1. Project Planning & Management

Proposal

Overview TechX Press is a full-featured e-commerce platform designed to provide users with a seamless shopping experience for electronics such as laptops, mobiles, and cameras. Built using ASP.NET Core, the platform will allow users to browse products, add them to a shopping cart, and complete purchases using integrated payment gateways. The platform will also include admin features for managing products, orders, and user accounts.

Objectives

1. Develop a responsive and user-friendly e-commerce platform.

2. Implement secure user authentication and role-based access control.

3. Integrate payment gateways for seamless transactions.

4. Provide an admin dashboard for managing products, orders, and users.

5. Ensure scalability and performance for handling high traffic.

Scope

Frontend: Responsive UI using Razor Pages, HTML5, CSS3, and JavaScript.

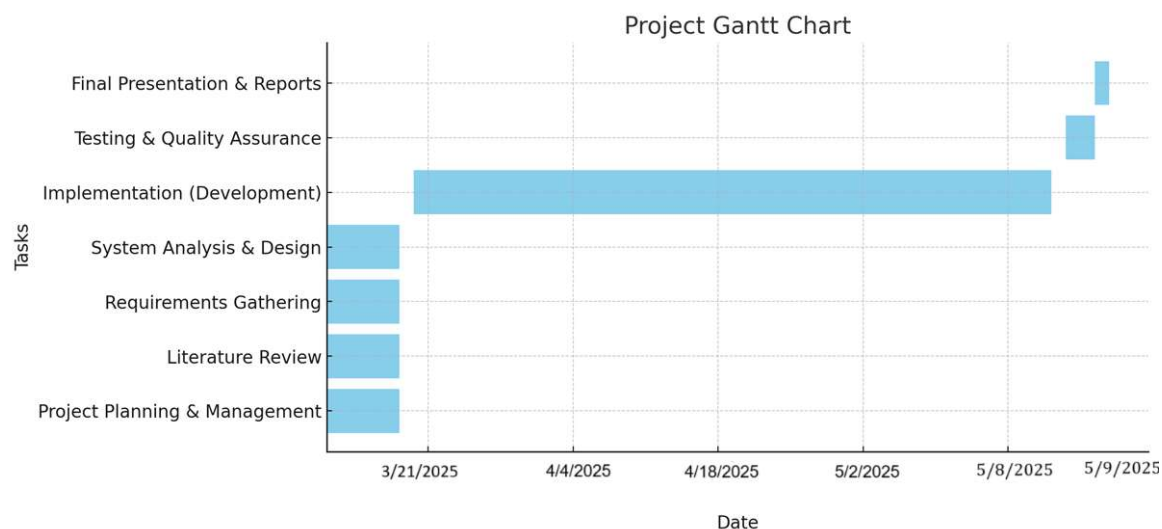**Backend:** ASP.NET Core for business logic, API development, and database management.

Database: SQL Server for storing product, user, and order data.

Payment Integration: Stripe or PayPal for secure payments.

Deployment: Hosting on Azure or AWS for scalability.

Project Plan

1.Timeline

Project Gantt Chart

2. Milestones & Deliverables

- 3/21/2025: Completion of Project Planning, Literature Review, Requirements Gathering, and System Design.

- 5/5/2025: Completion of Development (Implementation).

- 5/8/2025: Completion of Testing & Quality Assurance.

- 5/9/2025: Final Presentation and Documentation Submission.

Resource Allocation

Frontend Developer: 1

Backend Developer: 1

 Database Administrator: 1

 QA Tester: 1

Project Manager: 1

Task Assignment & Roles

Team Member	Role	Responsibilities
Fullstack Developer	.NET Developer	Develop backend APIs, integrate payment gateway, and assist with frontend development.
Frontend Developer	UI/UX Developer	Design and implement responsive user interfaces using Razor Pages and JavaScript.
Database Administrator	Database Specialist	Design and manage SQL Server database, optimize queries, and ensure data integrity.
QA Tester	Testing Specialist	Perform functional, performance, and security testing.
Project Manager	Project Lead	Oversee project progress, manage timelines, and ensure deliverables are met.

Risk Assessment and Mitigation Plan

Risk	Impact	Mitigation Plan
Delays in backend development	High	Allocate additional resources and prioritize critical tasks.
Payment gateway integration issues	Medium	Test with multiple payment gateways and have a fallback option.
Database performance bottlenecks	High	Optimize database queries and use caching mechanisms.
Security vulnerabilities	Critical	Implement secure coding practices, use HTTPS, and perform regular security audits.
UI/UX not meeting user expectations	Medium	Conduct user testing early and iterate based on feedback.

KPIs (Key Performance Indicators)

1. Response Time: Ensure API response time is under 500ms.

2. System Uptime: Achieve 99.9% uptime post-deployment.

3. User Adoption Rate: Target 80% user retention within the first month.

4. Conversion Rate: Achieve a 5% conversion rate from visitors to purchasers.

5. Bug Resolution Time: Resolve critical bugs within 24 hours.

Conclusion

TechX press aims to deliver a robust, scalable, and user-friendly e-commerce platform for electronics. By leveraging ASP.NET Core, SQL

Server, and modern frontend technologies, the platform will provide a seamless shopping experience while ensuring security and performance. The project plan, risk assessment, and KPIs will guide the team toward successful delivery.

3. Requirements Gathering

• **Stakeholder Analysis**: targeting users who want to "browse electronics (laptops, mobiles, cameras), add them to a shopping cart, and complete purchases using integrated payment gateways.

• **User Stories and Use Cases**:

Use Cases:

1. User
Registration (actor: user)

  2.Adding a Product (actor: Seller)

  3. Adding Items to Cart and Checkout (actor: Customer**)**

  4. Managing User Accounts (Actor: Administrator)

• **Functional Requirements**:

  User Account Management:

   1.Registration and Login (including social login options)

   2.Password recovery

Product Management (for sellers/admins):

   1.Add/edit/delete product listings (including images, descriptions, pricing)

Shopping Cart and Checkout:

1.Add/remove items from the cart

2.View cart contents

Payment Processing:

1. Integration
   with multiple payment gateways (e.g., credit cards, PayPal, mobile wallets)

2. Secure
   storage of payment information (tokenization)

3.Transaction history

• Non-functional Requirements:

Performance:

1. Fast
   page load times

2. Scalability
   to handle increasing traffic

3. Efficient
   database queries

Usability:

- Intuitive and user-friendly interface
- Responsive design (mobile-friendly)

Compatibility:

- Compatibility with different operating systems and devices

4. System Analysis & Design

The current market lacks a dedicated, user-friendly e-commerce platform tailored for purchasing high-value electronics such as **laptops, mobile phones, and cameras**. Existing solutions often fail to provide detailed technical specifications, secure transaction processes, or mobile-optimized interfaces.

Objectives

1. **Specialized Electronics Marketplace**:
   a. Create a curated platform for **laptops, mobile phones, and cameras** with advanced search/filter options (e.g., brand, price range, specifications).
   b. Enable side-by-side product comparisons and integration of expert/user reviews.
2. **Secure Transaction Ecosystem**:
   a. Implement tokenization and PCI-DSS compliance for secure payment processing.
   b. Offer EMI options and integrate diverse payment gateways (credit/debit cards, PayPal, mobile wallets).
3. **Enhanced User Experience**:
   a. Include features like Wishlist, price-drop alerts, and personalized recommendations based on browsing history.
   b. Offer live chat support for pre-purchase technical queries.

2. Use Case Diagram & Descriptions

Primary Actors: User, Administrator, Seller, Customer.

Secondary Actors: Payment Gateway, Social Login Providers

Customer

- Browse electronics (laptops, mobiles, cameras).
- Add/remove items to/from the shopping cart.
- Complete checkout using integrated payment gateways.
- View transaction history and order details.

Seller

- Add, edit, or delete product listings (including images, descriptions, pricing).
- Manage technical specifications (e.g., RAM, camera resolution, storage).
- Bundle products with accessories (e.g., laptop bags, camera lenses).

Administrator

- Manage user accounts (activate/deactivate users, assign roles).
- Monitor transactions and system performance.
- Configure system settings (e.g., payment gateways, security).

User (Guest/Registered)

- Register via email or social login (Google/Facebook).
- Log in to access personalized features.
- Recover forgotten passwords via email.

Payment Gateway (External System)

- Process secure transactions (credit cards, PayPal, mobile wallets).
- Tokenize payment information for security.

Social Login Provider (External System)

- Authenticate users via third-party platforms.
- Streamline registration/login processes.

3. Functional & Non-Functional Requirements
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8. System Deployment & Integration

• **Technology Stack:** - Frontend: ASP.NET MVC, Bootstrap.
  Backend:.NET Core, MySQL.
  - Authentication: ASP.NET Identity.

• **Deployment Diagram:** illustrates system distribution across hardware components.

9. Additional Deliverables

• **API Documentation:** RESTful API Endpoints. • **Testing & Validation:** Unit tests and user acceptance testing.
 • **Deployment Strategy:** Hosting on cloud services (Azure/AWS) with CI/CD integration.