

Software Requirements Specification (SRS)

Document Version: 1.0

Project Name: Web-Based To-Do Application

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1. Introduction

1.1 Purpose

The purpose of this document is to define the requirements for a web-based To-Do application that allows users to create, manage, and organize todos efficiently. This document will serve as a guide for developers, designers, testers, and stakeholders during the development process.

1.2 Scope

The Web-Based To-Do Application will provide users with a simple and intuitive interface to:

- Create, update, and delete todos.
- Mark todos as completed.
- Access todos from any device with a web browser.

The application will be accessible via a web browser and will not require any installation.

2. Overall Description

2.1 Product Perspective

The To-Do application is a standalone web application that will be hosted on a cloud server. It will be accessible via modern web browsers (e.g., Chrome, Firefox, Safari, Edge).

2.2 User Classes

- **End Users:** Individuals who will use the application to manage their todos.

2.3 Operating Environment

- **Frontend:** HTML, CSS, JavaScript Next.js or Vue.js recommended).
- **Backend:** Node.js or Next.js.
- **Database:** PostgreSQL, MySQL, or MongoDB.
- **Hosting:** Containerized on cloud-based hosting (e.g., AWS, Heroku, or DigitalOcean) behind an nginx proxy manager.

2.4 Design and Implementation Constraints

- The application must be responsive and work on both desktop and mobile devices.
 - The application must support modern web browsers.
 - Data must be securely stored and transmitted (HTTPS).
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3. System Features

3.1 User Authentication

- Users can create an account using an email address and password.
- Password must be between 3 and 10 characters in length.
- Users can log in and log out of their accounts.
- Password reset functionality will be available.

3.2 Todo Management

- Users can create new todos with the following attributes:
 - Title (required)
- Users can edit or delete existing todos.

3.4 User Interface

- The interface will be clean, intuitive, and responsive.
 - Todos will be displayed in a list.
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4. Functional Requirements

ID	Requirement	Description
FR-1	User Registration	Users can create an account.
FR-2	User Login/Logout	Users can log in and log out of their accounts.
FR-3	Create Todo	Users can create a new todo with a title, description, due date, and priority.
FR-4	Edit Todo	Users can edit an existing todo.
FR-5	Delete Todo	Users can delete a todo.
FR-6	Mark Todo as Completed	Users can mark a todo as completed.

5. Non-Functional Requirements

ID	Requirement	Description
NFR-1	Performance	The application should load in under 3 seconds.
NFR-2	Scalability	The application should support up to 10,000 concurrent users.
NFR-3	Security	User data must be encrypted during transmission and storage.
NFR-4	Availability	The application should have 99.9% uptime.
NFR-5	Usability	The application should be intuitive and easy to use.

ID Requirement Description

NFR-6 Compatibility The application should work on all major web browsers.

6. External Interface Requirements

6.1 User Interfaces

- **Home Page:** Displays a list of todos and options to create new todos.
- **Todo Details Page:** Displays detailed information about a todo.
- **Login/Register Page:** Allows users to log in or create an account.

6.2 Hardware Interfaces

- The application will run on standard web servers and cloud hosting platforms.

6.3 Software Interfaces

- **Frontend:** HTML, CSS, JavaScript.
- **Backend:** RESTful API for communication between frontend and backend.
- **Database:** SQL or NoSQL database for storing user data and todos.

6.4 Communication Interfaces

- The application will use HTTPS for secure communication.
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7. Other Non-Functional Requirements

7.1 Performance Requirements

- The application should handle up to 10,000 concurrent users without performance degradation.

7.2 Security Requirements

- User passwords must be hashed and salted before storage.
- The application must use HTTPS to encrypt data in transit.

7.3 Maintainability

- The codebase should be well-documented and follow best practices for readability and scalability.
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8. Appendices

8.1 Glossary

- **Todo:** A single to-do item with a title, description, due date, and priority.
- **Category/Project:** A group of related todos.
- **Reminder:** A notification to alert the user about an upcoming todo.

8.2 References

- <https://www.blazemeter.com/blog/selenium-github>
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This SRS document provides a comprehensive overview of the requirements for the Web-Based To-Do Application. It can be further refined based on stakeholder feedback and project-specific needs.

Sprint Breakdown for the Web-Based To-Do Application

Sprint 0: Preparation

Duration: 1 week

Objective: Set up the project, define requirements, and prepare the testing environment.

Activities:

1. **Requirement Gathering:**

- Define user stories and acceptance criteria.
- Prioritize features for the MVP.

2. **Test Planning:**

- Create a high-level test plan.
- Identify testing tools and frameworks.

3. **Environment Setup:**

- Set up development, and test environments.
- Configure CI/CD pipelines (e.g., Jenkins, GitHub Actions).

4. **Test Case Design:**

- Draft test cases for core features (e.g., user registration, todo creation).
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Sprint 1: User Authentication

Duration: 2 weeks

Objective: Implement and test user registration and login functionality.

Features Delivered:

- User registration (email and password).
- User login and logout.
- Password recovery.

Testing Activities:

1. **Unit Testing:**

- Test backend logic for user registration and authentication.

2. Integration Testing:

- Test API endpoints for user registration and login.

3. System Testing:

- Test end-to-end workflows for registration, login, and password recovery.

4. Defect Reporting:

- Log and prioritize defects in the tracking tool.
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Sprint 2: Todo Management

Duration: 2 weeks

Objective: Implement and test core todo management features.

Features Delivered:

- Create, edit, and delete todos.
- Mark todos as completed.

Testing Activities:

1. Unit Testing:

- Test backend logic for todo creation, editing, and deletion.

2. Integration Testing:

- Test API endpoints for todo management.

3. System Testing:

- Test end-to-end workflows for todo creation, editing, and deletion.

4. Regression Testing:

- Ensure user authentication features are not broken.
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Sprint 3: User Interface and Usability

Duration: 2 weeks

Objective: Finalize the user interface and ensure usability.

Features Delivered:

- Clean and intuitive UI design.
- Responsive design for desktop and mobile devices.
- Light and dark theme support.

Testing Activities:

1. **UI Testing:**

- Test the application on different devices and browsers.

2. **Usability Testing:**

- Conduct usability tests with real users.

3. **Accessibility Testing:**

- Ensure the application is accessible to users with disabilities.

4. **Regression Testing:**

- Ensure all previous features are not broken.
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Sprint 4: Final Testing and Release

Duration: 2 weeks

Objective: Conduct final testing and prepare for release.

Activities:

1. **User Acceptance Testing (UAT):**

- Validate the application against business requirements.

2. **Performance Testing:**

- Test the application under load to ensure it meets performance requirements.

3. **Security Testing:**

- Verify that user data is securely stored and transmitted.

4. Bug Fixing:

- Address any critical defects identified during UAT.

5. Release Preparation:

- Prepare release notes and documentation.
- Deploy the application to the production environment.

Summary of Sprints

Sprint	Focus Area	Key Deliverables
Sprint 0	Preparation	Test plan, environment setup, test case design.
Sprint 1	User Authentication	User registration, login, password recovery.
Sprint 2	Todo Management	Create, edit, delete, and mark todos as completed.
Sprint 3	Todo Organization and Filtering	Organize todos, filter todos, search todos.
Sprint 4	Notifications and Reminders	Set reminders, display notifications, send email reminders.
Sprint 5	User Interface and Usability	Clean and responsive UI, light/dark themes.
Sprint 6	Final Testing and Release	UAT, performance testing, security testing, bug fixing, and release preparation.

This sprint breakdown ensures that the **Web-Based To-Do Application** is developed and tested incrementally, with a focus on delivering value to the end-user in each sprint. Let me know if you need further adjustments or details!

User stories

Sprint 0: User Authentication

1. As a user, I want to register with my email and password so that I can create an account.

○ Acceptance Criteria:

- Users must provide a valid email and password.
- The password must be between 3 to 20 characters in length with at least 1 small-case letter, 1 upper-case letter, 1 symbol and one digit.
- User Name should be a string between 5 to 30 characters in length.
- ~~Passwords must be securely stored.~~

○ Test Cases:

- Verify registration with a valid email and password.
- Validate error messages for invalid email formats.
- Validate error messages for passwords less than 3 characters.
- Validate error messages for password more than 10 characters.
- Validate error messages for password with no uppercase letters.
- Validate error messages for password with no lowercase letters.
- Validate error messages for password with no digits.
- Validate error messages for password with no symbols.
- Validate error messages for username less than 5 characters.
- Validate error messages for username more than 30 characters.
- ~~Ensure password hashing and storage security.~~

2. As a user, I want to log in using my credentials so that I can access my todos.

○ Acceptance Criteria:

- Login should be successful with correct credentials.
- Incorrect credentials should trigger an undetailed error message.

- **Test Cases:**
 - Test successful login with correct credentials.
 - Verify login fails with incorrect email.
 - Verify login fails with incorrect password.
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Sprint 1: Todo Management

1. As a user, I want to create a new todo item so that I can track tasks.

- **Acceptance Criteria:**
 - User must provide a title for the todo.
 - Todo should be saved successfully.
- **Test Cases:**
 - Verify that a new todo can be created with a title.
 - Ensure todos are persisted correctly.

2. As a user, I want to edit a todo item so that I can update the title.

- **Acceptance Criteria:**
 - Users must be able to modify todo title.
- **Test Cases:**
 - Ensure todos can be edited and updated correctly.

3. As a user, I want to delete a todo item so that I can remove tasks I no longer need.

- **Acceptance Criteria:**
 - Deleted todos should not be retrievable.
 - **Test Cases:**
 - Validate that deleting a todo removes it permanently.
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Sprint 2: User Interface and Usability

1. **As a user, I want a clean and intuitive UI so that I can navigate easily.**
 - **Acceptance Criteria:**
 - UI should be user-friendly and accessible.
 - **Test Cases:**
 - Verify UI elements are correctly aligned and accessible.
 2. **As a user, I want the application to be responsive so that it works on both desktop and mobile devices.**
 - **Acceptance Criteria:**
 - Layout should adjust based on device type.
 - **Test Cases:**
 - Test responsiveness across different screen sizes and browsers.
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Sprint 3: Final Testing and Release

1. **As a business owner, I want to validate the application against business requirements so that it meets expectations.**
 - **Acceptance Criteria:**
 - Application should function as per initial requirements.
 - **Test Cases:**
 - Conduct user acceptance testing to validate functionality.
2. **As a security analyst, I want to verify user data security so that user information is protected.**
 - **Acceptance Criteria:**
 - Sensitive data should be encrypted.
 - **Test Cases:**

- Verify security measures, including encryption and authentication mechanisms.

This structure ensures each sprint has clear user stories with well-defined acceptance criteria and corresponding test cases.

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