Task1:

1-What is Flutter?

Flutter is an open-source framework developed by Google for building mobile applications. It allows you to create applications that run on multiple platforms, such as iOS, Android, and even desktop operating systems like Windows and Linux, using a single codebase. This saves time and reduces costs because instead of writing separate code for each platform, you write one code that works everywhere.

2-How can Flutter build apps for different platforms using one codebase?

Flutter uses the Dart programming language, which has the capability to compile the source code into native code for each platform. This is achieved through Flutter's rendering engine, Skia, which handles drawing the UI directly on the screen, ensuring consistent performance and appearance across platforms.

3-What is meant by: directory, package, library, framework, SDK, IDE?

- **Directory:**
  A folder that contains files and subfolders for organization.
- **Package:**
  A collection of reusable code for specific functionality in a project.
- **Library:**
  A set of pre-written code used to perform specific tasks.
- **Framework:**
  A comprehensive structure providing the foundation for building applications.
- **SDK (Software Development Kit):**
  A set of tools, libraries, and documentation to develop applications for a specific platform**.**
- **IDE (Integrated Development Environment):**
  A software that combines tools for writing, testing, and debugging code.

4-What is a Widget? Give as many examples as you can.

In Flutter, everything is a widget. A widget is a basic building block of the UI that represents a part of the interface, like buttons, text, images, and even layout elements. Flutter's UI is made up of a hierarchy of widgets.

Examples of widgets include:

- Text: Displays text on the screen.
- ListView: A scrollable list of items.
- Column: A widget that arranges its children vertically.
- Row: A widget that arranges its children horizontally.
- GridView: A grid-based layout for displaying items.
- Container: A box model used for layout and decoration.

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5-What is state? And what is the difference between stateless and stateful widgets?

State refers to the current condition or data of a widget. It determines whether the widget is static (unchanging) or dynamic (can change over time).

- **Stateless Widget:**
  A widget that does not change over time. Once built, its properties remain constant and do not update unless the entire widget is rebuilt. Example: `Text`, `Icon`.
- **Stateful Widget:**
  A widget that can change its state during its lifetime. It can rebuild itself when the state changes, allowing for dynamic updates. Example: `Checkbox`, `Form`.