

EXPERIMENT NO.1**Experiment No 1****1: Installation and Configuration of Flutter Environment.**

ROLL NO	66
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CLASS	D15-B
SUBJECT	MAD & PWA Lab
LO-MAPPED	EXPERIMENT 01-

AIM: Installation and configuration of Flutter Environment.**THEORY:****What is Flutter?**

=> Flutter is an open source framework by Google for building beautiful, natively compiled, multi-platform applications from a single codebase. Flutter code compiles to ARM or Intel machine code as well as JavaScript, for fast performance on any device.

Advantages:**1. Fast Development**

Flutter's fast development cycle allows developers to see changes to the app in real-time as they make modifications to the code. This can greatly increase the speed and efficiency of the development process of the applications.

2. High Performance

Flutter offers fast and smooth animations and transitions, and is designed to run smoothly on older devices. The framework is optimized for performance, making it an attractive choice for demanding mobile applications. As a result the number of targeted users increases.

3. Cross-Platform Development

Flutter supports not only mobile app development but also web and desktop app development. This makes it a versatile tool for developing applications that need to run on multiple platforms without any issues.

4. Open-Source

Flutter is a free and open-source framework, making it accessible to a wide range of developers and companies. The large community of developers and users working with the framework helps to ensure that it continues to evolve and expand its capabilities.

Features:

i) Hot Reload:

One of the most powerful features of Flutter is its Hot Reload functionality. Developers can instantly see the results of their code changes without restarting the app, which significantly speeds up the development process.

ii) Rich Widget Library:

Flutter comes with a comprehensive set of pre-designed and customizable widgets for creating modern and responsive user interfaces. These widgets are used to build the UI components, and developers can easily customize them to suit their app's design.

iii) Expressive UI:

Flutter allows for expressive and flexible UI designs. It supports various animations and provides a smooth and consistent experience across different platforms.

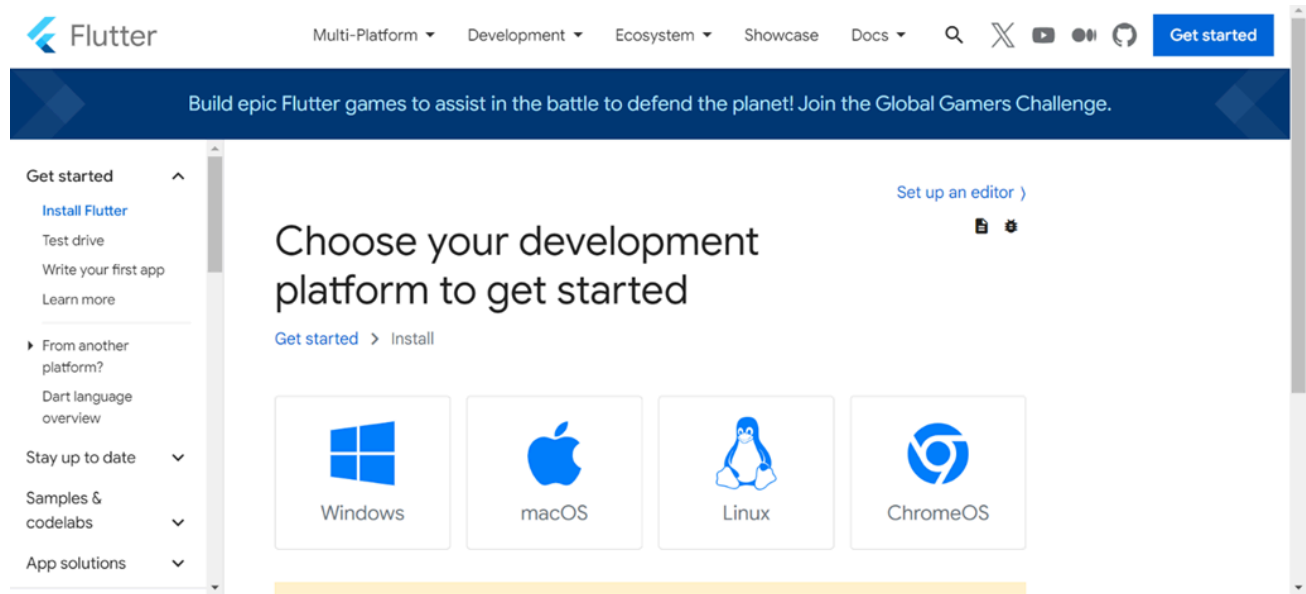
iv) Dart Programming Language:

Flutter uses Dart as its programming language. Dart is designed for building modern web and mobile applications and has features like strong typing and just-in-time compilation.

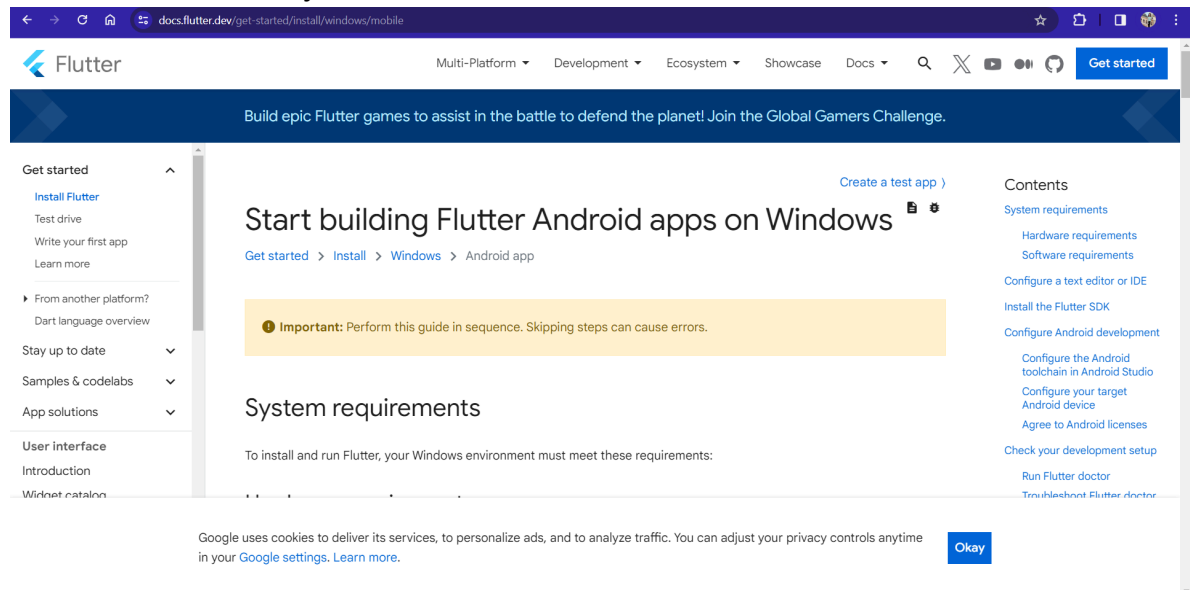
INSTALLATION STEPS =>

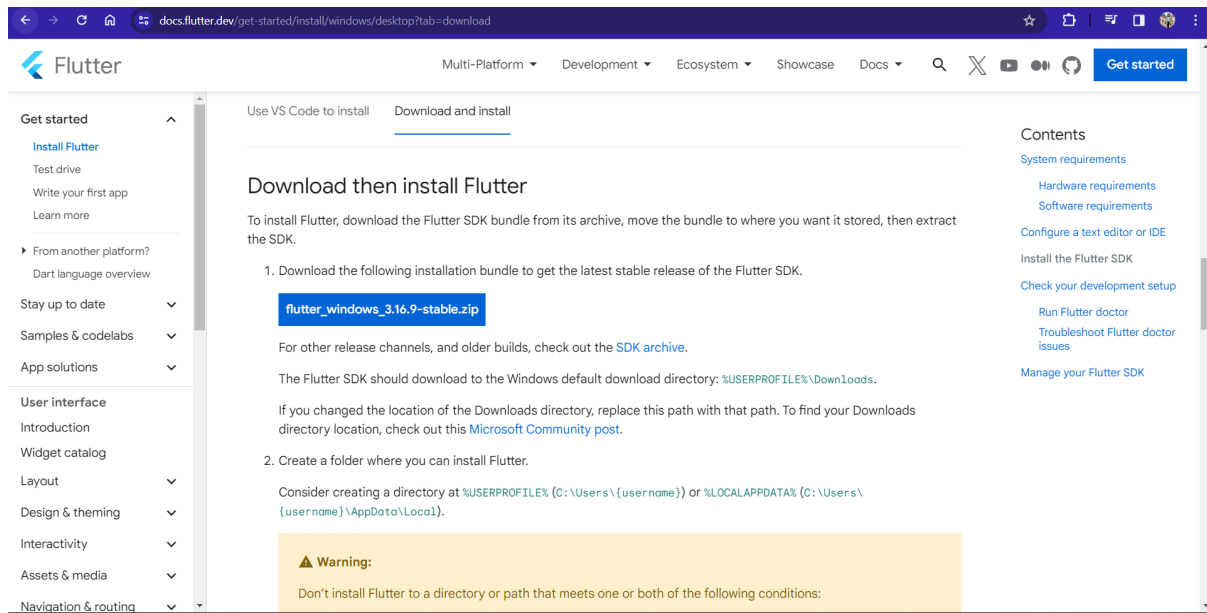
STEP 1: Download the installation bundle of the Flutter Software Development Kit for windows. To download Flutter SDK, Go to its official website

<https://docs.flutter.dev/get-started/install> you will get the following screen

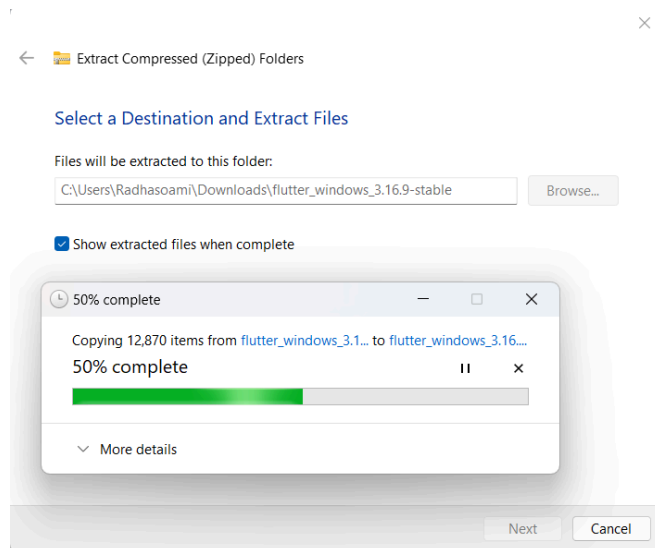


Step 2: Next, to download the latest Flutter SDK, click on the Windows icon. Here, you will find the download link for SDK.

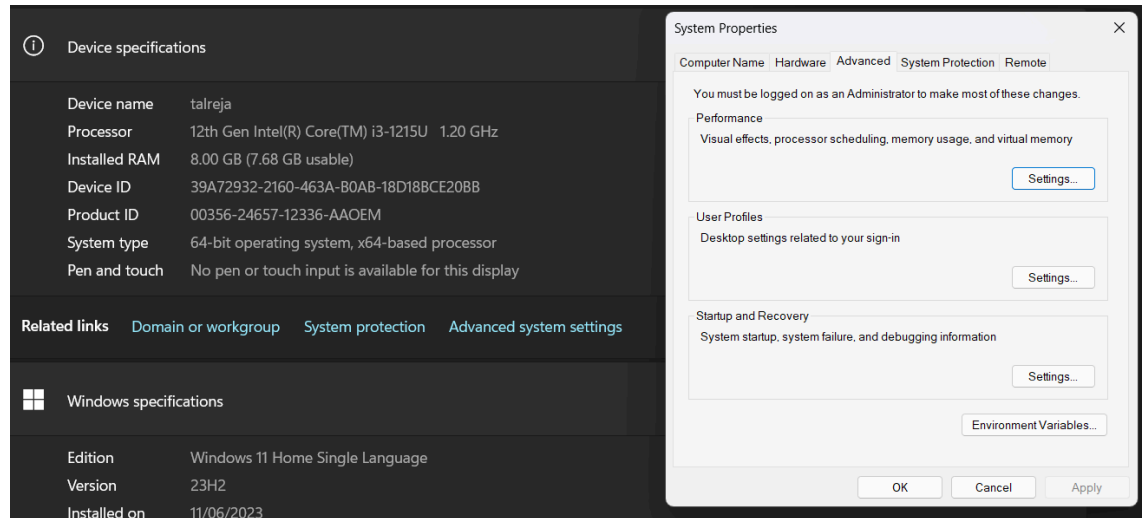




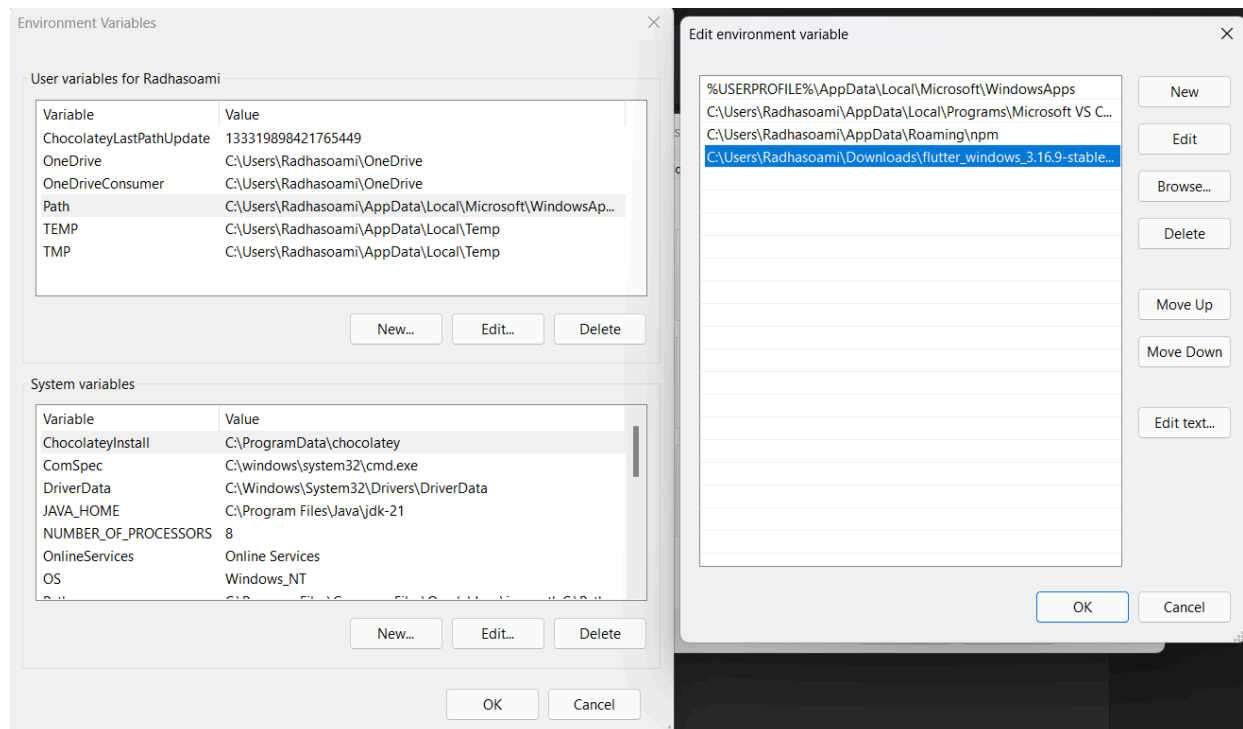
Step 3: When your download is complete, extract the zip file and place it in the desired installation folder or location, for example, C: /Flutter.



Step 4: To run the Flutter command in regular windows console, you need to update the system path to include the flutter bin directory. The following steps are required to do this: Go to THIS PC -> Properties -> Advanced system settings -> Environment variables.



STEP 5: Select the Path -> click on Edit and add the path to the Flutter bin folder.



STEP 5: Run the *flutter* command in the Command Prompt.

```
C:\Users\Radhasoami>flutter
Manage your Flutter app development.

Common commands:

  flutter create <output directory>
    Create a new Flutter project in the specified directory.

  flutter run [options]
    Run your Flutter application on an attached device or in an emulator.

Usage: flutter <command> [arguments]

Global options:
-h, --help          Print this usage
                    information.
-v, --verbose       Noisy logging,
                    including all
                    shell commands
                    executed.
                    If used with
                    "--help", shows
                    hidden options.
                    If used with
                    "flutter
                    doctor", shows
                    additional
                    diagnostic
                    information.
                    (Use "-vv" to
                    force verbose
                    logging in those
                    cases.)
-d, --device-id     Target device id
                    or name
                    (prefixes
                    allowed).
--version           Reports the
                    version of this
                    tool.
--enable-analytics  Enable telemetry
                    reporting each
                    time a flutter
                    or dart command
                    runs.
--disable-analytics Disable
                    telemetry
                    reporting each
                    time a flutter
                    or dart command
                    runs, until it
                    is re-enabled.
--suppress-analytics Suppress
                    analytics
                    reporting for
                    the current CLI
                    invocation.
```

Also, run the *flutter doctor* command. This command checks for all the requirements

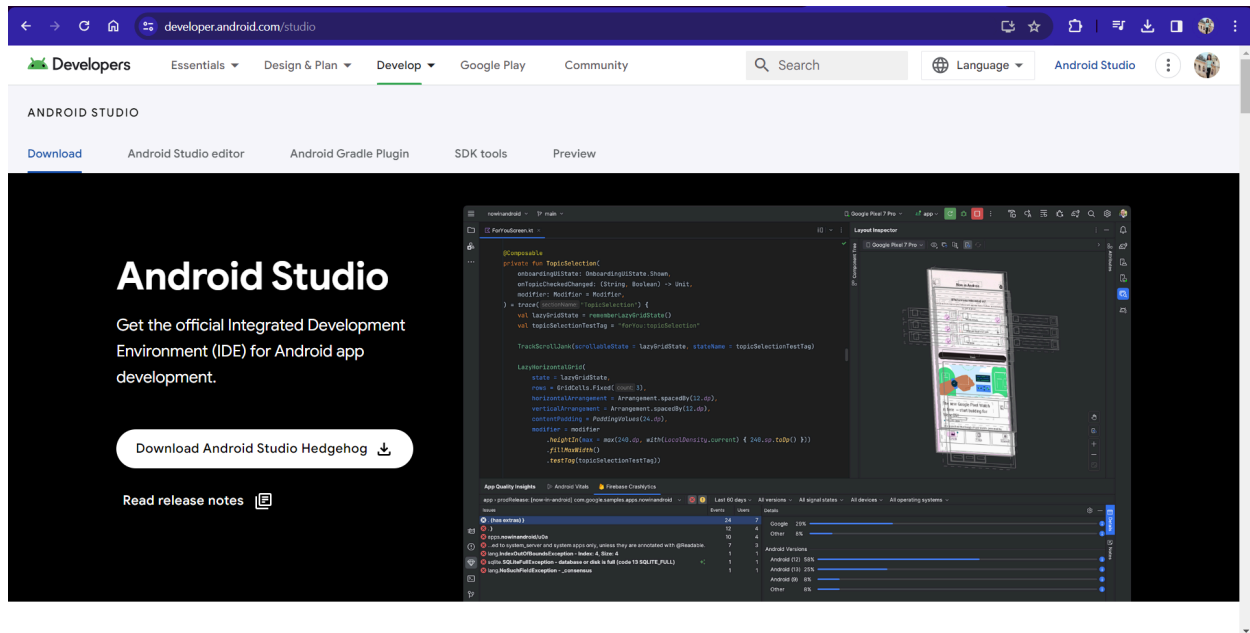
of Flutter app development and displays a report of the status of your Flutter installation.

```
C:\Users\Radhasoami>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.16.9, on Microsoft Windows [Version 10.0.22631.3085], locale en-IE)
[✓] Windows Version (Installed version of Windows is version 10 or higher)
[✓] Android toolchain - develop for Android devices
    X Unable to locate Android SDK.
      Install Android Studio from: https://developer.android.com/studio/index.html
      On first launch it will assist you in installing the Android SDK components.
      (or visit https://flutter.dev/docs/get-started/install/windows#android-setup for detailed instructions).
      If the Android SDK has been installed to a custom location, please use
      `flutter config --android-sdk` to update to that location.

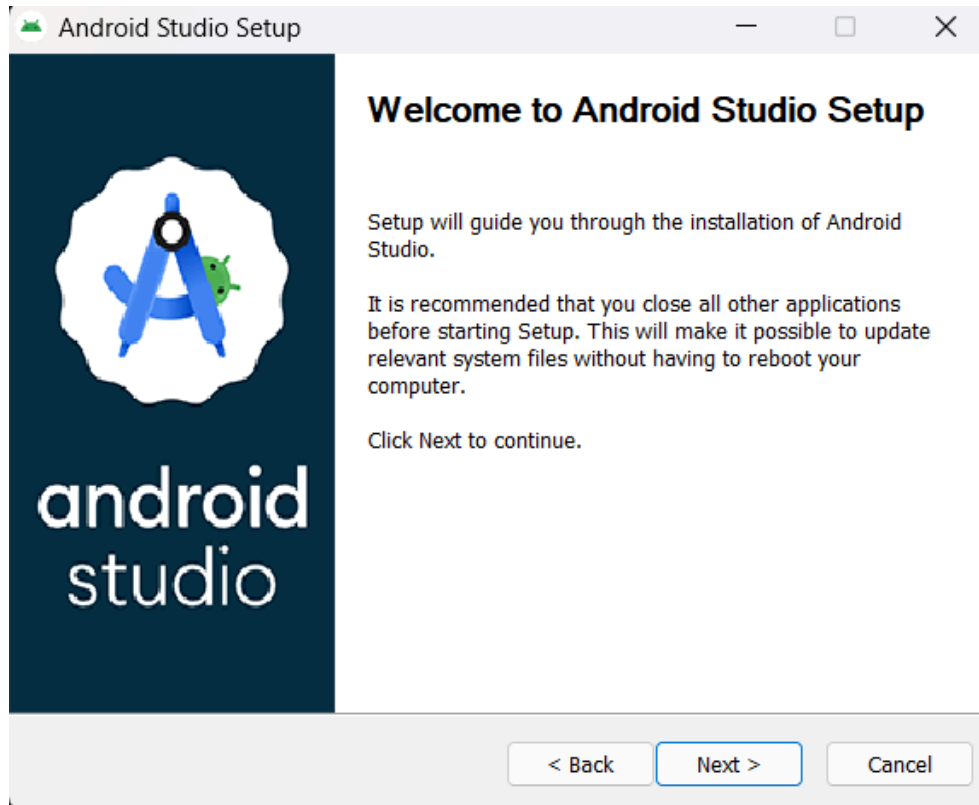
[✓] Chrome - develop for the web
[✓] Visual Studio - develop Windows apps
    X Visual Studio not installed; this is necessary to develop Windows apps.
      Download at https://visualstudio.microsoft.com/downloads/.
      Please install the "Desktop development with C++" workload, including all of its default components
[!] Android Studio (not installed)
[✓] VS Code (version 1.85.2)
[✓] Connected device (3 available)
[✓] Network resources

! Doctor found issues in 3 categories.
```

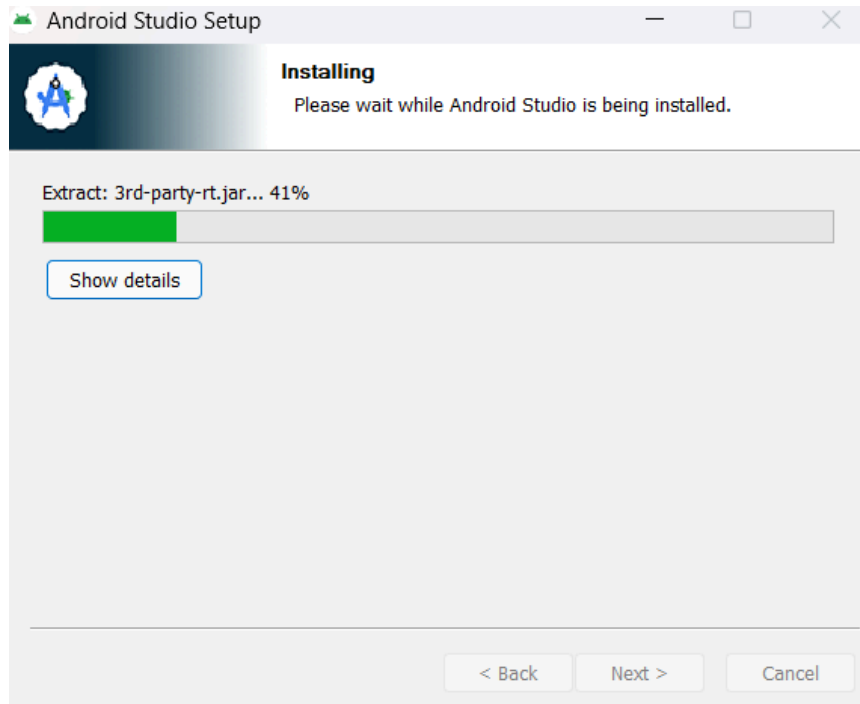
Step 6: Install the Android SDK. If the flutter doctor command does not find the Android SDK tool in your system, then you need first to install the Android Studio IDE. To install Android Studio IDE, do the following steps.



Step 7: When the download is complete, open the .exe file and run it. You will get the following dialog box.

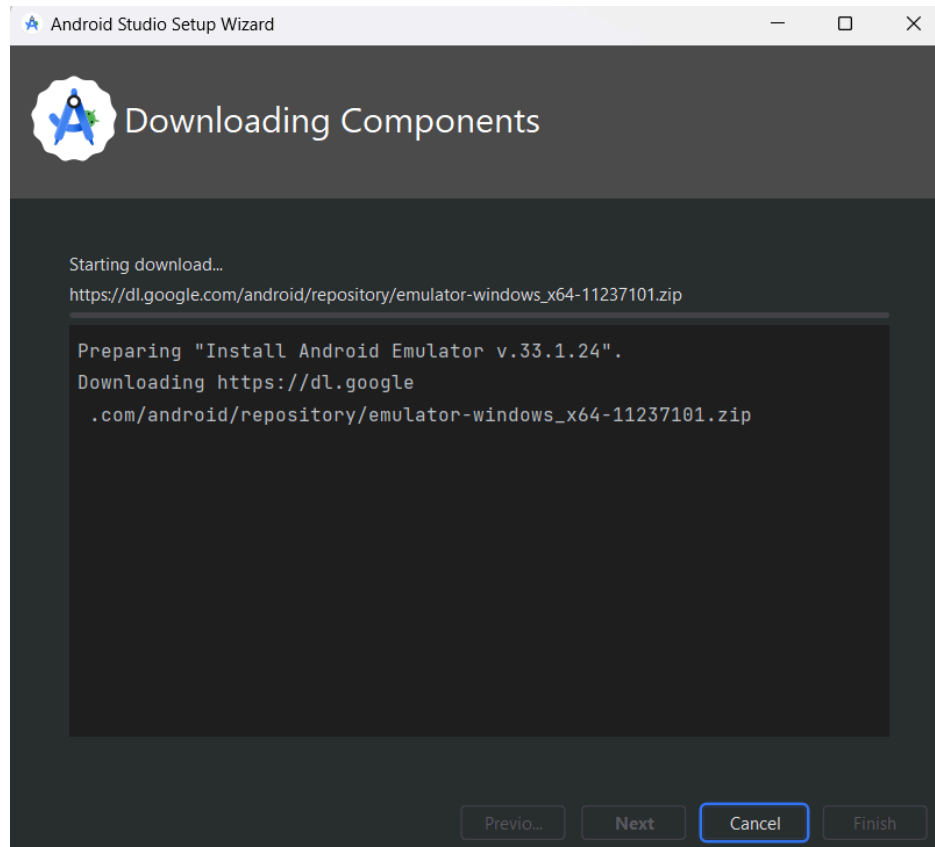


Step 8: In the above screen, click Next-> Finish. Once the Finish button is clicked, you need to choose the 'Don't import Settings option' and click OK. It will start the Android Studio.

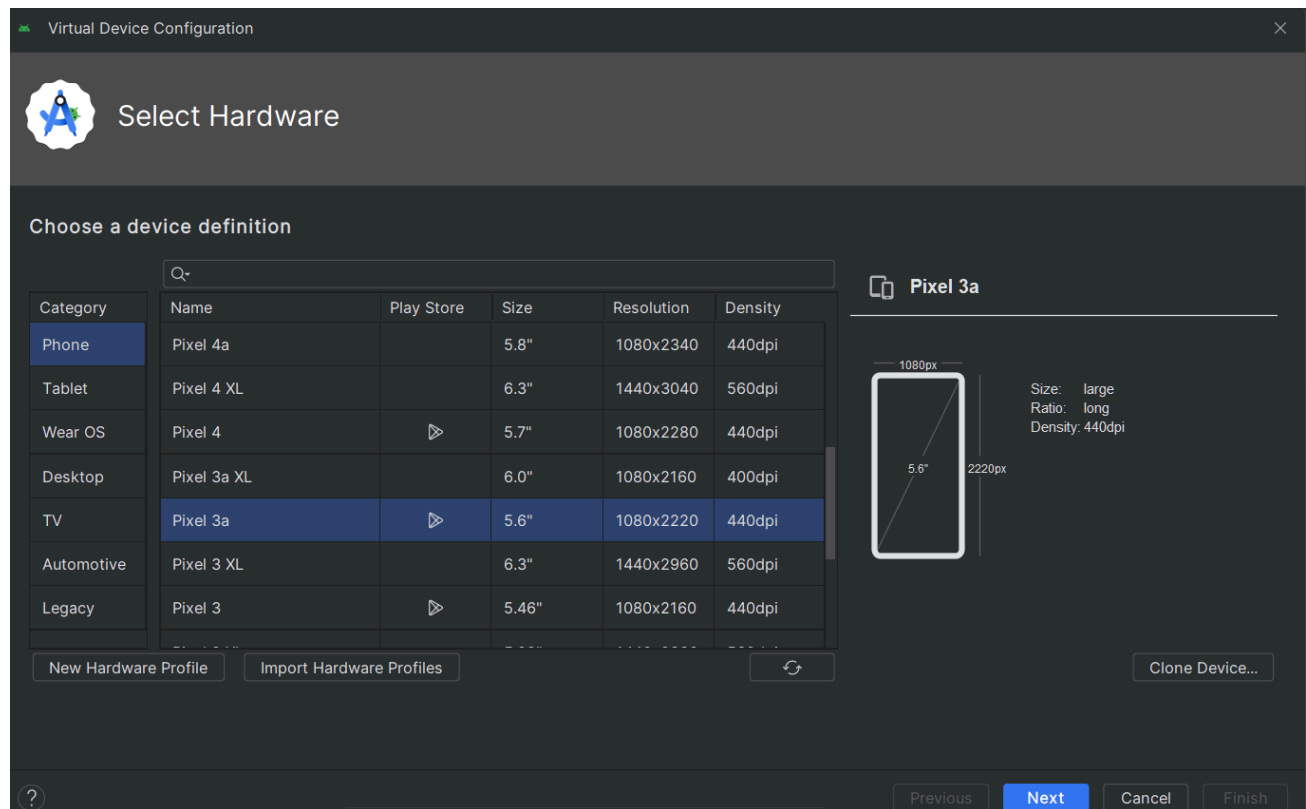


Once the android Studio is installed, Download the Android SDK Command-Line Tools present in the Android SDK section in Android Studio.

Step 9: In the above screen, click Next-> Finish. Once the Finish button is clicked, you need to choose the 'Don't import Settings option' and click OK. It will start the Android Studio.



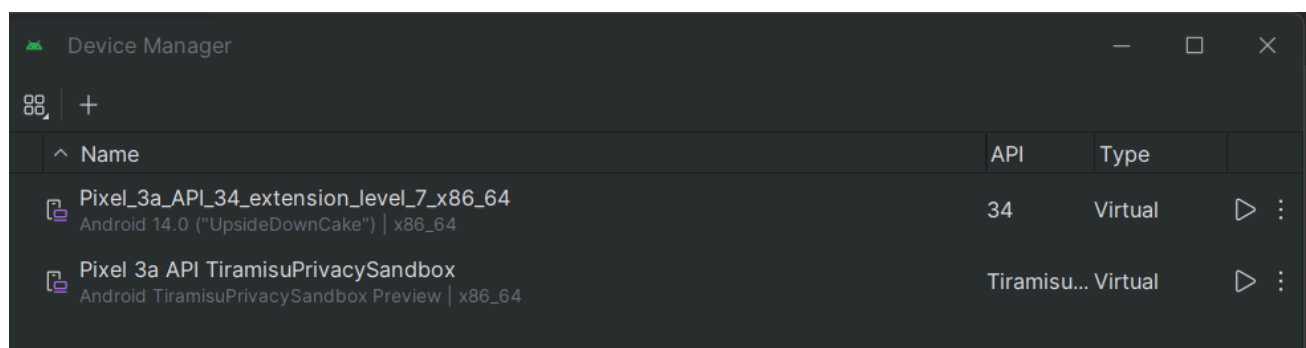
Step 10: Next, you need to set up an Android emulator. It is responsible for running and testing the Flutter application



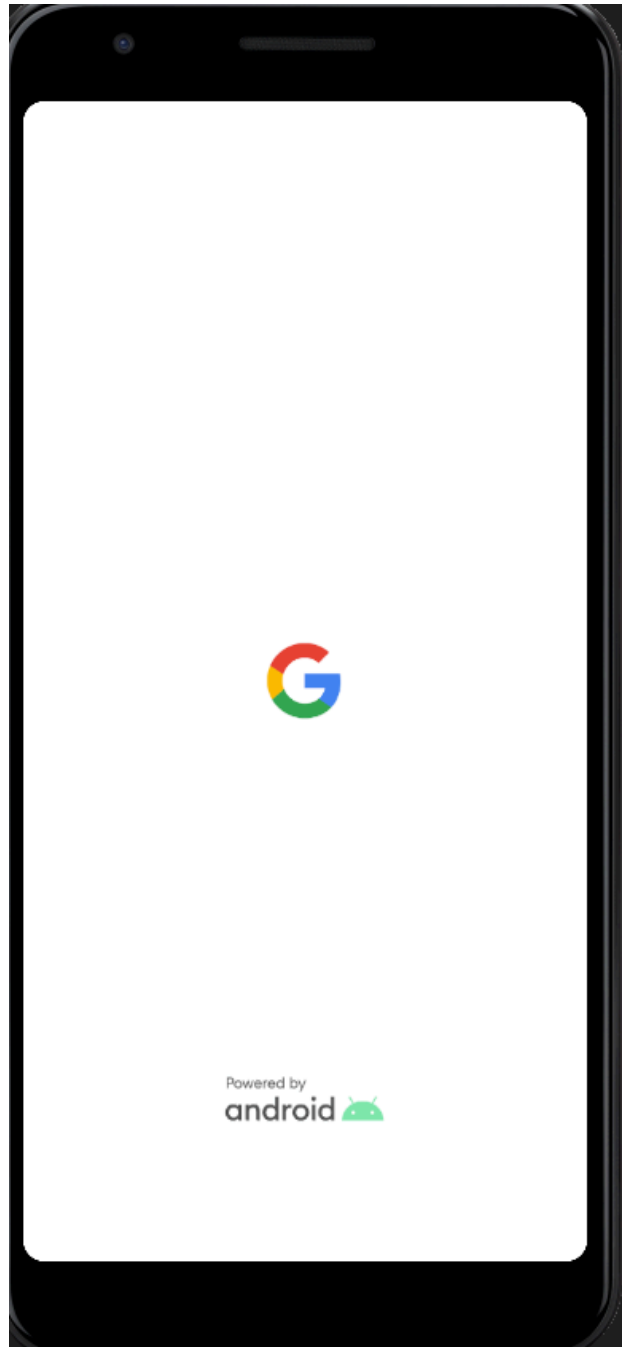
Step 10.1: Choose your device definition and click on Next.

Step 10.2: Select the system image for the latest Android version and click on Next.

Step 10.3: Now, verify the all AVD configuration. If it is correct, click on Finish. The following screen appears.



STEP 10.4: Click on the Run button and the following screen will be displayed.



Conclusion: In conclusion, the successful installation and configuration of Flutter exemplify its user-friendly nature. This dynamic framework not only streamlines the setup process but also empowers developers to innovate in cross-platform app development. The experiment underscores Flutter's potential for creating efficient and cutting-edge mobile applications.

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