Final Project Proposal: Cartify – E-Commerce Platform

1. Project Description

   Cartify is a modern and scalable E-commerce platform designed to provide a seamless online shopping experience for customers, sellers, and administrators. The platform allows users to browse products, search by categories, add items to their cart, and place secure orders. It will be developed using an N-Tier architecture to ensure maintainability, scalability, and efficiency. The system includes role-based dashboards, product and order management, secure payment integration, and an admin panel for managing users, inventory, and content.

Group Members
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2. Team Leader
- **Abdelrahman Yasser Zarif Abdelrazik**

3. Objectives
- Develop **a fully responsive and user-friendly** E-commerce platform.
- Implement secure **role-based authentication (Customer, Seller, Admin).**
- Enable **product browsing, category-based search, and shopping cart functionality.**
- Provide secure **order placement, tracking, and payment processing**.
- Integrate an **admin dashboard for managing users**, products, and orders
- Ensure a **scalable architecture** with clear separation of concerns.

4. Tools & Technologies

- **Frontend:** React, CSS, Tailwind, JavaScript, Material Tailwind
- **Backend:** Node.js , Express.js
- **Database:** MongooDB
- **Authentication:** JSON Web Tokens (JWT)
- **Payment Integration:** Stripe/PayPal (if applicable)
- **Deployment:** Vercel
- **UI Design Reference:** Figma Community

5. Milestones & Deadlines

Week 1: Initial Setup and Product Listings
- **Set up a layered architecture separating frontend, backend logic, and data access for better scalability.**
- **Database design** (Users, Products, Orders, Categories, Inventory).
- Implement **User Authentication** (Customers, Sellers, Admins).
  Deliverables:
  - **Basic product listing page with search and filters.**

  - **User authentication system (registration, login, and role-based access).**

Week 2: Shopping Cart, Role-Based Access Control, and Admin Panel
- Develop **Shopping Cart** functionality (add, update, remove items).
- Implement **Role-Based Access Control (RBAC)** for Customers, Sellers, and Admins.
- Create an **Admin Dashboard** for managing products, users, and orders.
  Deliverables:

  - **Functional shopping cart with item management.**
  - **Admin Dashboard for managing products and**

    orders.

Week 3: Order Management, Payment Integration, and

Reporting
- Implement **Order Management System** (order placement, tracking, and history).
- Integrate **Stripe/PayPal** for secure payments
- Add **reporting and analytics** for sales and user activity (basic overview).
  Deliverables:
  - **Complete order placement and tracking system.**
  - **Secure payment processing via Stripe/PayPal.**
  - **Basic sales and user reports in admin panel**

Week 4: Final Testing, UI Enhancements, and Deployment

- **Enhance the UI for a modern, responsive shopping experience.**
- Conduct **unit, integration, and UI testing** to ensure stability and performance.
- **Deploy Cartify** on **Vercel** for reliable hosting and continuous deployment. Deliverables:
  - **Polished and responsive User interface.**
  - **Final system testing and deployment of the Cartify platform.**

6. KPIs (Key Performance Indicators)

- **Infrastructure & Automation: Structured CI/CD pipeline for automated builds, testing, and deployments.**

- **Performance Optimization: Optimized API response times, database queries, and image loading for faster shopping experience.**

- **Security & Authentication: Secure user data handling, JWT-based authentication, and role-based access control for customers, sellers, and admins.**

- **Testing & Reliability: Comprehensive unit, integration, and UI testing to ensure system reliability and a smooth user experience.**

- **Deployment & Cloud Management: Hosted on Vercel with uptime monitoring and continuous deployment for consistent performance.**

Conclusion

Cartify aims to deliver a robust, secure, and user-friendly online shopping experience. By leveraging **React**, **Node.js**, **Express.js**, and **MongoDB**, the platform ensures a **scalable architecture** that meets the demands of **modern E-commerce applications** while maintaining **efficiency, performance, and ease of management**.