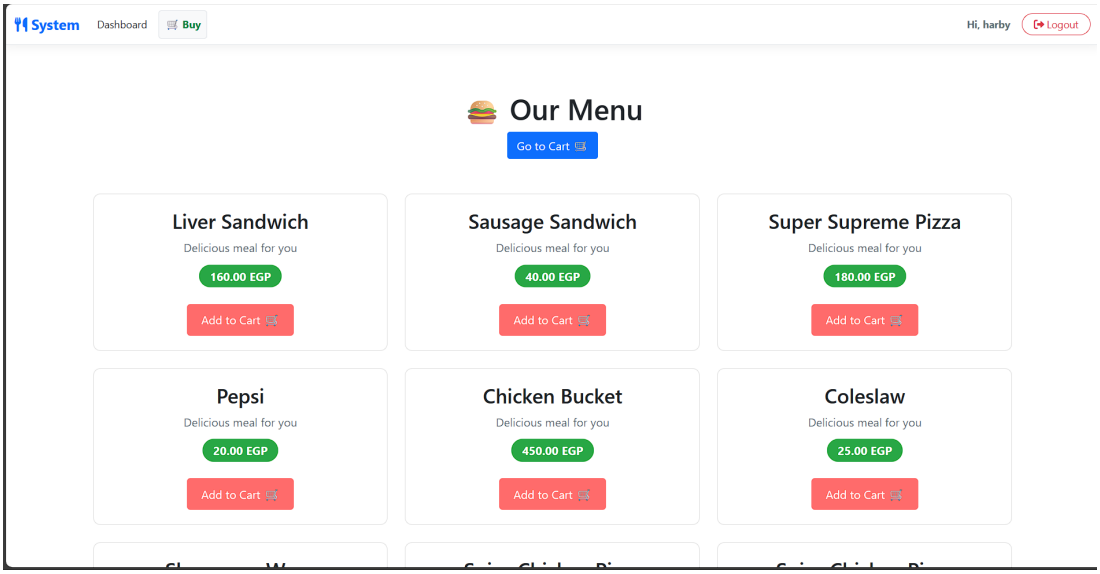

Figure 4: Menu Page with Categories

4 Workload Distribution

The following table illustrates the contribution of each team member:

Team Member	**Tasks & Responsibilities**
Ahmed Ezzat Allam	**Lead Developer:** Designed Database Schema, Built the entire Backend (Controllers & Logic), Implemented the Database (SQL/Code First), Developed Frontend Views, and handled Final System Integration.
Ahmed Qwisy	Designed the Entity-Relationship Diagram (ERD) and defined table relationships.
Abdelrahman Harby	Helping with Presentation Slides design and choosing the project logo.
Mohamed Elbadawy	Collaborated on designing the ER Diagram and identifying system entities.

Table 1: Project Workload Distribution