

9. Build a To-do List Application using React with state and prop

```
import React, { useState } from 'react';
import './App.css'; // Assuming you create this file for external styles

// --- Icon Components (Inline SVG to avoid external dependencies) ---

const Trash2Icon = (props) => (
  <svg {...props} xmlns="http://www.w3.org/2000/svg" width="20" height="20"
viewBox="0 0 24 24" fill="none" stroke="currentColor" strokeWidth="2"
strokeLinecap="round" strokeLinejoin="round" className="icon-trash">
    <path d="M3 6h18"/>
    <path d="M19 6v14c0 1-1 2-2 2H7c-1 0-2-1-2-2V6"/>
    <path d="M10 11v6"/>
    <path d="M14 11v6"/>
    <path d="M14 2h-4c-1 0-2 1-2 2v2h8V4c0-1-1-2-2z"/>
  </svg>
);

const PlusIcon = (props) => (
  <svg {...props} xmlns="http://www.w3.org/2000/svg" width="24" height="24"
viewBox="0 0 24 24" fill="none" stroke="currentColor" strokeWidth="2"
strokeLinecap="round" strokeLinejoin="round" className="icon-plus">
    <path d="M12 5v14"/><path d="M5 12h14"/>
  </svg>
);
const NewTaskInput = ({ value, onChange, onAdd }) => (
  <div className="new-task-input-container">
    <input
      type="text"
      placeholder="What needs to be done?"
      value={value}
      onChange={(e) => onChange(e.target.value)}
      onKeyDown={(e) => {
        if (e.key === 'Enter') {
          onAdd(value);
        }
      }}
      className="task-input-field"
    />
    <button
      onClick={() => onAdd(value)}
      className="add-task-button"
      disabled={value.trim() === ''}
    >
      <PlusIcon />
    </button>
  </div>
);

```

/ --- Main Application Component ---

const App = () => {
 // State for the list of tasks
 const [todos, setTodos] = useState([
 { id: 1, text: "Build a responsive React component", completed: true },
 { id: 2, text: "Use standard CSS for styling", completed: false },
 { id: 3, text: "Implement state management with hooks", completed: false }
,
]);

 // State for the current input value of the new task
 const [newTaskText, setNewTaskText] = useState('');

 /**
 * Adds a new task to the list.
 * @param {string} text - The text of the new task.
 */
 const addTask = (text) => {
 if (text.trim() === '') return;

 const newTodo = {
 id: Date.now(), // Simple unique ID generation
 text: text.trim(),
 completed: false,
 };

 setTodos([...todos, newTodo]);
 setNewTaskText(''); // Clear the input field
 };

 /**
 * Toggles the completion status of a task by its ID.
 * @param {number} id - The ID of the task to toggle.
 */
 const toggleTask = (id) => {
 const updatedTodos = todos.map(todo =>
 todo.id === id ? { ...todo, completed: !todo.completed } : todo
);
 setTodos(updatedTodos);
 };

 /**
 * Deletes a task by its ID.
 * @param {number} id - The ID of the task to delete.
 */
 const deleteTask = (id) => {
 const updatedTodos = todos.filter(todo => todo.id !== id);
 };
};

```

        setTodos(updatedTodos);
    };

// The TodoItem component displays a single task item.
const TodoItem = ({ todo, onToggle, onDelete }) => {
    return (
        <li className="todo-item">
            <div
                className="todo-item-content"
                onClick={() => onToggle(todo.id)}
            >
                <input
                    type="checkbox"
                    checked={todo.completed}
                    onChange={() => onToggle(todo.id)}
                    className="todo-checkbox"
                />
                <span className={`todo-text ${todo.completed ? 'completed' : ''}`}>
                    {todo.text}
                </span>
            </div>

            /* Delete Button */
            <button
                onClick={(e) => {
                    e.stopPropagation(); // Prevent toggling when deleting
                    onDelete(todo.id);
                }}
                className="delete-button"
                aria-label="Delete task"
            >
                <Trash2Icon />
            </button>
        </li>
    );
};

return (
    <div className="app-container">
        <div className="todo-app-wrapper">
            <h1 className="app-title">
                To-Do List
            </h1>
            <p className="app-subtitle">
                Manage your daily tasks efficiently.
            </p>
        
```

/* Task Input (uses props for communication) */

```

<NewTaskInput
  value={newTaskText}
  onChange={setNewTaskText}
  onAdd={addTask}
/>

/* Task List */
{todos.length === 0 ? (
  <p className="empty-list-message">
    ✎ All done! Add a new task above.
  </p>
) : (
  <ul className="todo-list">
    /* List items (uses props for communication) */
    {todos.map(todo => (
      <TodoItem
        key={todo.id}
        todo={todo} // Passing the task object as a prop
        onToggle={toggleTask} // Passing the toggle handler as a prop
        onDelete={deleteTask} // Passing the delete handler as a prop
      />
    )))
  </ul>
)}
</div>
</div>
);
};

export default App;

```

OUTPUT:

