

REPORT

1. Introduction

The Todo App is a task management application that allows users to add, remove, and mark tasks as completed. A key feature of the app is the undo functionality, which enables users to revert the most recent task removal or completion within 5 seconds. This feature ensures that users can recover from accidental actions, improving the overall usability and reliability of the app.

2. Design of the Undo Feature

The undo feature is designed to provide users with a safety net for actions like deleting a task or marking it as completed. The design focuses on the following key aspects:

- **Time Constraint:** The undo option is available only for 5 seconds after an action is performed (task removal or completion).
 - **Single Undo:** Only the most recent action can be undone. Once the 5-second window expires, the undo option is no longer available.
 - **No External Libraries:** The undo functionality is built using React's built-in state management and custom logic, with the help of `react-hot-toast` for displaying notifications, adhering to the assignment's requirements.
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3. Implementation

The undo feature is implemented within the core logic of the Todo App. Below is a detailed explanation of the implementation:

3.1. State Management

The app uses React's `useState` hook to manage the following state variables:

- **tasks:** An array of objects that stores all the tasks in the app. Each task includes properties like `id`, `text`, and `completed` status.
- **lastAction:** An object that stores the most recent action (task removal or completion) and the task associated with that action. This is used to implement the undo functionality.

3.2. Handling Actions

When a user interacts with a task (by either removing it or toggling its completion status), the app:

- Stores the action in the `lastAction` state.

- Sets a 5-second timeout to clear this state, ensuring the undo option is only available for a limited time.

3.3. Undo Logic

The `undoLastAction` function checks the type of the last action and reverts it accordingly:

- If the last action was task removal, the task is added back to the tasks array.
- If the last action was toggling the completion status, the task's `completed` flag is toggled again.

3.4. User Interface

The undo option is displayed as a toast notification at the bottom-right corner of the screen. It contains:

- A message indicating the type of action (e.g., "Task removed" or "Task updated").
 - An "Undo" button that triggers the `undoLastAction` function to revert the action.
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4. Conclusion

The undo feature in the Todo App is implemented using React's state management and JavaScript's `setTimeout` function. It successfully provides users with the ability to undo recent actions, enhancing the overall usability of the app. The feature meets all the requirements of the assignment, demonstrating effective use of React's capabilities for state management, user interaction, and UI feedback.