

## # Kanban Board Component

A production-quality, fully functional Kanban Board View built with React, TypeScript, and Tailwind CSS. This implementation demonstrates enterprise-grade UI/UX patterns, performance optimization, and accessibility-first approach.

### ## Features

#### ✓ \*\*Drag-and-Drop Functionality\*\*

- Smooth drag-and-drop using @dnd-kit
- Reorder tasks within columns
- Move tasks between columns
- Keyboard navigation support

#### ✓ \*\*Task Management\*\*

- Create, edit, and delete tasks
- Task priority levels (Low, Medium, High, Urgent)
- Assignee management
- Tags and labels
- Due dates with overdue indicators
- Rich task descriptions

#### ✓ \*\*Column Management\*\*

- Multiple status columns (To Do, In Progress, Review, Done)
- WIP (Work In Progress) limits
- Visual progress indicators
- Task count badges

#### ✓ \*\*Advanced Features\*\*

- Fully accessible (WCAG 2.1 AA compliant)
- Responsive design (mobile, tablet, desktop)
- Keyboard navigation
- Modal-based task editing
- Empty state handling
- Performance optimized

### ## Technology Stack

- \*\*React\*\* ^18.3.1
- \*\*TypeScript\*\* ^5.6.3
- \*\*Tailwind CSS\*\* ^3.4.15
- \*\*Vite\*\* ^6.0.1
- \*\*@dnd-kit\*\* (drag-and-drop)
- \*\*date-fns\*\* (date manipulation)
- \*\*clsx\*\* (conditional classes)

### ## Getting Started

#### ### Installation

```
```bash
npm install
```
```

#### ### Development

```

```bash
npm run dev
```

Open [http://localhost:5173] (http://localhost:5173) in your browser.

### Build

```bash
npm run build
```

### Preview Production Build

```bash
npm run preview
```

## Project Structure

```
kanban-component/
├── src/
│   ├── components/
│   │   ├── KanbanBoard/
│   │   │   ├── KanbanBoard.tsx      # Main board component
│   │   │   ├── KanbanBoard.types.ts # TypeScript interfaces
│   │   │   ├── KanbanColumn.tsx    # Column component
│   │   │   ├── KanbanCard.tsx     # Task card component
│   │   │   └── TaskModal.tsx      # Task edit modal
│   │   ├── primitives/
│   │   │   ├── Button.tsx        # Reusable button
│   │   │   ├── Modal.tsx         # Reusable modal
│   │   │   └── Avatar.tsx       # Avatar component
│   │   ├── utils/
│   │   │   ├── task.utils.ts     # Task helper functions
│   │   │   └── column.utils.ts   # Column helper functions
│   │   ├── styles/
│   │   │   └── globals.css       # Global styles
│   │   ├── App.tsx              # Main app component
│   │   └── main.tsx             # Entry point
│   ├── index.html
│   ├── package.json
│   ├── tsconfig.json
│   ├── tailwind.config.js
│   └── vite.config.ts
```

## Usage

### Basic Implementation

```ts
import { KanbanBoard } from './components/KanbanBoard/KanbanBoard';
import { KanbanColumn, KanbanTask } from
  './components/KanbanBoard/KanbanBoard.types';

const columns: KanbanColumn[] = [

```

```

{
  id: 'todo',
  title: 'To Do',
  color: 'bg-blue-600',
  taskIds: [],
},
// ... more columns
];

const tasks: Record<string, KanbanTask> = {
  // ... your tasks
};

function MyApp() {
  return (
    <KanbanBoard
      columns={columns}
      tasks={tasks}
      onTaskMove={handleTaskMove}
      onTaskCreate={handleTaskCreate}
      onTaskUpdate={handleTaskUpdate}
      onTaskDelete={handleTaskDelete}
    />
  );
}
```

```

## ## Accessibility

This Kanban board is built with accessibility as a top priority:

- ✅ Full keyboard navigation
- ✅ Screen reader support (ARIA labels)
- ✅ Focus management
- ✅ Color contrast compliance (WCAG 2.1 AA)
- ✅ Semantic HTML

## ### Keyboard Shortcuts

- \*\*Tab/Shift+Tab\*\*: Navigate between interactive elements
- \*\*Enter/Space\*\*: Pick up or activate focused element
- \*\*Escape\*\*: Close modal or cancel drag
- \*\*Arrow Keys\*\*: Navigate between cards (during drag)

## ## Performance

- React.memo for component optimization
- Efficient drag-and-drop handling
- Optimized re-renders
- Production bundle size < 200KB (gzipped)

## ## Customization

### ### Adding Custom Columns

Modify the `initialColumns` array in `App.tsx`:

```
```tsx
const columns: KanbanColumn[] = [
  {
    id: 'custom-status',
    title: 'Custom Status',
    color: 'bg-indigo-600',
    taskIds: [],
    maxTasks: 8, // Optional WIP limit
  },
];
```

### Styling

Customize colors in `tailwind.config.js`:

```js
theme: {
  extend: {
    colors: {
      primary: {
        500: '#your-color',
        // ...
      },
    },
  },
};
```

## Browser Support

- Chrome (latest)
- Firefox (latest)
- Safari (latest)
- Edge (latest)

## License

MIT

## Author

Built with ❤ following enterprise-grade standards
```