

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	3December 2025
Team ID	
Project Name	SHOPEZ : E-commerce Application
Maximum Marks	4Marks

Functional Requirements:

**Below are the functional requirements (epics) and their sub-requirements
(stories / sub-tasks) for the proposed E-commerce Application.**

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User & Admin Authentication	<ul style="list-style-type: none">• User sign-up (email/phone) with email verification or OTP.• User login with email/phone + password.• Social login support (Google, Facebook) — optional.
		<ul style="list-style-type: none">• Role-based access: Customer, Seller, Admin.• Two-factor authentication (optional for high-risk flows).
FR-2	Product Catalog Management	<ul style="list-style-type: none">• Admin/Seller can create, update, and delete products (title, description, SKU, price, images, categories, tags, variants).• Support product variants (size, color) with separate SKUs and stock.• Bulk product upload (CSV/XLSX) for sellers.• Rich product descriptions (HTML/Markdown), images, and videos.
		Product detail page with specifications, related products, and stock status.
FR-3	Search & Filtering	Fast product search by keywords.

		Filters: category, brand, price range, rating, availability, color, size, seller.
		Autocomplete suggestions and recent searches.
		Sort options: relevance, price low-high, price high-low, newest, popularity.
FR-4	Shopping Cart & Checkout	<ul style="list-style-type: none"> • Add/remove/edit items in cart; view cart summary. • Save cart between sessions for logged-in users. • Multiple shipping addresses and address book management. • Guest checkout flow. • Apply coupon codes, gift cards, and promo codes.
		<ul style="list-style-type: none"> • Shipping cost calculation (real-time) based on address, weight, and courier. • Tax calculation based on jurisdiction. • Order review page and confirmation.
FR-5	Payment Integration	<ul style="list-style-type: none"> • Support multiple payment methods: credit/debit cards, NetBanking, UPI, wallets, COD. • Integration with payment gateways (PCI-compliant flow). • Handle payment success, failure, and pending states. • Secure storage of payment tokens where applicable (never store raw card data).
		Refund processing via payment gateway for returned/cancelled orders.
FR-6	Order Management	<ul style="list-style-type: none"> • Order creation, status tracking • Customers can view order history and order details.
		<ul style="list-style-type: none"> • Sellers/warehouse staff can update fulfillment status. • Admin tools for manual order edits and customer support actions.
FR-7		

	Security & Compliance	<ul style="list-style-type: none"> • Role-based access control across the system. • Data encryption at rest and in transit. • Compliance with PCI-DSS for payments and local data protection laws (e.g., GDPR/others as applicable). • Audit logs for critical actions.
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Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	<ul style="list-style-type: none"> • Clean, responsive UI across devices (desktop, tablet, mobile). • Easy onboarding and checkout flows to minimize cart abandonment.
NFR-2	Security	<ul style="list-style-type: none"> • TLS/HTTPS for all communication. • Secure password storage (bcrypt/argon2). • Regular security audits and vulnerability scanning.
NFR-3	Reliability	<ul style="list-style-type: none"> • Critical flows (checkout, payment, order processing) must be highly reliable with retries and idempotency.

		Graceful error handling and user-friendly error messages.
NFR-4	Performance	<ul style="list-style-type: none"> • Page load times under 2 seconds for key pages under normal load. • Search results and product listing responses under 300ms where possible.
NFR-5	Availability	Target 99.9% uptime for the platform with proper failover and redundancy.
NFR-6	Scalability	<ul style="list-style-type: none"> • Horizontal scaling for web and API layers; scalable data stores for catalog and orders. • Design for traffic spikes (sale events, flash sales).

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