Experiment 1

Aim: Installation and configuration of flutter environment

Theory: Flutter is an open-source UI software development toolkit created by Google. It is used to develop natively compiled applications for mobile, web, and desktop from a single codebase. Flutter uses the Dart programming language, which is optimized for building fast, multi-platform applications.

Installing Flutter involves setting up the SDK, configuring the environment variables, and installing an IDE (such as Android Studio or Visual Studio Code) with the necessary plugins. Once set up, developers can run and debug Flutter apps using emulators or physical devices.

Key components:

- **Flutter SDK**: The core tools required to build Flutter apps.
- **Dart SDK**: Comes bundled with the Flutter SDK for writing Flutter code.
- **Android Studio / VS Code**: Integrated Development Environment (IDE) to write, debug, and test code.
- **Emulators / Devices**: Virtual or physical devices for testing applications.
- **flutter doctor**: A command-line tool that checks your environment and displays a report of the status.

Steps:

Step 1: System Requirements

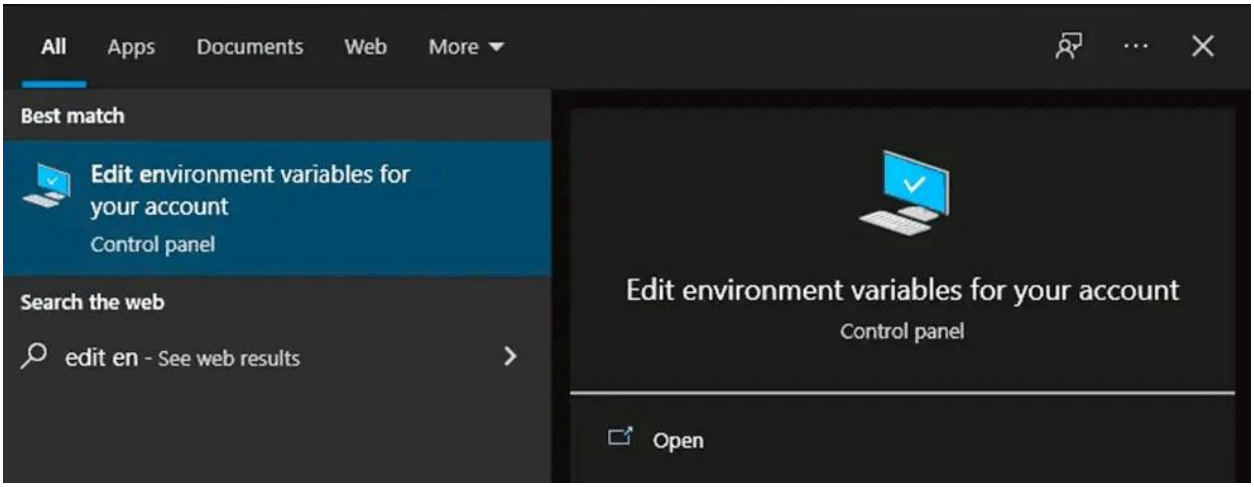
- Ensure your system meets Flutter's minimum requirements:
    - Operating System: Windows, macOS, or Linux
    - Disk Space: At least 1.64 GB (does not include disk space for IDE/tools).
    - Tools: Git, PowerShell (for Windows), bash (for macOS/Linux)

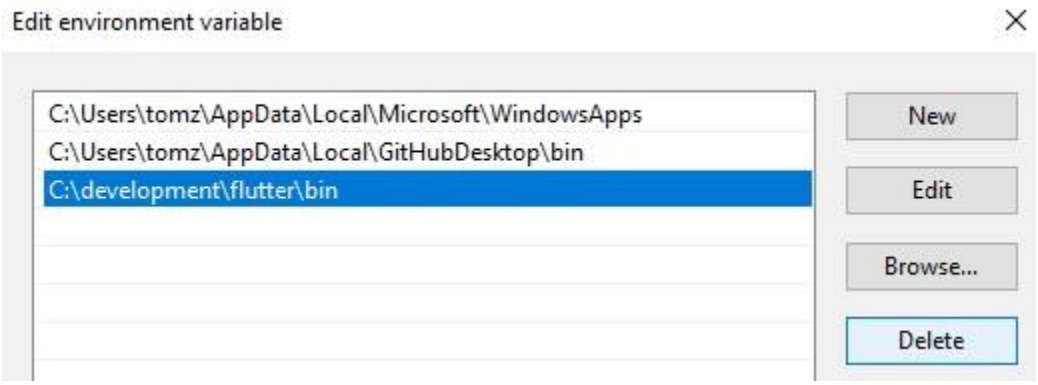
Step 2: Download the Flutter SDK

- Visit https://flutter.dev and download the Flutter SDK.
- Extract the zip file to a desired location (e.g., C:\src\flutter on Windows or ~/development/flutter on macOS/Linux).

Step 3: Update Environment Variables

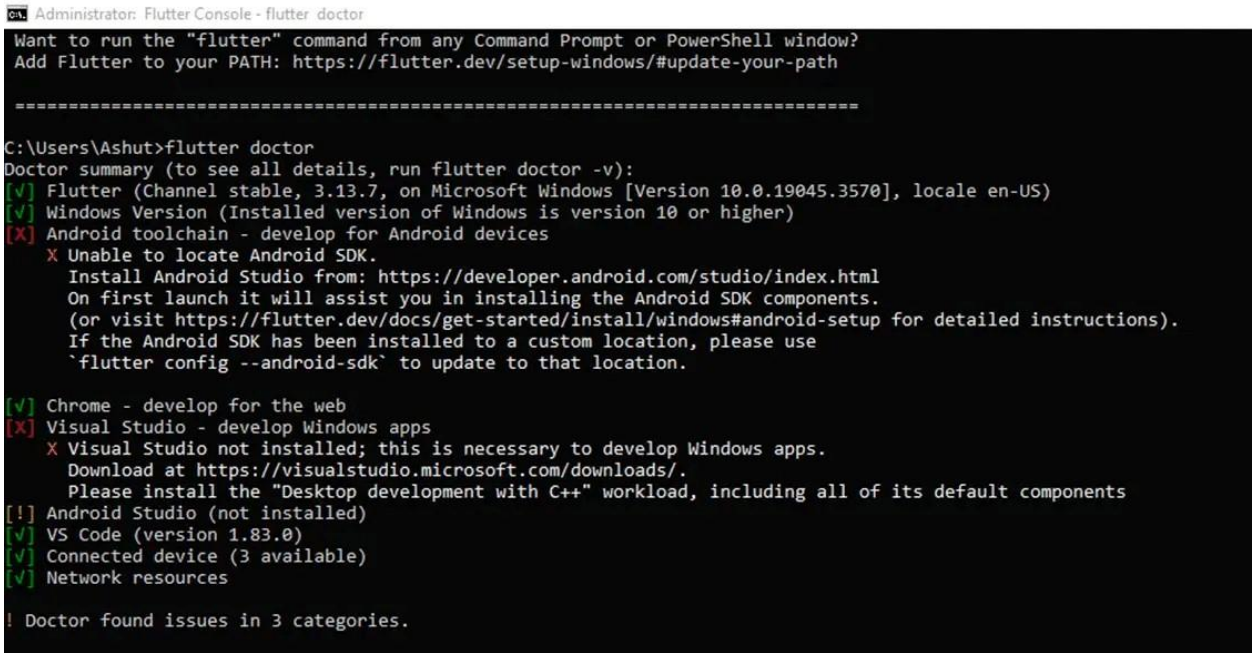
- Add the Flutter bin directory to your system's PATH.
    - **Windows**:
      Go to *System Properties → Environment Variables → Path → Edit*
      Add: C:\src\flutter\bin





Step 4: Run flutter doctor

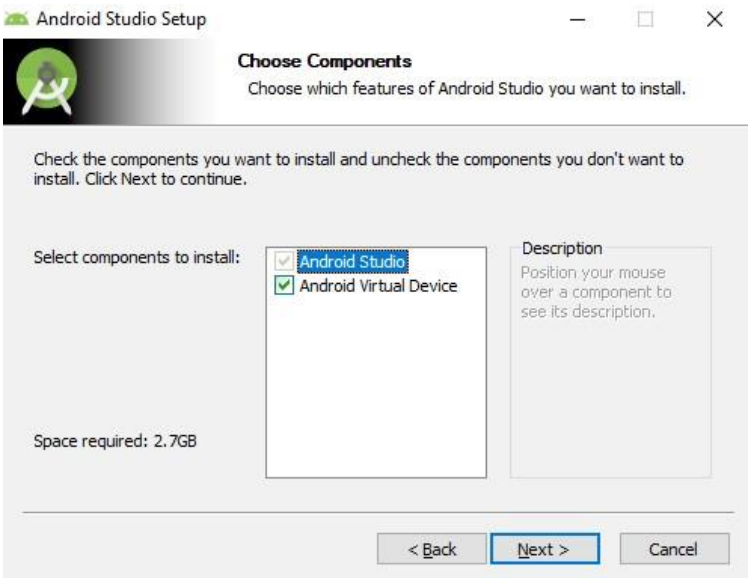
Open terminal or command prompt and run:
flutter doctor

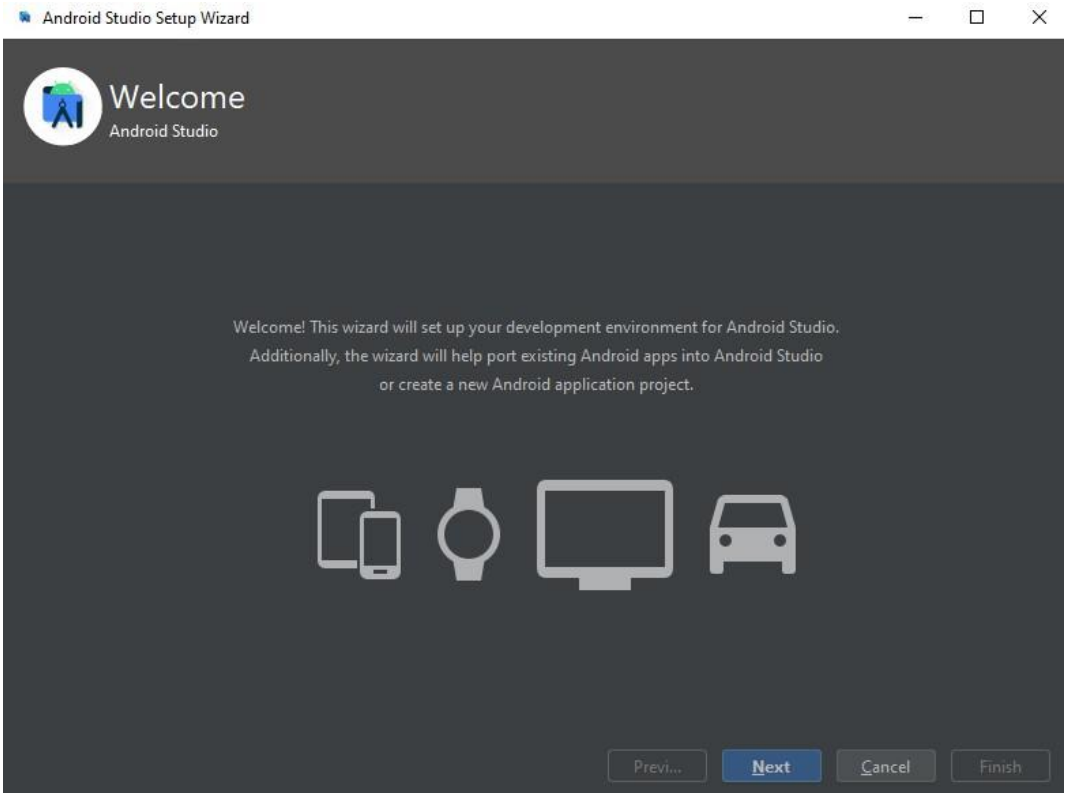


- This command checks your environment and displays a report of the status of your Flutter installation.

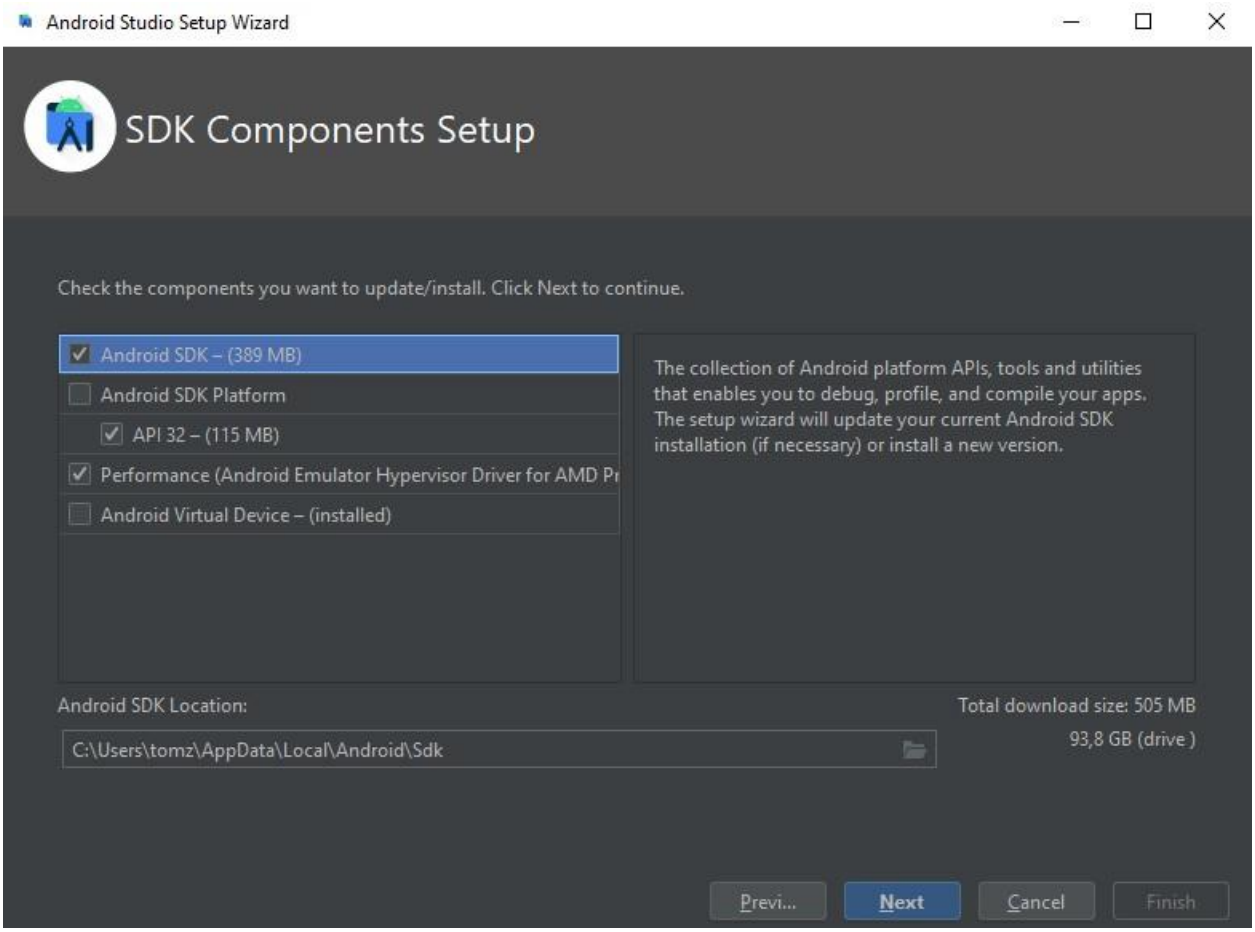
- It will also list any missing dependencies such as IDEs, Android toolchain, or device setup.

Step 5: Install Android Studio / Visual Studio Code

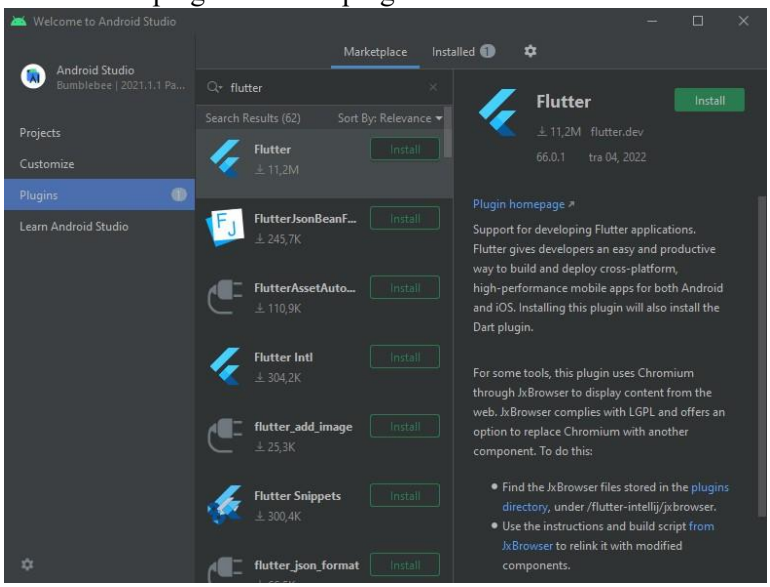




As we are going to develop using android, add that



Install flutter plugin from the plugins



Conclusion:

In this lab, we successfully installed and configured the Flutter development environment. We learned how to set up the Flutter SDK, configure environment variables, install necessary IDEs and plugins, and verify the installation using `flutter doctor`. This setup allows us to build, test, and deploy Flutter applications for multiple platforms using a single codebase.