

Assignment - 01

Q1)

Q] Key Features

→ Single codebase:

Flutter allows developer to write code once and deploy it on both iOS & Android platforms. This reduces development time & efforts compared to maintaining separate codebases for each platform.

→ Hot Reload:

One of Flutter's standout feature is Hot Reload, which allows to develop instantly see the result of code changes without restarting the entire application.

→ Dart programming language:

Flutter uses Dart as its programming language, which is designed for building web, mobile and server application.

Advantages:

→ Faster Development:

This ability to use a single codebase & the hot reload feature significantly speed up the process development

→ Cost-Efficient:

Developing and maintaining a single codebase for multiple platform reduce development cost

Q1

b) flutter differ from traditional approaches to mobile app development in several ways & its unique features contributed to its popularity in the developer community. Here are some key differentiator & reasons for flutter's popularity:

- ① single codebase for multiple platform:
 - Traditional approach: with flutter, developer write code once

expression user interface, custom
animation & : transition can be
implemented easily.

Q2)

a) widget tree:

→ Hierarchy of widgets:

The widgets tree is a hierarchical structure where each widget serves a specific purpose & can contain other widgets.

→ Immutable & Reusable:

Widget is Flutter meaning they cannot be changed once created. When change is needed, a new widget is created.

→ Building Blocks:

Flutter encourages a composition-based approach to UI construction.

Q2

b)

1) containers:

The 'container' widget is a versatile box model that can contain other widgets

ex.

```
container {
```

```
padding: Edge insert. all (16)
```

```
margin: Edge insert. Symmetric (8.0)
```

```
decoration:
```

```
BoxDecoration {
```

```
color: colors.blue,
```

```
),
```

```
child: Text('this is a container')
```

```
}
```

② Row & column:

These widgets allow for the arrangement of child widgets horizontally & vertically.

Row (

```
children: [  
  Icon(Icons.star),  
  Text('5 star')  
],  
)
```

column (

```
children: [  
  Text('Title')  
  Text('Subtitle')  
]  
)
```

Q3) state management in flutter is crucial for:

- ① Responsiveness: UI based on user interaction & dynamic data changes
- ② Hot Reload: reload feature

- ⑤ Dynamic UI: Enables dynamic content updates & responsiveness to external factors

qs)

b)

① set state:

- characteristics

- Built-in flutter method
- simple & suitable for local state within a widget
- limited to the scope of single widget

- Use case

- suitable for small to medium applications with limited shared state
- Quick & straight forward implementation

2) Provider;

- characteristics:

- external package offering variety of state management.

- supports different types of states

- use cases:

- shared state across multiple widgets

- managing dependency injection efficiently

3) River Pod

- characteristics

- Advanced state management solution

- support both synchronous & asynchronous state changes

- use case:

- complex application with a need for scalability

- project that can benefit from provider like solution.