# Test Plan: Todo Application

## 1. Introduction

This document outlines the test plan for the Todo Application. The application provides basic functionality for user login and task management (add/edit/delete todos).

## 2. Scope

This test plan covers the UI and API functionalities of the Todo application, including:

* User Login
* Add Todo Items
* Edit Todo Items
* Delete Todo Items
* Visual Snapshot Tests

## 3. Test Environment

* Frontend: React (Vite) with Tailwind CSS
* Backend: Node.js/Express with in-memory data store
* Test Tools: Cypress for E2E + Visual Snapshots

## 4. Tools Used

* Cypress: UI and API test automation
* cypress-image-snapshot: Visual regression testing
* GitHub Actions (Optional): For CI/CD integration

**5. Browsers Covered in Testing**

| **Browser** | **Version Tested** | **Status** |
| --- | --- | --- |
| Google Chrome | 124+ | ✅ Fully supported |
| Mozilla Firefox | 122+ | ✅ Fully supported |
| Microsoft Edge | 122+ | ✅ Fully supported |
| Safari (Mac) | 17+ | ⚠️ Smoke tested only |
| Mobile Chrome | Android 12+ | ⚠️ Basic checks only |
| Mobile Safari | iOS 15+ | ⚠️ Basic checks only |

## 5. How to Run the Tests

1. Start backend: `node server.js`

2. Start frontend: `npm run dev`

3. Run Cypress: `npx cypress open` or `npx cypress run`

## 6. Assumptions & Limitations

- Data is stored in memory; resets on server restart.

- UI snapshot comparisons may fail if dynamic content changes (e.g., todo list).

## 7. Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case ID | Description | Steps | Expected Result | Status |
| TC001 | Login with valid credentials | Enter username/password and click login | User is logged in and dashboard is visible | Pass |
| TC002 | Login with invalid credentials | Enter wrong username/password and click login | Alert 'Login failed' is shown | Pass |
| TC003 | Add todo item | Login → Enter todo → Click Add | New item is added and shown | Pass |
| TC004 | Edit todo item | Login → Add item → Edit item → Save | Item is updated | Pass |
| TC005 | Delete todo item | Login → Add item → Delete item | Item is removed from list | Pass |
| TC006 | Visual snapshot: Login | Visit login page and snapshot | Snapshot matches | Pass |
| TC007 | Visual snapshot: Add item | Login → Add item → snapshot | Snapshot matches | Pass |

## 8. Traceability Matrix

|  |  |  |
| --- | --- | --- |
| Requirement ID | Requirement Description | Linked Test Cases |
| REQ001 | User login authentication | TC001, TC002 |
| REQ002 | Todo item creation | TC003, TC007 |
| REQ003 | Todo item update | TC004 |
| REQ004 | Todo item deletion | TC005 |
| REQ005 | UI snapshot consistency | TC006, TC007 |