

# Unit Testing - Frontend

- Components:

| Frontend                    |   |      |
|-----------------------------|---|------|
| > _mocks_                   | ● | ●    |
| > coverage                  | ● | ●    |
| > node_modules              |   |      |
| └ src                       | ● |      |
| > assets                    |   |      |
| └ components                | ● |      |
| & ComplaintsTable.jsx       | U | M, M |
| & ComplaintsTable.test.jsx  | U |      |
| & DashboardNavbar.jsx       |   |      |
| & DashboardNavbar.test.jsx  | U |      |
| & DashboardSidebar.jsx      |   |      |
| & DashboardSidebar.test.jsx | U |      |
| & ProtectedRoute.jsx        |   |      |
| & ProtectedRoute.test.jsx   | U |      |
| & StatusToast.jsx           |   |      |
| & StatusToast.test.jsx      | U |      |

# 1. ComplaintsTable.jsx

```
PASS  src/components/ComplaintsTable.test.jsx
ComplaintsTable Component
  ✓ renders empty message when no complaints provided (default props) (166 ms)
  ✓ renders JSX empty message if provided (11 ms)
  ✓ renders valid Priority and Status badges with correct styles (71 ms)
  ✓ hides all optional columns (7 ms)
  ✓ renders 'committee-actions' correctly (Lines 206-228) (145 ms)
  ✓ renders 'admin-actions' but hides buttons if callbacks are missing (8 ms)
  ✓ renders 'view-only' but does not render link if viewLinkBase is missing (9 ms)
  ✓ renders default/unknown action type (returns null) (11 ms)
  ✓ renders 'view-delete' with specific deleting state (40 ms)
  ✓ renders upvote count using array length fallback (7 ms)
  ✓ renders 0 upvotes if data is completely missing (11 ms)
  ✓ formats complaint ID as CC + last 6 chars and header shows 'ID' when showPriority true (6 ms)
  ✓ renders human readable date when createdAt provided (not N/A) (10 ms)
  ✓ hides delete button when canDeleteComplaint returns false (13 ms)
  ✓ renders view link when viewLinkBase provided and link has correct href (24 ms)
  ✓ upvote button calls onUpvote and respects upvoting state and hasUpvoted styling (24 ms)
  ✓ admin-actions render both Update Status and View buttons and callbacks are called (28 ms)
  ✓ shows Anonymous badge when complaint.isAnonymous is true (9 ms)
  ✓ renders 'Unknown' when userId or userId.name is missing (10 ms)
  ✓ delete button triggers onDelete callback when complaint exists (19 ms)
  ✓ does not render actions column when showActions is false (5 ms)

Test Suites: 1 passed, 1 total
Tests:       21 passed, 21 total
Snapshots:  0 total
Time:        4.751 s
```

# 2. DashboardNavbar.jsx

```
PASS  src/components/DashboardNavbar.test.jsx
DashboardNavbar Component
  ✓ renders title and profile information correctly (178 ms)
  ✓ does not render badge when unreadCount is 0 (15 ms)
  ✓ renders badge with correct count (72 ms)
  ✓ renders badge with limit indicator when count exceeds limit (14 ms)
  ✓ calls onBellClick when bell icon is clicked (30 ms)
  ✓ renders notification dropdown when open (13 ms)
  ✓ renders loading state in notifications (17 ms)
  ✓ renders empty state when no notifications (14 ms)
  ✓ renders list of notifications (57 ms)
  ✓ calls onNotificationClick when a notification is clicked (17 ms)
  ✓ calls onNotificationDelete when delete button is clicked (16 ms)
  ✓ renders 'Mark all as read' button only when unreadCount > 0 (21 ms)
  ✓ toggles profile dropdown on click (11 ms)
  ✓ renders profile menu items when dropdown is open (24 ms)
  ✓ calls onLogout when logout button is clicked (14 ms)
  ✓ closes dropdown when clicking Profile link (16 ms)
  ✓ does not render menu button when showMenuButton is false (6 ms)
  ✓ renders menu button and handles click (11 ms)

Test Suites: 1 passed, 1 total
Tests:       18 passed, 18 total
Snapshots:  0 total
Time:        4.482 s
```

## 3. DashboardSidebar.jsx

```
PASS  src/components/DashboardSidebar.test.jsx
DashboardSidebar Component
  ✓ renders logo details correctly (169 ms)
  ✓ renders navigation items (26 ms)
  ✓ renders footer content when provided (14 ms)
  ✓ renders logoMark with correct initials and styling (9 ms)
  ✓ navigates to logoRoute when logo is clicked (29 ms)
  ✓ applies active styling to current route (16 ms)
  ✓ hides sidebar visually on mobile when isOpen is false (90 ms)
  ✓ shows sidebar visually on mobile when isOpen is true (15 ms)
  ✓ renders overlay only when open (23 ms)
  ✓ calls onClose when overlay is clicked (12 ms)
  ✓ closes sidebar when nav item clicked on MOBILE (< 1024px) (14 ms)
  ✓ does NOT close sidebar when nav item clicked on DESKTOP (>= 1024px) (13 ms)

Test Suites: 1 passed, 1 total
Tests:      12 passed, 12 total
Snapshots:  0 total
Time:       4.448 s
```

## 4. ProtectedRoute.jsx

```
PASS  src/components/ProtectedRoute.test.jsx
ProtectedRoute Component
  ✓ redirects to login when no token or user data exists (46 ms)
  ✓ redirects to login when token exists but user data is missing (6 ms)
  ✓ redirects to login when user role does not match allowedRole (8 ms)
  ✓ renders children when user is authenticated and has correct role (16 ms)
  ✓ handles corrupted JSON in localStorage gracefully (10 ms)

Test Suites: 1 passed, 1 total
Tests:      5 passed, 5 total
Snapshots:  0 total
Time:       3.806 s
```

## 5. StatusToast.jsx

```
PASS  src/components/StatusToast.test.jsx
StatusToast Component
  ✓ does not render when toast prop is null (30 ms)
  ✓ renders toast message correctly (51 ms)
  ✓ renders SUCCESS style correctly (16 ms)
  ✓ renders ERROR style correctly (13 ms)
  ✓ renders INFO style correctly (explicit type) (13 ms)
  ✓ defaults to INFO style when type is missing (9 ms)
  ✓ calls onClose when close button is clicked (24 ms)
  ✓ auto-closes after default duration (4000ms) (14 ms)
  ✓ auto-closes after custom duration (10 ms)
  ✓ clears timer on unmount to prevent memory leaks (7 ms)
```

```
Test Suites: 1 passed, 1 total
Tests:       10 passed, 10 total
Snapshots:  0 total
Time:        4.17 s
```

- Pages:

|                            |       |
|----------------------------|-------|
| Frontend                   | ●     |
| src                        | ●     |
| assets                     |       |
| components                 | ●     |
| config                     |       |
| hooks                      |       |
| pages                      | ●     |
| AddComplaintPage.jsx       |       |
| AddComplaintPage.test.jsx  | U     |
| AdminDashboard.jsx         | M     |
| CommitteeDashboard.jsx     | !M, M |
| CreateAccountPage.jsx      | M     |
| CreateAccountPage.test.jsx | U     |
| DashboardHome.jsx          |       |
| ForgotPassword.jsx         | M     |
| ForgotPassword.test.jsx    | U     |
| Login.jsx                  |       |
| Login.test.jsx             | U     |
| ProfilePage.jsx            | M     |
| ProfilePage.test.jsx       | U     |
| ResetPassword.jsx          | M     |
| ResetPassword.test.jsx     | U     |
| RoleLogin.jsx              | M     |
| RoleLogin.test.jsx         | U     |
| StudentDashboard.jsx       | M     |
| App.jsx                    |       |

# 1. AddComplaintPage.jsx

PASS src/pages/AddComplaintPage.test.jsx

AddComplaintPage Component

- ✓ renders all form fields correctly (230 ms)
- ✓ updates form state on user input (69 ms)
- ✓ restricts title length input visually (30 ms)
- ✓ restricts description length input visually (23 ms)
- ✓ validates required fields (empty submission) (38 ms)
- ✓ validates short title and description (46 ms)
- ✓ validates alphanumeric content (symbols only) (45 ms)
- ✓ detects character repetition spam (Regex) (35 ms)
- ✓ detects when description is a copy of title (36 ms)
- ✓ detects single word frequency threshold (Short Desc) (44 ms)
- ✓ detects single word frequency threshold (Long Desc) (36 ms)
- ✓ detects high repetition ratio (many repeated words) (46 ms)
- ✓ detects low vocabulary diversity (32 ms)
- ✓ detects repeated phrases (Short Desc) (44 ms)
- ✓ detects repeated phrases (Medium Desc) (31 ms)
- ✓ handles valid file upload and preview (27 ms)
- ✓ rejects invalid file types (27 ms)
- ✓ rejects single file larger than 10MB (20 ms)
- ✓ rejects total upload size larger than 20MB (30 ms)
- ✓ rejects duplicate files (27 ms)
- ✓ enforces max file count (3) (21 ms)
- ✓ removes a file (30 ms)
- ✓ removes all files (20 ms)
- ✓ handles successful submission (79 ms)
- ✓ handles API Error: 400 Spam (84 ms)
- ✓ handles API Error: 500 Server Error (64 ms)
- ✓ handles API Error: Network Error (93 ms)
- ✓ handles API Error: No Response (Request made) (79 ms)
- ✓ handles API Error: Generic/Unexpected (60 ms)
- ✓ prevents submission if user is not logged in (localStorage) (25 ms)
- ✓ navigates to 'My Complaints' from success modal (55 ms)
- ✓ resets form when 'File Another' is clicked (61 ms)
- ✓ closes success modal when backdrop is clicked (48 ms)

Test Suites: 1 passed, 1 total

Tests: 33 passed, 33 total

Snapshots: 0 total

Time: 5.4 s, estimated 9 s

## 2. CreateAccountPage.jsx

```
PASS  src/pages/CreateAccountPage.test.jsx (12.685 s)
CreateAccountPage - UI + flows
  ✓ renders create mode with StudentForm by default (181 ms)
  ✓ student password validation rejects weak password and prevents submit (767 ms)
  ✓ student email validation rejects wrong domain and prevents submit (786 ms)
  ✓ student show/hide password toggle changes input type (141 ms)
  ✓ student successful submit calls axios.post, shows success, and resets form (966 ms)
  ✓ student axios.post failure shows backend error message (876 ms)
  ✓ switch account type to committee and validate create flow (1233 ms)
  ✓ committee create - backend error shows message (662 ms)
  ✓ delete mode - shows validation error for wrong email domain (407 ms)
  ✓ delete mode - cancel confirmation does not call axios.delete (457 ms)
  ✓ delete mode - backend user-not-found for committee maps to 'Committee not found' (507 ms)
  ✓ delete mode - backend generic error shows message (439 ms)
  ✓ delete mode - dismiss confirmation dialog (473 ms)
  ✓ delete mode - successful deletion (545 ms)
  ✓ delete mode - user not found error for committee (529 ms)
  ✓ delete mode - generic backend error (486 ms)
  ✓ delete mode - fallback error message (507 ms)

Test Suites: 1 passed, 1 total
Tests:       17 passed, 17 total
Snapshots:  0 total
Time:        14.184 s, estimated 15 s
```

## 3. ForgotPassword.jsx

```
PASS  src/pages/ForgotPassword.test.jsx
ForgotPassword Component
  ✓ renders correctly with inputs and buttons (232 ms)
  ✓ shows error when invalid email is entered (73 ms)
  ✓ handles SUCCESSFUL submission and navigates after delay (57 ms)
  ✓ handles FAILED submission (API Error) (57 ms)
  ✓ shows default error message for network errors (40 ms)
  ✓ navigates back to login when "Back to Login" is clicked (13 ms)
  ✓ navigates to login when "Login here" link is clicked (12 ms)

Test Suites: 1 passed, 1 total
Tests:       7 passed, 7 total
Snapshots:  0 total
Time:        4.371 s
```

## 4. Login.jsx

PASS

src/pages/**Login.test.jsx**

Login Page Component

- ✓ renders the correct logo, title, and subtitle (70 ms)
- ✓ renders all three role buttons (151 ms)
- ✓ navigates to /role-login with "admin" state when Admin button is clicked (31 ms)
- ✓ navigates to /role-login with "student" state when Student button is clicked (24 ms)
- ✓ navigates to /role-login with "committee" state when Committee button is clicked (20 ms)

Test Suites: 1 passed, 1 total

Tests: 5 passed, 5 total

Snapshots: 0 total

Time: 4.145 s

## 5. ProfilePage.jsx

PASS

src/pages/**ProfilePage.test.jsx**

ProfilePage Component

- ✓ renders basic user information correctly (92 ms)
- ✓ handles invalid JSON in localStorage (Catch Block) (23 ms)
- ✓ handles null storeduser (Empty localStorage) (15 ms)
- ✓ derives Department from ID correctly using deptMap (20 ms)
- ✓ derives different Department (Branch Coverage for Map) (19 ms)
- ✓ uses explicit Department if provided in user object (27 ms)
- ✓ falls back to "Computer Engineering" if ID code is not in map (19 ms)
- ✓ falls back to "Computer Engineering" if ID is too short (19 ms)
- ✓ handles Malformed Email (No @ symbol) (24 ms)
- ✓ renders Role ONLY when username contains letters (Admin/Staff/Faculty) (17 ms)
- ✓ renders ID, Dept, and Role when username is purely numeric (Student) (22 ms)
- ✓ validates inputs correctly: Mismatch (175 ms)
- ✓ validates inputs correctly: Too Short (< 8 chars) (61 ms)
- ✓ validates inputs correctly: Regex Complexity (52 ms)
- ✓ validates inputs correctly: No Token in Storage (64 ms)
- ✓ handles successful password update flow (94 ms)
- ✓ handles API failure (Server Error with message) (66 ms)
- ✓ handles API failure (Network Error / No response data) (56 ms)

Test Suites: 1 passed, 1 total

Tests: 18 passed, 18 total

Snapshots: 0 total

Time: 4.592 s, estimated 13 s

## 6. ResetPassword.jsx

```
PASS  src/pages/ResetPassword.test.jsx
ResetPassword component - fixed label queries
✓ renders with prefilled email from location.state (88 ms)
✓ validation: shows 'Please fill in all fields.' when fields empty (37 ms)
✓ validation: password mismatch shows 'Passwords do not match.' (146 ms)
✓ validation: short password shows length error (49 ms)
✓ validation: OTP length validation shows error (54 ms)
✓ successful reset calls API, shows success and navigates after timeout (62 ms)
✓ API error with response.message shows that message (57 ms)
✓ API error network (no response) shows generic fallback error (52 ms)
✓ Resend OTP: requires email first and shows error when missing (37 ms)
✓ Resend OTP: success path shows success message (33 ms)
✓ Resend OTP: backend error with message shows that message (34 ms)
✓ Resend OTP: network error shows fallback error (30 ms)
✓ loading state disables submit button while awaiting (56 ms)
✓ navigates to Forgot Password page on Back button click (9 ms)
✓ updates email field value correctly (9 ms)
✓ OTP field accepts only numeric input and enforces max length (14 ms)
✓ Resend OTP button triggers loading state while axios pending and becomes enabled after resolve
(46 ms)

Test Suites: 1 passed, 1 total
Tests:      17 passed, 17 total
Snapshots:  0 total
Time:       4.354 s, estimated 6 s
```

## 7. RoleLogin.jsx

```
PASS  src/pages/RoleLogin.test.jsx
RoleLogin Component
✓ renders correctly with default role 'User' when no state is provided (211 ms)
✓ renders correctly with specific role passed in state (17 ms)
✓ renders password visibility toggle correctly (57 ms)
✓ updates input fields and clears errors on change (208 ms)
✓ validates email format before API call (60 ms)
✓ prevents submission when already loading (Double Click Protection) (50 ms)
✓ handles successful ADMIN login (53 ms)
✓ handles successful STUDENT login (50 ms)
✓ handles successful COMMITTEE login (57 ms)
✓ handles successful login with UNKNOWN/DEFAULT role (64 ms)
✓ handles API success but missing role in response (44 ms)
✓ handles API error with specific server message (65 ms)
✓ handles API error with generic network failure (58 ms)
✓ navigates back when Back button is clicked (9 ms)
✓ navigates to forgot password page (7 ms)
✓ ensures intendedRole is always a string even if location state is missing (46 ms)

Test Suites: 1 passed, 1 total
Tests:      16 passed, 16 total
Snapshots:  0 total
Time:       4.873 s, estimated 13 s
```

## • Overall Coverage

| File                  | %Stmts | %Branch | %Funcs | %Lines | Uncovered Line #s                |
|-----------------------|--------|---------|--------|--------|----------------------------------|
| All files             | 97.92  | 93.18   | 100    | 97.84  |                                  |
| components            | 100    | 98.68   | 100    | 100    |                                  |
| ComplaintsTable.jsx   | 100    | 100     | 100    | 100    |                                  |
| DashboardNavbar.jsx   | 100    | 96.07   | 100    | 100    | 27,62                            |
| DashboardSidebar.jsx  | 100    | 100     | 100    | 100    |                                  |
| ProtectedRoute.jsx    | 100    | 100     | 100    | 100    |                                  |
| StatusToast.jsx       | 100    | 88.88   | 100    | 100    | 28                               |
| config                | 100    | 100     | 100    | 100    |                                  |
| api.js                | 100    | 100     | 100    | 100    |                                  |
| pages                 | 97.49  | 89.69   | 100    | 97.41  |                                  |
| AddComplaintPage.jsx  | 94.42  | 82.38   | 100    | 94.17  | ...7,244,291-293,302-304,429,433 |
| CreateAccountPage.jsx | 100    | 91.66   | 100    | 100    | 73,209-269,313                   |
| ForgotPassword.jsx    | 100    | 100     | 100    | 100    |                                  |
| Login.jsx             | 100    | 100     | 100    | 100    |                                  |
| ProfilePage.jsx       | 100    | 100     | 100    | 100    |                                  |
| ResetPassword.jsx     | 100    | 100     | 100    | 100    |                                  |
| RoleLogin.jsx         | 100    | 100     | 100    | 100    |                                  |