

# Solution Requirements for ShopEZ

**Project Name:** shopez-one-stop-shop-for-online-purchases

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## 1. Functional Requirements

These describe what the system should do:

### User Management

- Users should be able to register and log in.
- JWT-based authentication and session management.
- Separate roles for **Admin** and **Customer**.

### Product Management

- Users can view all products by category.
- Search and filter functionality by name, brand, and price.
- Admin can add, edit, and delete products.

### Cart and Checkout

- Users can add items to the cart and update quantities.
- View cart summary with total amount.
- Checkout page to place orders.

### Order Management

- Orders are stored with user details, items, total price, and date.
- Users can view order history and track status.
- Admin can view all orders and update delivery status.

## 2. Non-Functional Requirements

These define the quality and performance standards:

### Security

- User passwords encrypted with bcrypt.
- JWT used for secure authentication.
- Route protection for both admin and users.

### **Performance**

- API responses optimized for minimal latency.
- Lazy loading on the frontend to improve performance.

### **Scalability**

- Modular architecture for easy expansion (e.g., coupons, payment gateways).
- Can scale horizontally with additional services if required.

### **User Interface**

- Clean, modern UI using React and Bootstrap.
- Mobile-responsive design for accessibility on different devices.

### **Database Requirements**

- MongoDB to store user, product, order, and cart data.
- Well-structured schema relationships using Mongoose.

## **3. System Requirements**

### **Frontend:**

- React.js (with Hooks and functional components)
- Bootstrap/CSS for styling

### **Backend:**

- Node.js with Express.js framework
- JWT & bcrypt for auth & security

### **Database:**

- MongoDB (hosted via MongoDB Atlas or locally)

### **Tools:**

- Postman (for API testing)
- VS Code (development)
- Git & GitHub (version control)