

Requirement Specification Document for E-commerce Application

1. Overview

The e-commerce application will allow users to browse products, filter them, add items to their cart, and proceed to checkout. It will also include a mock payment system. The admin panel will provide features for managing inventory, users, transactions, and generating reports.

2. Functional Requirements

2.1. User Module

- **User Registration/Login:** Users can create an account or log in using email/password or social media accounts.
- **User Profile Management:** Update personal details, view order history, and manage saved addresses.
- **Password Recovery:** Allow users to reset their passwords.

2.2. Product Module

- **Product Browsing:** Display a catalog of products, with information such as name, description, price, rating, and images.
- **Product Filtering & Search:** Users can filter products by category, price range, brand, and rating. A search bar for quick product search.
- **Product Detail View:** Detailed information about each product with an option to add to the cart.

2.3. Cart Module

- **Add to Cart:** Users can add items to their cart with a specified quantity.
- **Update Cart:** Modify item quantities or remove items from the cart.
- **View Cart:** View items currently in the cart with a total price calculation.
- **Save for Later:** Save items for future purchases.

2.4. Checkout Module

- **Address Selection/Addition:** Users can select or add a new shipping address during checkout.
- **Payment Gateway (Mock):** Simulated payment processing to complete the purchase.
- **Order Summary:** Display a summary of items, shipping costs, and total price before confirming the order.
- **Order Confirmation:** Users receive a confirmation message and email after a successful order.

2.5. Admin Panel

- **User Management:** View, edit, and delete user accounts, manage user roles.
- **Inventory Management:** Add, edit, and delete products. Track product stock levels.
- **Transaction Management:** View a list of transactions, filter by date, and manage refunds.
- **Reporting:** Generate reports on sales, user activity, and inventory.

3. Non-Functional Requirements

- **Security:** Secure user data and ensure safe transactions.
- **Scalability:** Handle a growing number of users and products.
- **Performance:** Fast loading times, even with a large inventory.
- **Accessibility:** Support multiple devices and screen sizes.
- **Localization:** Option for multi-language support in the future.

API Requirement Document for E-commerce and Admin Application

1. User APIs

| Endpoint | Method | Description | Parameters |
|---------------------|--------|---------------------------------|-----------------------------|
| /api/register | POST | Register a new user | name, email, password |
| /api/login | POST | Authenticate and log in a user | email, password |
| /api/logout | POST | Log out a user | token |
| /api/profile | GET | Retrieve user profile | userId |
| /api/profile/update | PUT | Update user profile information | userId, name, address, etc. |

2. Product APIs

| Endpoint | Method | Description | Parameters |
|----------------------|--------|-----------------------------------|------------------------------|
| /api/products | GET | Retrieve a list of products | category, priceRange, search |
| /api/products/:id | GET | Retrieve product details by ID | productId |
| /api/products/search | POST | Search for products | searchTerm |
| /api/products/filter | POST | Filter products based on criteria | category, priceRange, etc. |

3. Cart APIs

| Endpoint | Method | Description | Parameters |
|------------------|--------|--------------------------------|-----------------------------|
| /api/cart | GET | Retrieve user's cart | userId |
| /api/cart/add | POST | Add a product to the cart | userId, productId, quantity |
| /api/cart/update | PUT | Update cart item quantity | userId, productId, quantity |
| /api/cart/remove | DELETE | Remove a product from the cart | userId, productId |

4. Checkout & Order APIs

| Endpoint | Method | Description | Parameters |
|-------------------|--------|------------------------|------------------------------|
| /api/checkout | POST | Process order checkout | userId, cartId, addressId |
| /api/payment/mock | POST | Simulate a payment | userId, orderId, paymentInfo |
| /api/orders | GET | Retrieve user's orders | userId |
| /api/orders/:id | GET | Get order details | orderId |

5. Admin APIs

| Endpoint | Method | Description | Parameters |
|-------------------------|--------|-----------------------------------|---------------------------|
| /admin/users | GET | List all users | - |
| /admin/users/:id | GET | Get user details | userId |
| /admin/users/:id/update | PUT | Update user information | userId, details |
| /admin/products | POST | Add new product | productDetails |
| /admin/products/:id | PUT | Update product | productId, productDetails |
| /admin/transactions | GET | View transaction history | dateRange, userId |
| /admin/reports | GET | Generate sales & activity reports | reportType, dateRange |