Great — let's go a level deeper. Here's a **more detailed explanation of the most commonly used JavaFX UI controls**, including **what they can do, their use-cases, and special features or benefits**.

**🔤 Basic Controls**

**Label**

* **Purpose:** Display static (non-editable) text.
* **Features:**
  + Supports **wrapping**, **alignment**, and **text styling** (via CSS or inline).
  + Can display **images** via setGraphic() (e.g., icons next to text).
* **Use-case:** Static messages, field names, status text.

**Button**

* **Purpose:** Triggers an action when clicked.
* **Features:**
  + Can contain **text, images, or both**.
  + Responds to mouse, keyboard, or touch input.
  + Can be styled and animated.
* **Use-case:** Submit forms, navigation, interactive elements.

**TextField**

* **Purpose:** Allows single-line text input.
* **Features:**
  + Can set **prompts** (placeholder text).
  + Can restrict input using **event filters** or **text formatters**.
* **Use-case:** Name entry, email address, search bars.

**PasswordField**

* **Purpose:** Like TextField, but masks input.
* **Features:**
  + Hides characters for secure input.
  + All TextField features apply.
* **Use-case:** Password entry fields in login forms.

**TextArea**

* **Purpose:** Multi-line text input.
* **Features:**
  + Supports wrapping, scrolling, resizing.
  + Good for long text input (feedback, comments).
* **Use-case:** Chat boxes, notes, descriptions.

**Hyperlink**

* **Purpose:** Clickable label styled like a web link.
* **Features:**
  + Can be styled like a normal button or label.
  + Fires an action like a button.
* **Use-case:** Navigation links, "forgot password" links.

**Tooltip**

* **Purpose:** Displays help text on hover.
* **Features:**
  + Customizable delay, duration, and styling.
* **Use-case:** Clarify form fields or icons without cluttering the UI.

**✅ Selection Controls**

**CheckBox**

* **Purpose:** Toggles between checked and unchecked.
* **Features:**
  + Supports a **third state** (indeterminate).
  + Can be used in lists or grouped visually.
* **Use-case:** Settings toggles, multiple option selection.

**RadioButton + ToggleGroup**

* **Purpose:** Select one option from a set.
* **Features:**
  + Grouped using ToggleGroup so only one is active at a time.
* **Use-case:** Gender selection, difficulty level, choices in forms.

**ComboBox<T>**

* **Purpose:** Drop-down list with editable or non-editable input.
* **Features:**
  + Can be made **editable** for custom values.
  + Supports custom cell rendering (e.g., display images or formatted items).
* **Use-case:** Country selector, filter dropdowns.

**ChoiceBox<T>**

* **Purpose:** Simple drop-down list.
* **Features:**
  + Lighter-weight alternative to ComboBox, but **not editable**.
  + No built-in cell factory like ComboBox.
* **Use-case:** Static options with minimal interaction.

**ListView<T>**

* **Purpose:** Scrollable list of items.
* **Features:**
  + Supports **single or multiple selection**.
  + Highly customizable cells (e.g., images, buttons per row).
* **Use-case:** Contact lists, song lists, multi-selection options.

**TableView<T>**

* **Purpose:** Display data in tabular format.
* **Features:**
  + Sortable, editable columns.
  + Custom cells and nested columns supported.
  + Backed by **ObservableList**.
* **Use-case:** Database views, inventories, user tables.

**TreeView<T>**

* **Purpose:** Hierarchical list (like a folder explorer).
* **Features:**
  + Expand/collapse branches.
  + Custom rendering for nodes.
* **Use-case:** File system navigation, category trees.

**MenuButton**

* **Purpose:** A button with a built-in dropdown menu.
* **Features:**
  + Faster than building a full MenuBar.
  + Each menu item can trigger actions.
* **Use-case:** Quick-action menus, options next to icons.

**📅 Date & Time Controls**

**DatePicker**

* **Purpose:** User-friendly calendar popup.
* **Features:**
  + LocalDate support.
  + Custom formatting and disabling dates.
* **Use-case:** Birthdate selection, scheduling.

**Spinner<T>**

* **Purpose:** Select a number or item by increment/decrement.
* **Features:**
  + Custom value factories (Integer, Double, String, etc.).
  + Validated numeric entry.
* **Use-case:** Quantity selectors, age, time, etc.

**🎨 Layout Containers**

| **Pane** | **Detailed Use** |
| --- | --- |
| VBox | Stack elements vertically. Adjustable spacing and alignment. |
| HBox | Stack elements horizontally. Can add spacing and margins. |
| BorderPane | Arrange nodes in **top, bottom, left, right, and center** regions. Ideal for apps with headers/footers. |
| StackPane | Stack all children on top of one another. Useful for overlays. |
| GridPane | Place items in a grid. Supports cell spanning. Great for forms. |
| FlowPane | Like a web page: flows content, wraps when needed. |
| AnchorPane | Allows nodes to be "anchored" to edges (e.g., top-right). |

**📁 Menus & Toolbars**

**MenuBar, Menu, MenuItem**

* **Purpose:** Create top-level menus like "File", "Edit".
* **Features:**
  + Keyboard shortcuts.
  + Separators, submenus, event handling.
* **Use-case:** Traditional desktop applications.

**ToolBar**

* **Purpose:** Horizontal/vertical bar of buttons and controls.
* **Features:**
  + Can contain any node.
  + Often used with icons.
* **Use-case:** Text editor toolbars, IDEs.

**ContextMenu**

* **Purpose:** Right-click menu for any node.
* **Features:**
  + Dynamically built.
  + Can be shown programmatically.
* **Use-case:** File explorer, editable tables.

**📦 Other Useful Controls**

**ProgressBar / ProgressIndicator**

* **Purpose:** Visualize background task progress.
* **Features:**
  + **Indeterminate** or **bound to task progress**.
* **Use-case:** Loading bars, downloads.

**Slider**

* **Purpose:** Drag handle to select a value in a range.
* **Features:**
  + Show tick marks, labels.
  + Can snap to values.
* **Use-case:** Volume, brightness, range filters.

**ScrollBar / ScrollPane**

* **Purpose:** Make content scrollable.
* **Features:**
  + ScrollPane wraps any node to add automatic scrollbars.
* **Use-case:** Large images, long forms.

**TabPane**

* **Purpose:** Multiple pages or views in a single window.
* **Features:**
  + Add/remove tabs dynamically.
  + Tab icons and closable behavior.
* **Use-case:** Editors, dashboards.

**Accordion / TitledPane**

* **Purpose:** Expand/collapse content sections.
* **Features:**
  + Only one TitledPane open at a time in Accordion.
* **Use-case:** FAQs, grouped settings.

**ImageView**

* **Purpose:** Display images.
* **Features:**
  + Resizing, preserving ratio, smoothing.
* **Use-case:** Icons, logos, previews.

**Canvas**

* **Purpose:** Custom 2D drawing.
* **Features:**
  + Use a GraphicsContext for drawing.
* **Use-case:** Paint apps, charts, custom visualizations.

Let me know if you'd like a **visual preview**, a **code demo**, or a **scene builder walkthrough** for any specific control or layout!