

1. Project Planning & Management

1- Testing scope – What features/pages will be tested?

Functional Testing:

Home Page:

- UI elements: Banners, sliders, images, and layout.
- Navigation links and menu items.
- Responsiveness on different screen sizes.

Product Pages:

- Product listing and filtering.
- Search functionality.
- Product details page (images, descriptions, prices).
- Add to cart and Wishlist features.

User Registration & Login:

- Registration form validation (mandatory fields, email format, password strength).
- Login functionality (valid and invalid credentials).
- Password recovery process.

Cart & Checkout:

- Adding/removing products to/from the cart.
- Quantity updates and price recalculations.
- Coupon code validation.
- Checkout process, including billing/shipping forms and payment options.

Order Management:

- Placing an order.
- Order history and details page.

Contact Us Page:

- Form submissions with valid and invalid inputs.
- Validation messages and email sending (if applicable).

Compatibility Testing:

Cross-Browser Testing:

- Test on different browsers (Chrome, Firefox, Safari, Edge).
- Check for compatibility with older versions of browsers.

Cross-Device Testing:

- Test on different devices (desktop, tablet, mobile).
- Check responsiveness and UI consistency.

API Testing:

GET, POST, PUT, DELETE requests.

2- Testing roles – Who will perform manual, API, and automation testing?

All team members will participate simultaneously in all testing types.

(Each member will perform tasks in manual, API, and automation testing)

3- What challenges could arise in testing (e.g., browser compatibility)?

Compatibility Risks:

1. Browser Compatibility:

- Inconsistent behavior across different browsers (Chrome, Firefox, Safari, Edge).

2. Device Compatibility:

- Responsiveness issues on different screen sizes (mobile, tablet, desktop).
- Touchscreen-specific bugs (e.g., swipe actions not working as intended).

Usability and Accessibility Risks:

1. Poor User Experience (UX):

- Confusing navigation and inconsistent UI elements.
- Overly complex forms lead to user frustration.

2. Accessibility Issues:

- Lack of support for screen readers or keyboard navigation.
- Inadequate color contrast impacting visibility for users with visual impairments.

Other Potential Risks:

1. Time and Resource Constraints:

- Limited time for thorough testing, leading to missed defects.
- Insufficient resources (e.g., devices for cross-device testing).

2. Complex Test Scenarios:

- Complex user workflows that are difficult to automate or replicate manually.
- Edge cases that may be overlooked during testing.

4- KPIs

1. Quality KPIs:

These metrics ensure high product quality by identifying defects and ensuring comprehensive testing.

a. Bug Detection Rate (Practice Version):

- **Definition:** Percentage of bugs found during testing compared to the total number of test cases executed.
- **Formula:**

$$\text{Bug Detection Rate} = \left(\frac{\text{Number of Bugs Found}}{\text{Total Test Cases Executed}} \right) \times 100$$
- **Target:** Aim for $\geq 85\%$ to ensure most defects are caught before production.
- **Purpose:** To evaluate the effectiveness of the testing process in catching defects early.

b. Test Coverage Percentage:

- **Definition:** The percentage of code, requirements, or user scenarios covered by test cases.

- **Formula:** $\text{Test Coverage} = (\text{Number of Test Cases Executed} / \text{Total Number of Test Cases}) \times 100$
- **Target:** $\geq 90\%$ for critical modules; $\geq 80\%$ for non-critical areas.
- **Purpose:** Ensures all functionalities are tested, reducing the risk of undetected issues.

2. Performance KPIs:

Measure the speed and stability of the website, ensuring a positive user experience.

a. Response Time for API Requests:

- **Definition:** Average time taken for API requests to get a response.
- **Formula:** $\text{Average Response Time} = \text{Total Response Time} / \text{Total Number of Requests}$
- **Target:** $\leq 1000\text{ms}$ for APIs response.
- **Purpose:** To ensure fast and responsive interactions, enhancing user experience.

b. Page Load Time:

- **Definition:** Time taken for a page to fully load and be interactive.
- **Target:** $\leq 3 \text{ seconds}$ for optimal user experience.
- **Purpose:** To reduce bounce rates and improve user engagement.