**E- Commerse site designing and developement ,for a manufacturer of automobile spare parts .He wants to create a website as well as a mobile applilcation .He will have the control of product upload and pricing .Would like to facilitate the online payment facility through razor pay by using waterfall model in**

1. Requirement Analysis

2. Initial Planning

1. **Requirement Analysis**

**Functional Requirements**

1. User Management:

- User Registration: Users can create accounts with email and password.

- User Login: Users can log in using registered credentials.

- Password Management: Users can reset their passwords if forgotten.

2. Product Management:

- Product Catalog: Display products with categories, filters, and sorting options.

- Product Details: Detailed view for each product including images, specifications, and reviews.

- Search Functionality: Users can search products by keywords.

- Product Upload: Admin can upload new products with details such as name, description, price, and images.

- Price Management: Admin can update the pricing of products.

3. Shopping Cart:

- Add to Cart: Users can add products to their shopping cart.

- Cart Management: Users can view, update, or remove items from the cart.

4. Checkout Process:

- Address Management: Users can add and manage shipping addresses.

- Order Summary: Users can review order details before finalizing the purchase.

- Payment Integration: Facilitate payments through Razorpay.

5. Order Management:

- Order Placement: Users can place orders.

- Order History: Users can view their order history and status.

- Order Tracking: Users can track the status of their orders.

6. Notifications:

- Email and SMS Notifications: Users receive notifications for registration, order confirmation, and shipping updates.

7. Admin Panel:

- Dashboard: Admin can view site analytics and key performance indicators.

- Product Management: Admin can add, edit, and delete products.

- Order Management: Admin can view and update the status of orders.

- User Management: Admin can view and manage user accounts.

**Non-Functional Requirements**

1. Performance:

- The site should load within 2 seconds.

- Handle up to 10,000 concurrent users.

2. Scalability:

- The system should support scaling with increasing users and products.

3. Security:

- Use SSL for data encryption.

- Secure user authentication and data storage.

- Secure payment processing through Razorpay.

4. Usability:

- Intuitive and user-friendly interface.

- Easy navigation and accessible design.

5. Compatibility:

- Cross-browser compatibility.

- Mobile responsiveness.

- Native mobile applications for iOS and Android.

2. **Initial Planning (System Design)**

**Architectural Planning**

1. Technology Stack:

- Frontend:

- Web Application: HTML, CSS, JavaScript, React.js

- Mobile Application: React Native

- Backend:

- Node.js with Express.js

- Database:

- MongoDB

- Payment Gateway:

- Razorpay API integration

- Hosting:

- AWS or similar cloud platform

2. Database Schema:

- Users Collection:

- User ID, Name, Email, Password, Address

- Products Collection:

- Product ID, Name, Description, Price, Category, Images, Stock

- Orders Collection:

- Order ID, User ID, Product IDs, Quantity, Total Price, Order Status, Payment Status

- Cart Collection:

- User ID, Product IDs, Quantity

3. API Endpoints:

- User Authentication: Register, Login, Reset Password

- Product Management: Get Products, Get Product Details, Add Product, Update Product, Delete Product

- Cart Management: Add to Cart, Get Cart, Update Cart, Remove from Cart

- Order Management: Place Order, Get Orders, Update Order Status

- Payment Integration: Initiate Payment, Confirm Payment

4. UI/UX Design:

- Web Application:

- Homepage, Product Listing, Product Details, Cart, Checkout, User Profile, Admin Dashboard

- Mobile Application:

- Similar screens as the web application, optimized for mobile experience

**Conclusion :**

This document covers the requirements and initial planning phase for the development of an e-commerce site and mobile application for an automobile spare parts manufacturer. Following the Waterfall model, this phase ensures a thorough understanding and planning of the project's functional and non-functional requirements.