**Explain the difference between ?? and ? Operators in dart?**

In Dart, the "??"" operators is used for null safety and and "?" is used for conditional expressions.

Example of null safety: var result = someNullableVariable ?? defaultValue;

Example of conditional expression = var isEven = (number % 2 == 0) ? "Even" : "Odd";

**Describe one similarity between flutter and react native?**

They are both used for cross-platform mobile app development.

Both frameworks provide tools and libraries.

**What is the difference between the const and final keywords in dart?**

In Dart, both the **const** **and final** keywords are used to declare constants.

**const:** Variables declared with the const keyword are compile-time constants.

**final:** Variables declared with the final keyword are run-time constants.

**Differentiate Stateless widget and statefull widget?**

**StatelessWidget:** A StatelessWidget is a widget that, as the name suggests, is "stateless." This means that once it is built and displayed on the screen, it does not change or have mutable properties.

**StatefulWidget:** A StatefulWidget is a widget that can change its internal state and appearance over time.

**What is flutter?**

Flutter is an open-source UI toolkit.

**How many types of widgets are there in flutter?**

There are two types of widgets in flutter, Stateless Widgets, Stateful Widget.

**Introduce dart programming language?**

Dart is a programming language developed by Google. It's used for building web, mobile, and desktop apps. 😊

Features:

Object-Oriented

Just-In-Time (JIT) and Ahead-of-Time (AOT) Compilation support

Strongly Typed

Garbage Collection

Flutter

Web Development, Dart SDK

**What is a widget in flutter?**

Widgets can be categorized into two main types:StatelessWidget and StatefulWidget

In Flutter, a widget is a reusable component that represents a part of the user interface. It can be a button, text, image, or even a layout. Widgets are the building blocks of a Flutter app. 😊

**What is the difference between main() and runApp() functions in flutter?**

main() is the starting point of the app, while runApp() is used to run and display the user interface of the app.

void main() {

runApp(MyApp());

}

**Differentiate between hot restart and hot reload?**

**Hot reload** is a faster way to see the effects of code changes in your app without losing the app's state.

In **hot restart**, the entire app is restarted from the `main()` function.

**What are Null-aware operators?**

The null aware operator in Flutter is used to handle null values without causing null exceptions. It consists of the `?.` and `??` operators.

In Dart, the "??"" operators is used for null safety and and "?" is used for conditional expressions.

**What is difference between package and plugin in flutter?**

In Flutter, a package is a collection of Dart code that provides specific functionality, while a plugin is a package that also includes platform-specific code to interact with native APIs.

**What are streams in flutter?**

Streams are commonly used for handling user input, network responses, real-time data updates, and more in Flutter applications.

**What is release mode and when do you use it?**

Release mode is used when you're ready to share your app with others or publish it on app stores.

**What is the main difference between Stream Builder and Future Builder?**

**StreamBuilder:**

1. is used to handle asynchronous data streams.
2. is great for real-time updates

**FutureBuilder**:

1. is used to handle asynchronous operations that produce a single value in the future.
2. is ideal for one-time data fetching.

**What are the optional-named parameters?**

1. allows you to define functions or methods with named parameters that are optional
2. are useful for making functions more readable and self-documenting
3. They are enclosed in curly braces.
4. void myFunction({int param1 = 0, String param2 = 'default'}){}

**What are the 'async' and 'await' keywords for?**

1. 'async' is used to mark a function as asynchronous, allowing it to perform tasks without blocking the main thread.
2. 'await' is used to pause the execution of a function until an asynchronous operation is complete, making it easier to write asynchronous code that looks synchronous.

**How can we parse JSON?**

To parse JSON in Flutter, you can use the built-in `json.decode()` function. It allows you to convert a JSON string into a corresponding Dart object.

**What's the lifecycle of a 'Stateful Widget'?**

1. Initialization: When a 'Stateful Widget' is created, the `createState()` method is called.
2. Build: The `build()` method is called to build the widget tree.
3. State Changes: When the widget's state changes, the 'State' object's `setState()` method is called.
4. Widget Updates: The framework calls the `didUpdateWidget()` method when the widget is updated with new properties.
5. Destruction: When the widget is no longer needed, the 'State' object's `dispose()` method is called. It allows you to clean up any resources used by the widget.
6. Hint: Itna bara software wha dunia

**What's a pubspec.yml file?**

The 'pubspec.yaml' file in Flutter is a configuration file that defines the dependencies, metadata, and other settings for a Flutter project. It is written in YAML format and is used by the 'pub' package manager to manage the project's dependencies and assets.

**What's a hot reload and a hot restart? What's the difference?**

**Hot reload** is a faster way to see the effects of code changes in your app without losing the app's state.

In **hot restart**, the entire app is restarted from the `main()` function.

**How do you make HTTP requests in Flutter?**

To make http request in flutter, you can use http package.

1. Add the http package to your pubspec.yaml file.
2. Import the package in your dart file.
3. Use the http.get() or http.post() method to send http request and handle the response.

**What are the ways to add a 'ListView' to a column?**

1. Wrap the `ListView` with a `Flexible` widget
2. Wrap the `ListView` with an `Expanded` widget
3. Use the `ListView.builder` constructor
4. limit the Height of the ListView
5. Nesting the Column within the ListView

**Material vs Non- Material Apps, state the difference List any five Single-child layout widgets**

**Material apps:**

1. follow the Material Design guidelines
2. use specific design elements like elevation, shadows, and animations
3. prioritize simplicity, clarity

**Non material apps:**

1. Non-Material apps may have a custom design
2. have more freedom to experiment with unique visual styles
3. may prioritize creativity and expressiveness

**Fve Single-child layout widgets**

1. Container
2. Center
3. Align:
4. AspectRatio
5. FractionallySizedBox
6. LimitedBox
7. OverflowBox
8. FittedBox

**List any five Multi-child layout widgets?**

1. Row and Column
2. ListView and GridView
3. Stack
4. Wrap
5. Flow

**List any button Widgets?**

1. ElevatedButton
2. TextButton
3. OutlinedButton
4. IconButton
5. Hint: TOEi

**What are maps in Dart?**

In Dart, a `Map` is a collection of key-value pairs. It allows you to associate values (the data) with keys (identifiers).

**What are the available build modes?**

1. Debug Mode
2. Release Mode
3. Profile Mode
4. JIT (Just-In-Time) Mode
5. AOT (Ahead-Of-Time) Mode
6. Null Safety Mode
7. Hint: Japan

**List any Two editors used in Flutter development**

1. Visual Studio
2. Android Studio