

Design Document: To-Do List Web App

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1. Overview

Build a simple To-Do List Web application using **React**, **TypeScript**, and **localStorage**. This app will allow users to add new tasks, remove old tasks, update current tasks, and mark them complete.

2. Problem Statement

Users want to have a way to log tasks to do locally in their browser without signing up or relying on paywall websites. Most solutions out there have you log in with an account.

3. Goals

- ☒ Add tasks
- ☒ Delete Tasks
- ☒ Update Tasks
- ☒ Mark tasks complete
- ☒ Use concepts such as **localStorage**
- ☒ Simple UI
- ☒ Filter tasks Active | Completed
- ☒ Delete all tasks

4. Non-Goals

- ☐ Multi-user support
- ☐ Cloud sync or authentication
- ☐ Mobile app

5. Technical Design

5.1 Tech Stack

Layer	Tool
Frontend	React
Styling	CSS
Stroage	Browser

5.2 Component Breakdown

```
<App />
├── <Header />
│   ├── <Filters />
│   ├── <Alert />
│   └── <Delete All />
├── <TodoInput />
├── <TodoList />
│   └── <TodoItem />
```

5.3 State Management

Using **useState** and **useEffect**:

- Array of Todo objects
- Filter: “all” | “active” | “complete”

6. Tradeoffs and Considerations

Decision	Reason
LocalStorage vs Indexed DB	Simple, fast, small-scale data
No third-party state manager	Unnecessary complexity for small app

7. Testing Plan

- ☒ Manual testing in Chrome
- ☒ Adding **data-testid** attributes for future unit testing
- ☒ Confirm **localStorage** behavior on refresh

8. Timeline

Task	Time
Design Document	1 - 2 hours
Setup project	1 - 2 hours
Build components	0.5 day
Testing	3 hours
Local Storage	0.5 day
Testing	3 hours
Styling + polish	0.5 day
Final testing	3 hours

9. Appendix

Sources:

- [Bootstrap](#)