Module-3 Assignment

Que:1 Explain the difference between Stateless and Stateful widgets with examples.

Ans:

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| Stateless Widget | Stateful Widget |
| Stateless Widgets are static widgets. | Stateful Widgets are dynamic widgets. |
| They do not depend on any data change or any behavior change | They can be updated during runtime based on user action or data change. |
| For Example: Text, Icon, Raised Button are Stateless Widgets. | For Example: Checkbox, Radio Button, Slider are Stateful Widgets. |

Que:2 Describe the widget lifecycle and how state is managed in Stateful widgets.

Ans: The widget lifecycle in Stateful widgets :

1. **Creation**: The widget is created, and the **createState()** method is called to create the associated state object.
2. **Initialization**: The **initState()** method is called, allowing for one-time initialization.
3. **Building**: The **build()** method is called to render the widget based on its current state.
4. **State Changes**: When the state changes, **setState()** is called, triggering a rebuild of the widget to reflect the new state.

State is managed within the state object, allowing for dynamic updates and reactivity in the UI.

Que :3 List and describe five common Flutter layout widgets (e.g., Container, Column, Row).

Ans:

1. **Container**: A versatile widget that can hold a single child and allows for styling, padding, margins, and decoration.
2. **Column**: Arranges its children vertically in a single column. It can take multiple widgets and allows for flexible alignment.
3. **Row**: Similar to Column, but arranges its children horizontally in a single row, allowing for alignment and spacing between widgets.
4. **Stack**: Allows for overlapping widgets, positioning them on top of each other. Children are stacked in the order they are added.
5. **List View**: A scrollable list of widgets that can be dynamically generated. It is useful for displaying a large number of items efficiently.