LapStore Project

Project Proposal

- **Overview**: LapStore is an e-commerce platform offering a wide range of laptops at competitive prices, providing comprehensive product information, an excellent user experience, and outstanding customer support.
- **Objectives**: Deliver a seamless user experience, increase sales, and improve customer satisfaction.
- **Scope**: Develop a website with an easy-to-use interface, product management system, and shopping cart functionality.

Project Plan

- **Timeline**: Gantt chart covering the period from March 9 to May 9.

TASK	START DATE	END DATE
1. Search for Bootstrap Template and Install		
> Search for suitable Bootstrap templates	March 9, 2025	March 9, 2025
> Install the template on the project	March 10, 2025	March 10, 2025
2. Design ERD and Relationships		
> Identify core entities	March 11, 2025	March 11, 2025
> Design relationships between tables	March 12, 2025	March 12, 2025
3. Database Normalization		
> Apply First Normal Form (1NF)	March 13, 2025	March 13, 2025
> Apply Second Normal Form (2NF)	March 14, 2025	March 14, 2025
> Apply Third Normal Form (3NF)	March 15, 2025	March 15, 2025
4. Create Migration using Entity Framework		
> Create data models (Models)	March 16, 2025	March 17, 2025
> Create and execute Migration	March 18, 2025	March 19, 2025
5. Frontend Development		
> Develop Home Page	March 20, 2025	March 22, 2025
> Develop Products Page	March 23, 2025	March 25, 2025
> Develop Product Details Page	March 26, 2025	March 28, 2025
> Develop Shopping Cart Page	March 29, 2025	March 31, 2025
> Develop Checkout Page	April 1, 2025	April 3, 2025
6. Backend Development		
6.1. Build N-Tier Architecture		
> Presentation Layer (Controllers)	April 4, 2025	April 6, 2025
> Business Logic Layer (Services)	April 7, 2025	April 9, 2025
> Data Access Layer (Repositories)	April 10, 2025	April 12, 2025
> Database Layer (Entities & Context)	April 13, 2025	April 14, 2025
6.2. Implement Authorization and Authentication		

- **Milestones**: Completion of design, development, testing, and final delivery.

Task Assignment & Roles

- **Team Lead & Backend Developer**: Wael Bahaa Aldien.
- **Frontend Developer**: Abdelrahman Hassan.
- **Database Designer**: Shehab Eisa.
- **Tester**: Dina Gamal.

Risk Assessment & Mitigation Plan

- **Potential Risks**: Delays in delivery, integration issues between frontend and backend.
- **Mitigation Plans**: Allocate extra time for testing, hold weekly coordination meetings, and working Implement the code with ASP.NET Core MVC.

Key Performance Indicators (KPIs)

- Page load time: Less than 3 seconds.
- Conversion rate: 5%.
- Customer satisfaction: 90%.

Literature Review

- Research best practices in e-commerce design.
- Study similar platforms like Amazon and Jumia.

Stakeholder Analysis

- **Stakeholders**: Customers, suppliers, development team.
- **Customer Needs**: Easy-to-use interface, competitive pricing, quick technical support.

User Stories & Use Cases

- As a customer, I want to search for laptops by specifications.

- As a customer, I want to add products to the shopping cart and complete the purchase.
- As a merchant, I want to easily manage my product inventory, update prices, and track orders, so I can increase my sales and provide an excellent shopping experience for my customers.

Functional Requirements

- Product management system: Add, modify, and delete products.
- Search system: Filter products by specifications and price.
- Payment system: Support one payment method at least.

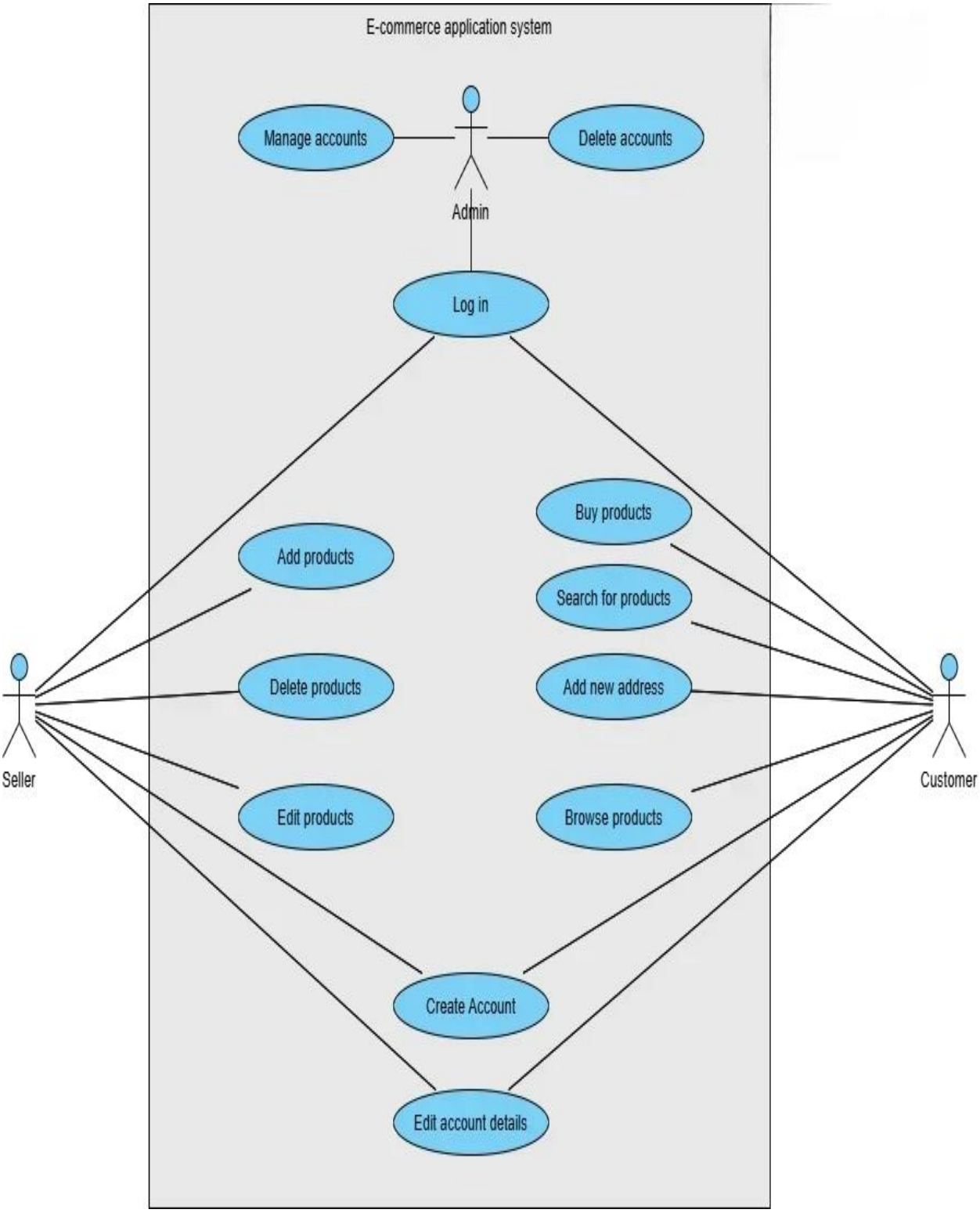
Non-Functional Requirements

- Performance: Page load time under 3 seconds.
- Security: Encrypt payment data.
- Availability: System uptime of 99.9%.

Problem Statement & Objectives

- **Problem**: Customers need a reliable platform to purchase laptops at competitive prices.
- **Objectives**: Provide a seamless user experience and excellent customer support.

Use Case Diagram

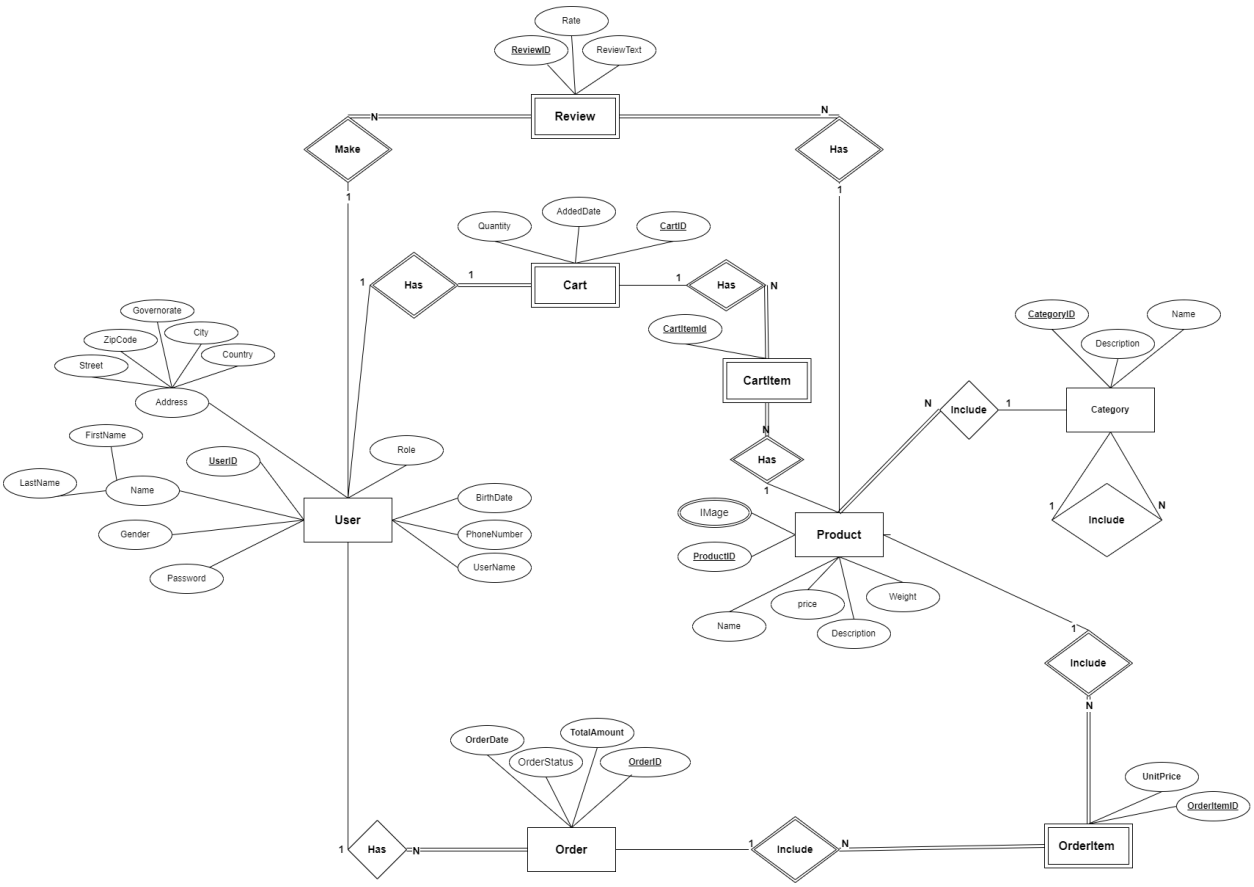


Software Architecture

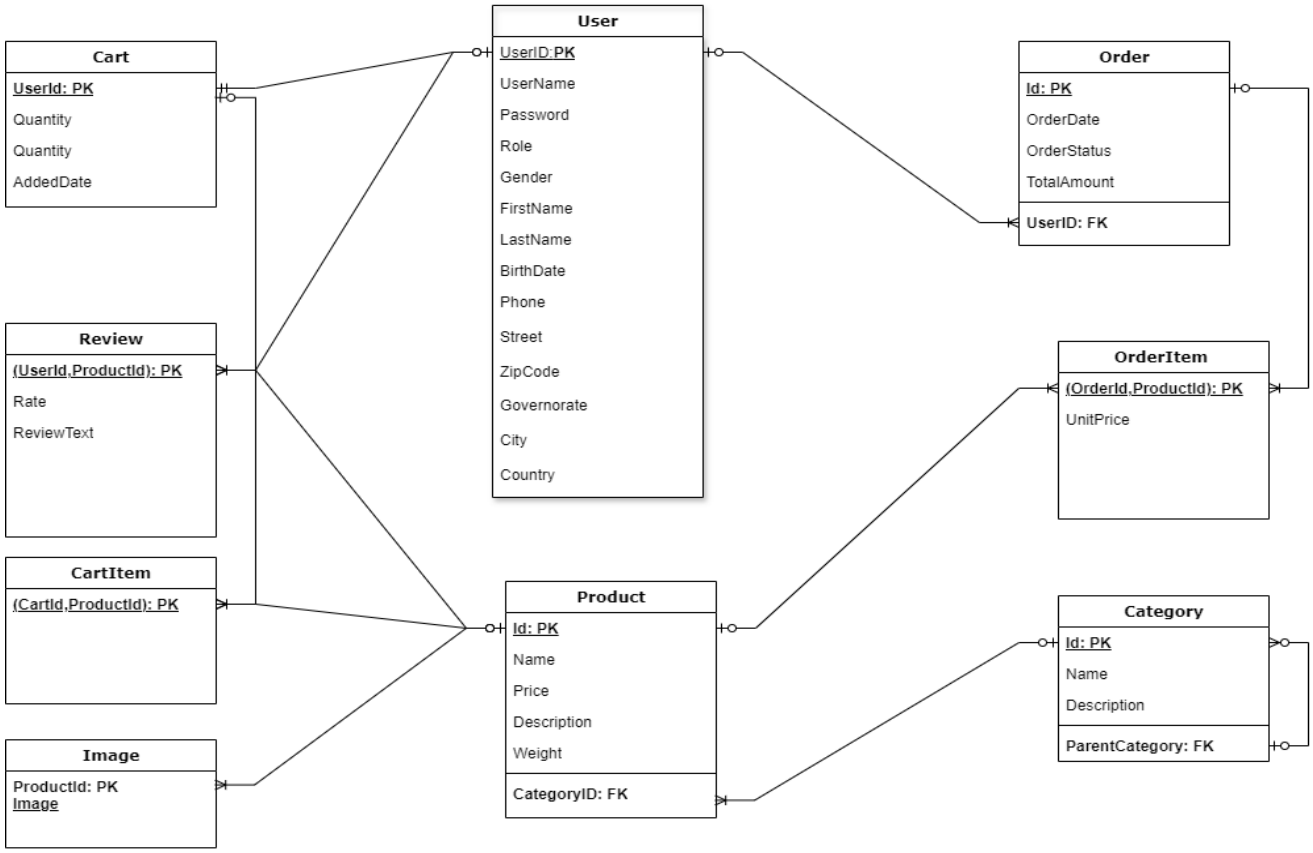
- Design system based on **MVC (Model-View-Controller) architecture within an n-tier structure.**

Database Design

- **ERD**:



- **Logical Schema**:



Wireframes & Mockups

- Design search interface, product page, and shopping cart.

UI/UX Guidelines

- **Colors**: Neutral colors with blue accents for technology.
- **Typography**: Easy-to-read fonts.

Source Code

- **Frontend**: Develop using HTML, CSS, JavaScript.
- **Backend**: Develop using C# (.NET Core).
- **Database**: Design using SQL Server.

Security Measures

- Encrypt payment data using SSL.
- Validate inputs to prevent security attacks.

Unit & Integration Testing

- Test each component individually.
- Test integration between frontend and backend.