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EXP 1: Installation and Configuration of Flutter Environment.

Aim: To install and configure Flutter and Android Studio in

our system.

Theory:

What is Flutter?

Flutter is an open source framework developed and supported by Google. Frontend and full-stack developers use Flutter to build an application's user interface (UI) for multiple platforms with a single codebase.

When Flutter launched in 2018, it mainly supported mobile app development. Flutter now supports application development on six platforms: iOS, Android, the web, Windows, MacOS, and Linux.

Features of flutter:

Flutter structure offers the accompanying elements to designers:

- Present day and receptive structure.
- Utilizes Dart programming language, and it is extremely simple to learn.
- Quick turn of events.
- Delightful and liquid UIs.
- Runs the same UI for numerous stages.
- Superior execution application
- Fast and responsive layout.
- Easy connection of back-end and asynchronization.

Advantages of flutter

• **Cross-platform Operations:** Apps made with flutter can be operated on both the platform (iOS and Android). There is no need for reconfiguration and redesigning.

• **Less Need of Developers:** This can be advantageous for the companies, as they require a smaller number of developers and the app can also work on both the platforms.

• **Less Development Cost:** Since there are a smaller number of developers needed, the cost incurred for the development of the app also reduces.

• **Time Constraint:** The time required to launch the app into the market, also reduces as only a single app has to be made, which would work independently of the platform.

• **Powerful Design:** Flutter mobile framework is the latest in the market, and this helps to create a very powerful app design with minimum efforts.

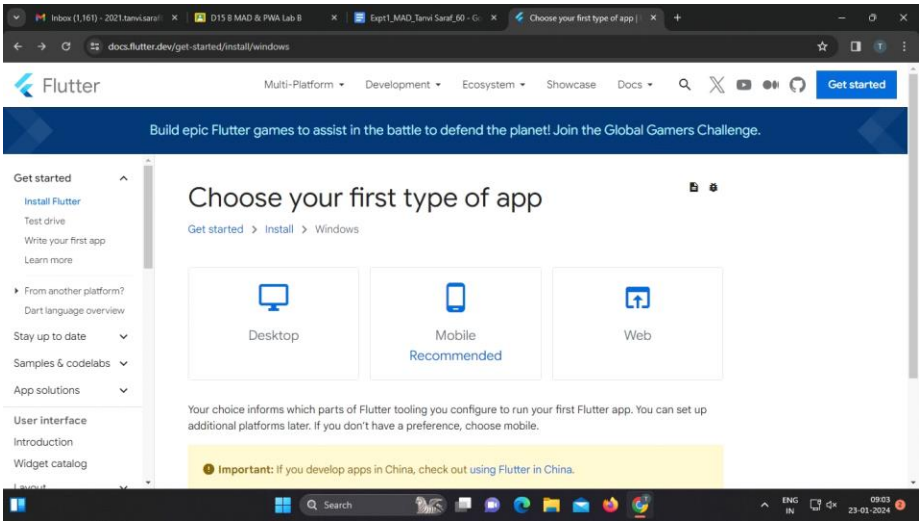
Disadvantages of flutter

In spite of its many benefits, vacillate has the accompanying downsides in it:

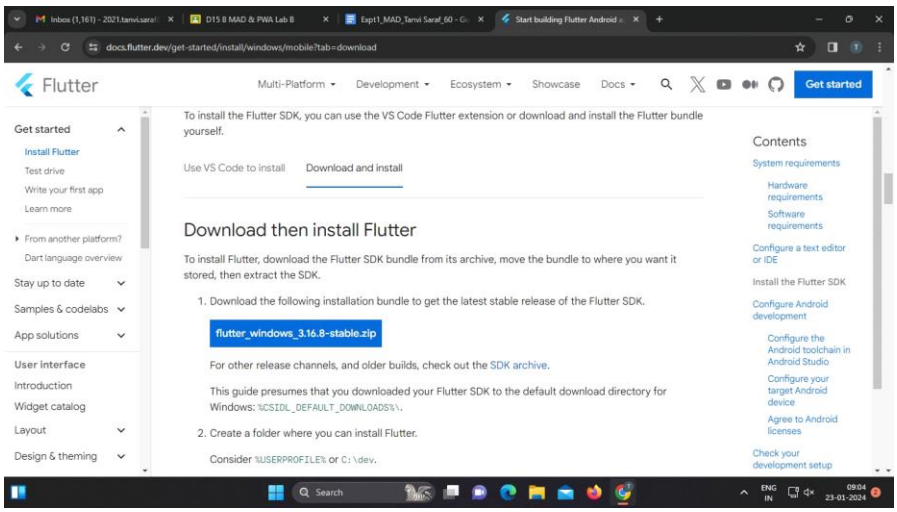
- However, since it is coded in Dart language, a designer needs to learn a new dialect, although it is not difficult to learn.
- Current system attempts to isolate rationale and UI however much as could be expected at the same time, in Shudder,
- UI and rationale are intermixed. We can beat this utilizing savvy coding and utilizing significant level modules to isolate UI and rationale.
- Ripple is one more system to make versatile applications. Designers are having a tough time in picking the right improvement devices in immensely populated portion.

Install the Flutter SDK:

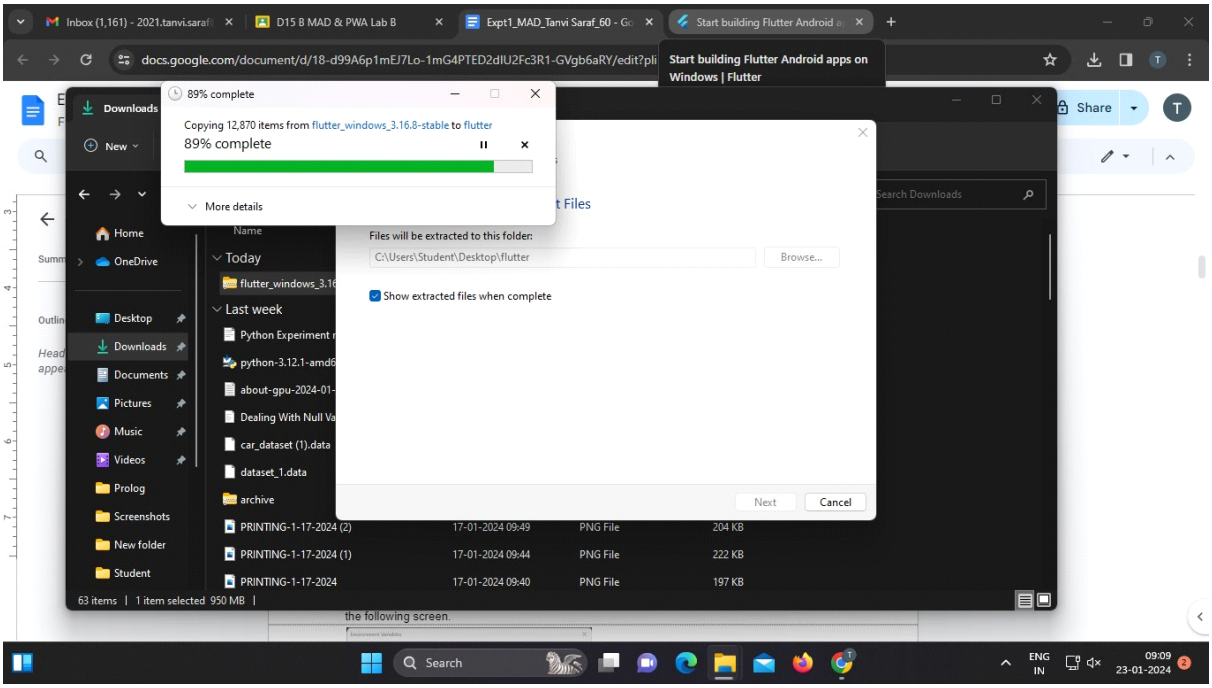
Step 1: Download the installation bundle of the Flutter Software Development Kit for windows. To download Flutter SDK, Go to its official website https://docs.flutter.dev/get-started/install , you will get the following screen.



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

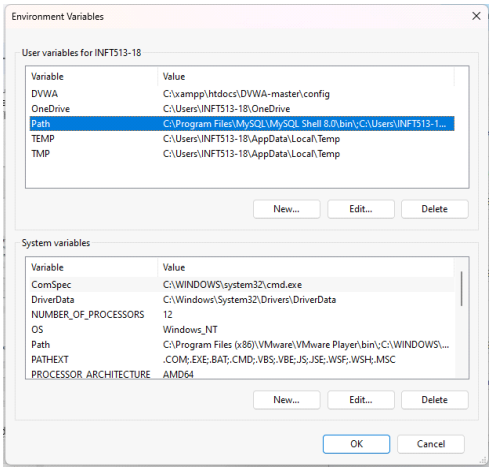


Step 3: When your download is complete, extract the zip file and place it in the desired installation folder or location, for example, C: /Flutter.

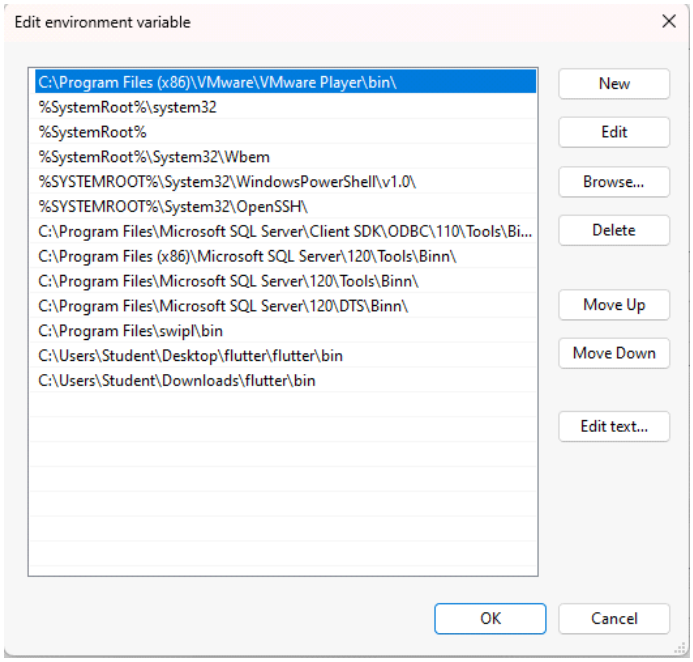


Step 4: To run the Flutter command in regular windows console, you need to update the system path to include the flutter bin directory. The following steps are required to do this:

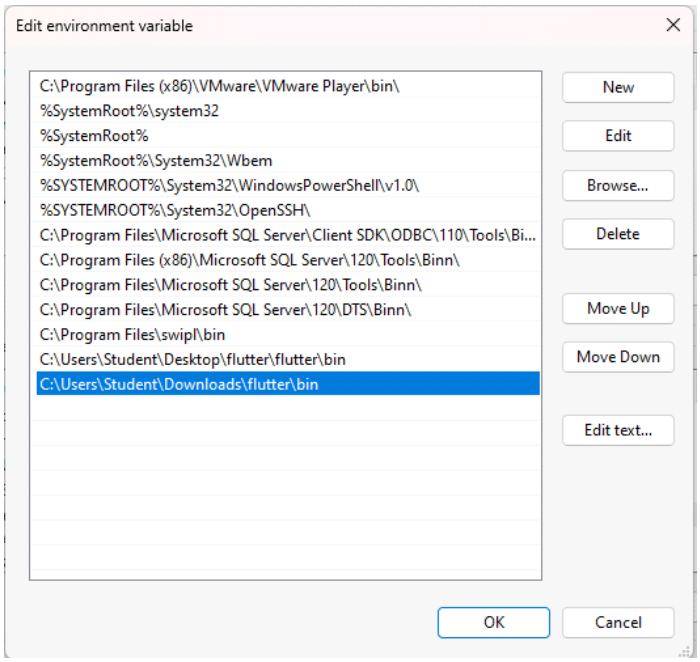
Step 4.1: Go to MyComputer properties -> advanced tab -> environment variables. You will get the following screen.



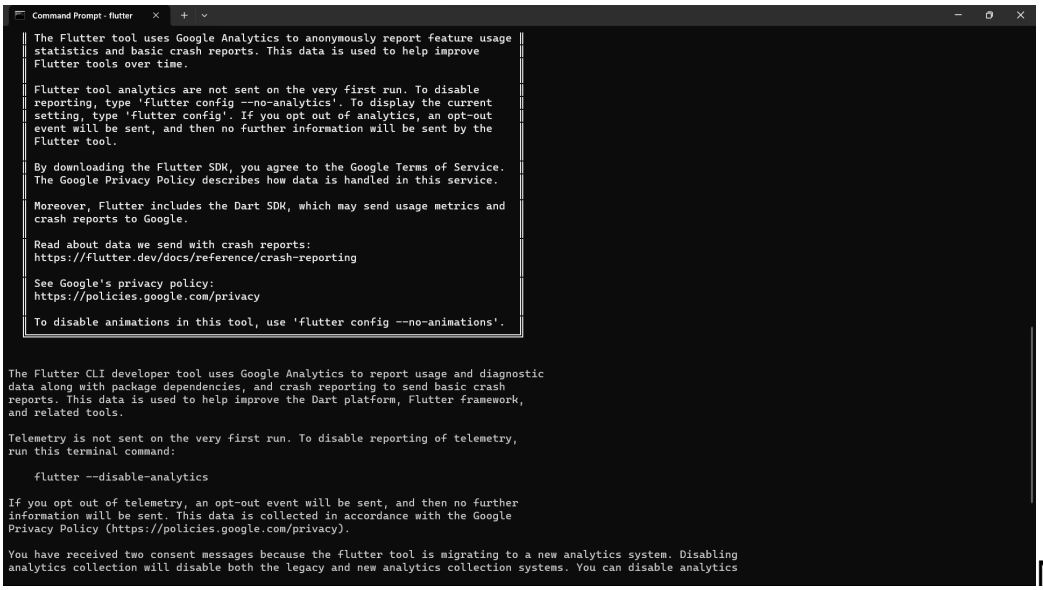
Step 4.2: Now, select path -> click on edit. The following screen appears



Step 4.3: In the above window, click on New->write path of Flutter bin folder in variable value -
> ok -> ok -> ok.

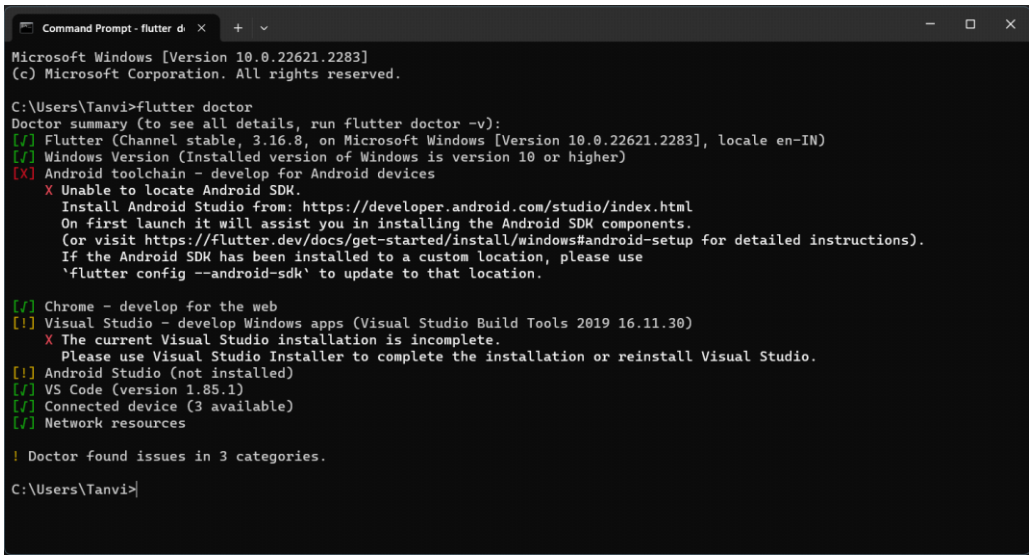


Step 5: Now, run the $ flutter command in command prompt.

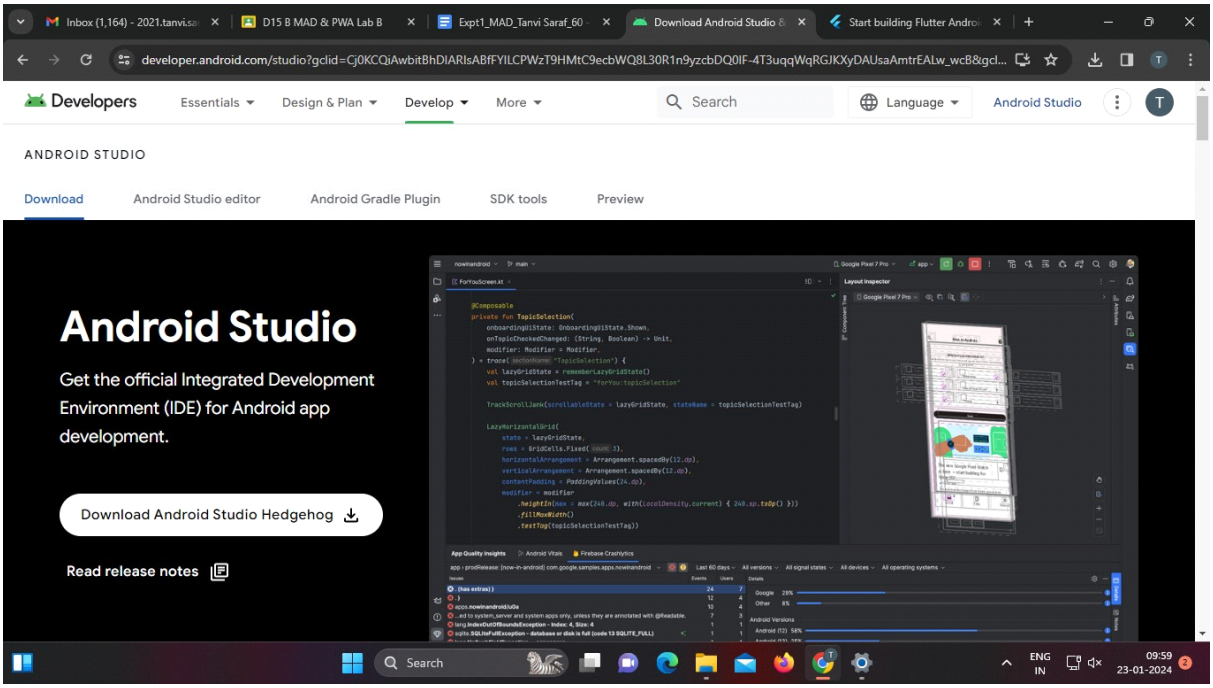


Now, run the $ flutter doctor command. This command checks for all the requirements of Flutter app development and displays a report of the status of your Flutter installation.

Step 6: When you run the above command, it will analyze the system and show its report, as shown in the below image. Here, you will find the details of all missing tools, which required to run Flutter as well as the development tools that are available but not connected with the device.

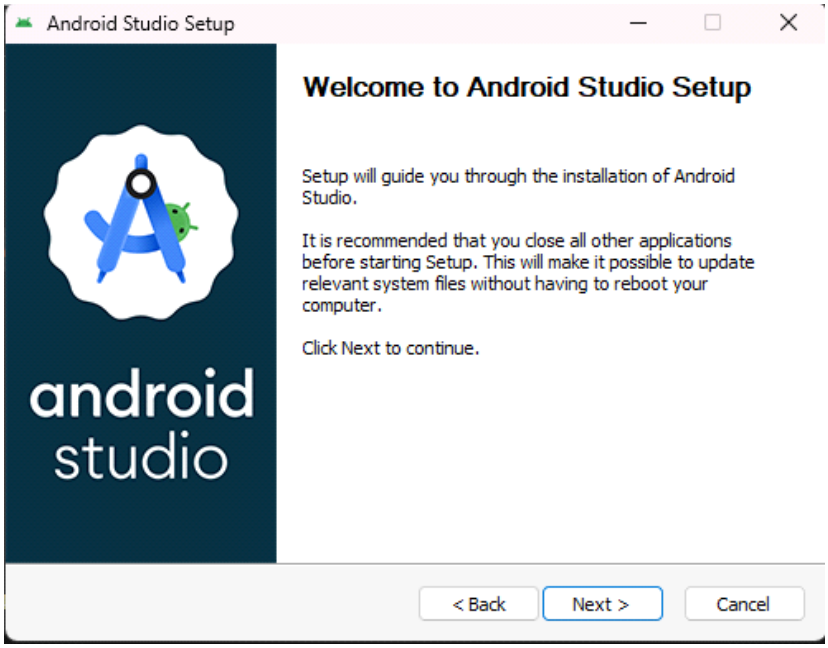


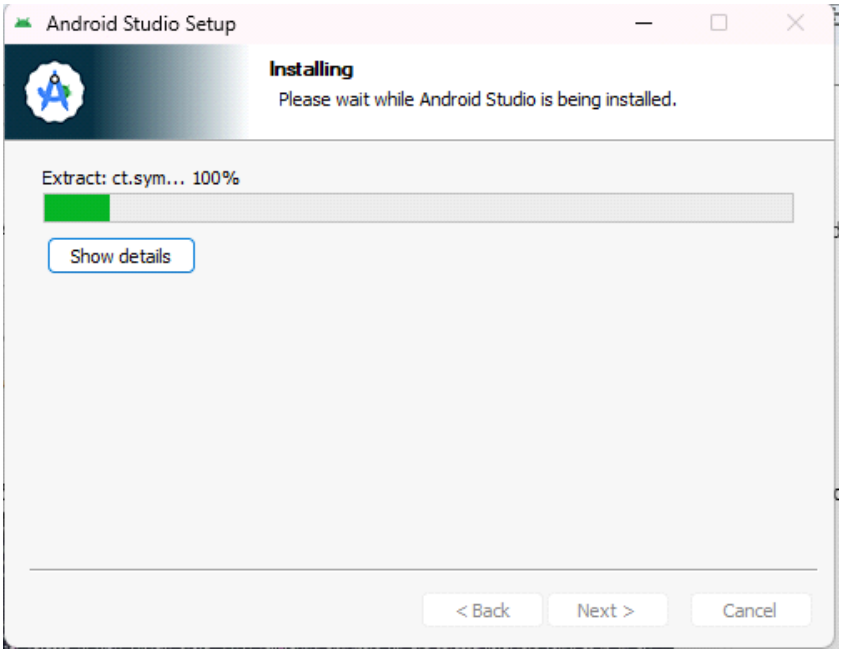
Step 7: Install the Android SDK. If the flutter doctor command does not find the Android SDK tool in your system, then you need first to install the Android Studio IDE. To install Android Studio IDE, do the following steps.



Step 7.1: Download the latest Android Studio executable or zip file from the official site.

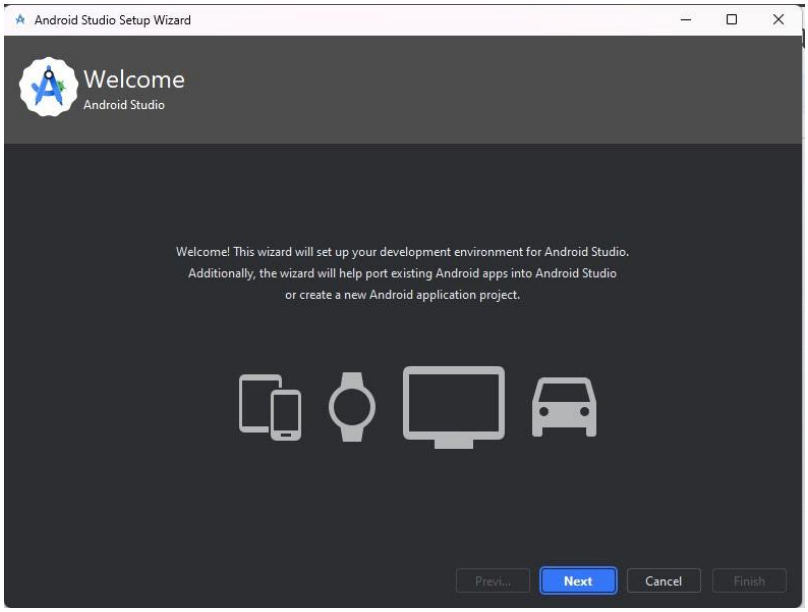
Step 7.2: When the download is complete, open the .exe file and run it. You will get the following dialog box.

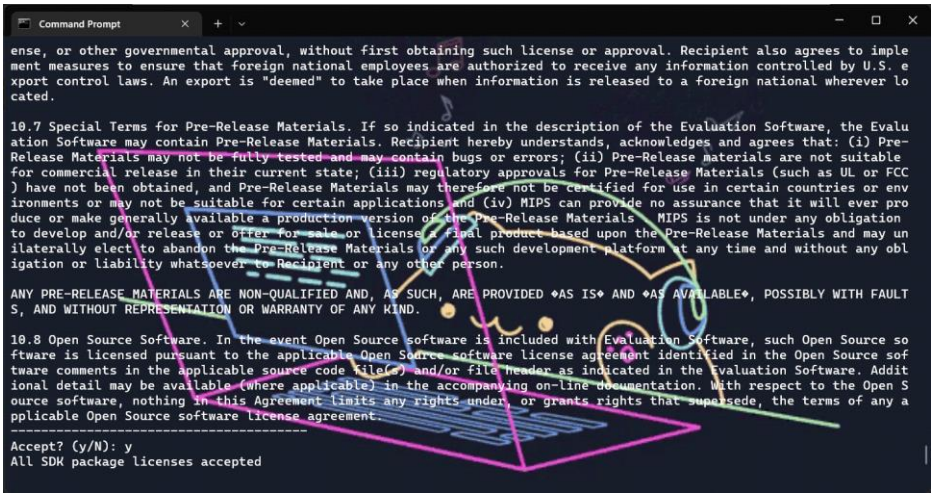




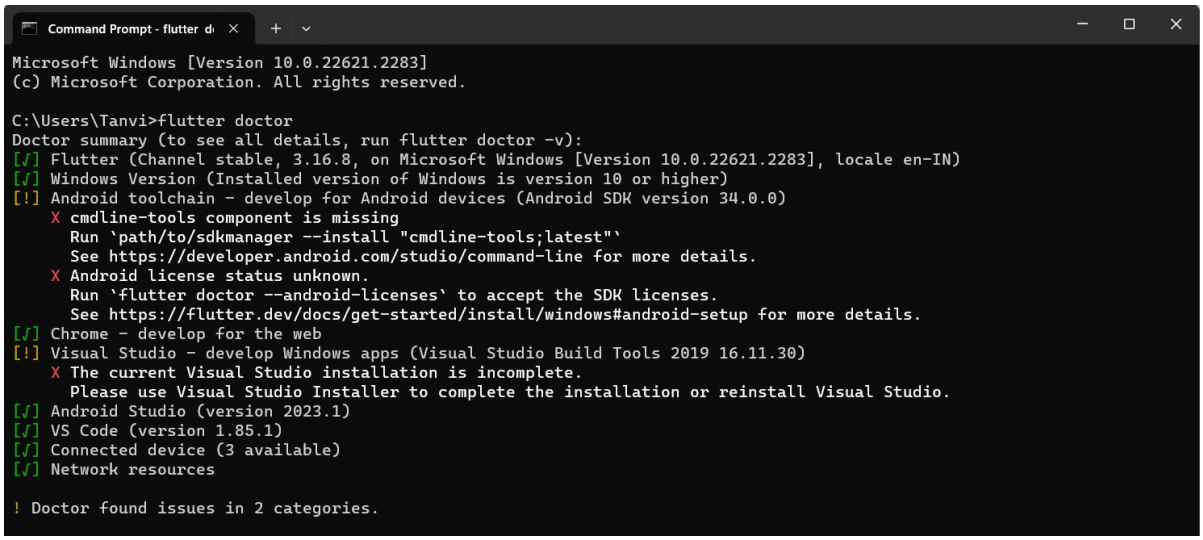
Step 7.3: Follow the steps of the installation wizard. Once the installation wizard completes, you will get the following screen.

Step 7.4: 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.



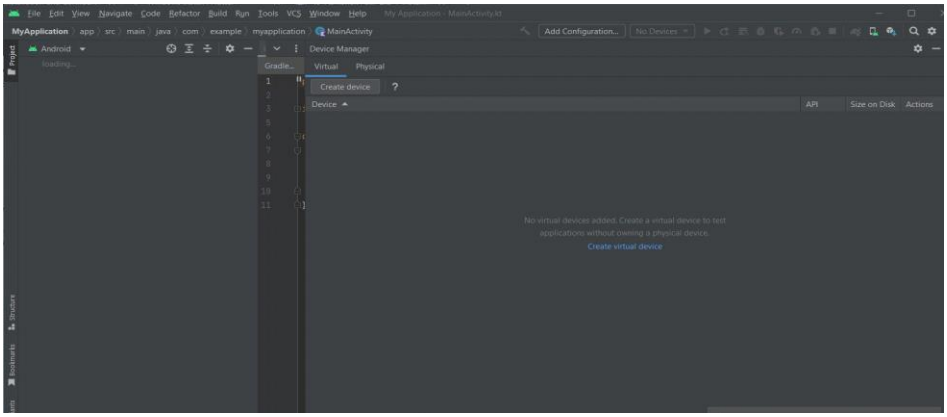


Step 7.5: run the $ flutter doctor command and Run flutter doctor --android-licenses command.

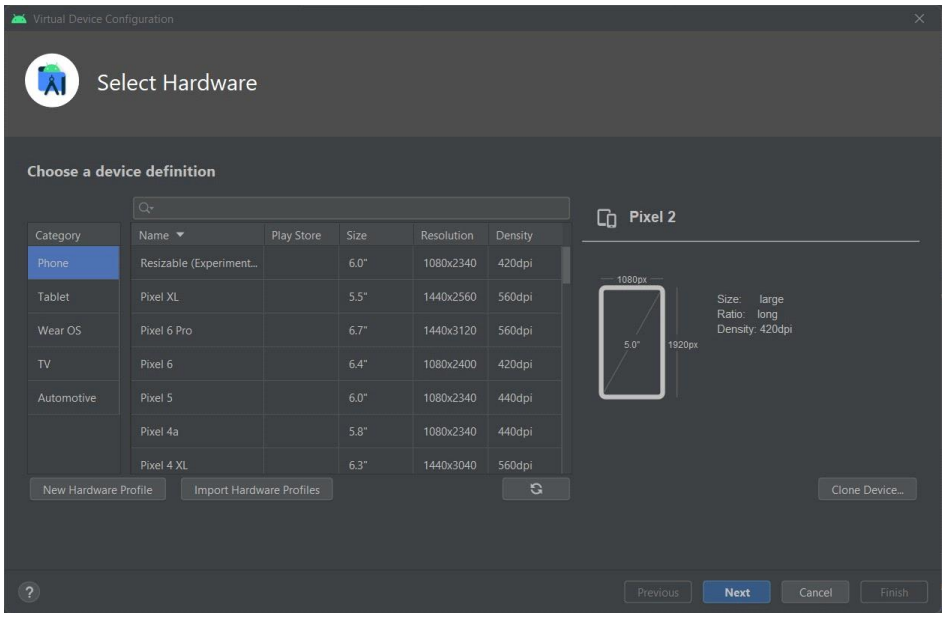


Step 8: Next, you need to set up an Android emulator. It is responsible for running and testing the Flutter application.

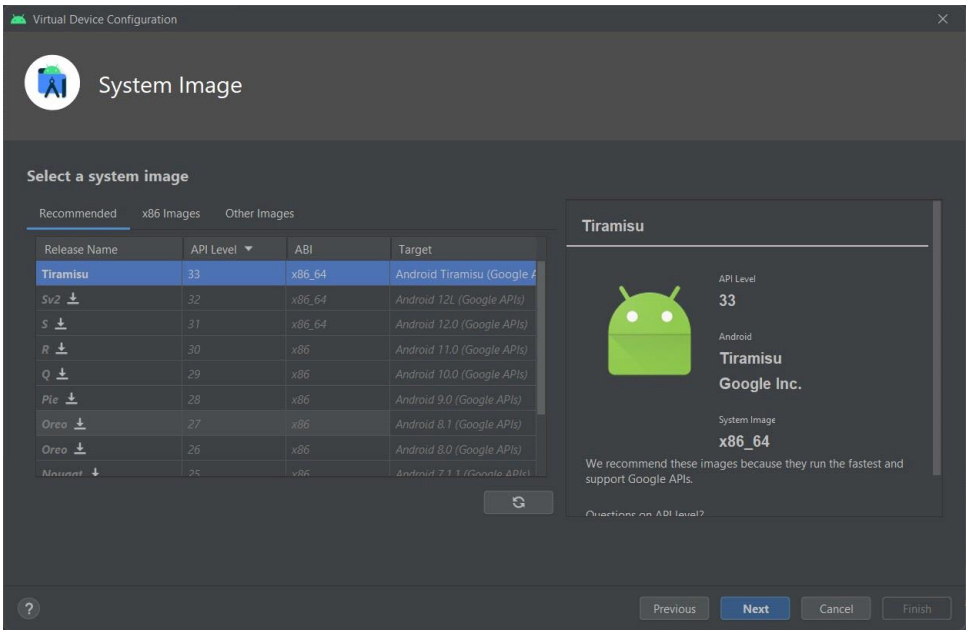
Step 8.1: To set an Android emulator, go to Android Studio > Tools > Android > AVD Managerand select Create Virtual Device. Or, go to Help->Find Action->Type Emulator in the search box. You will get the following screen.



Step 8.2: Choose your device definition and click on Next.

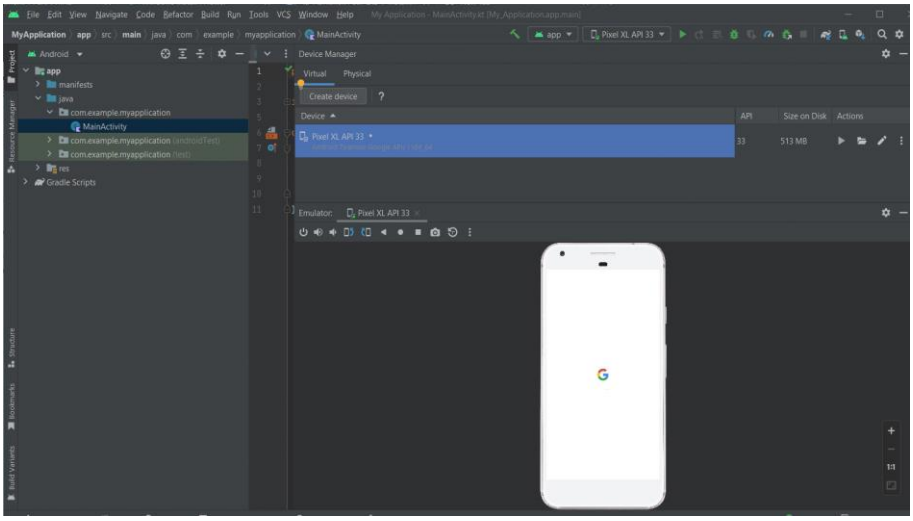


Step 8.3: Select the system image for the latest Android version and click on Next.

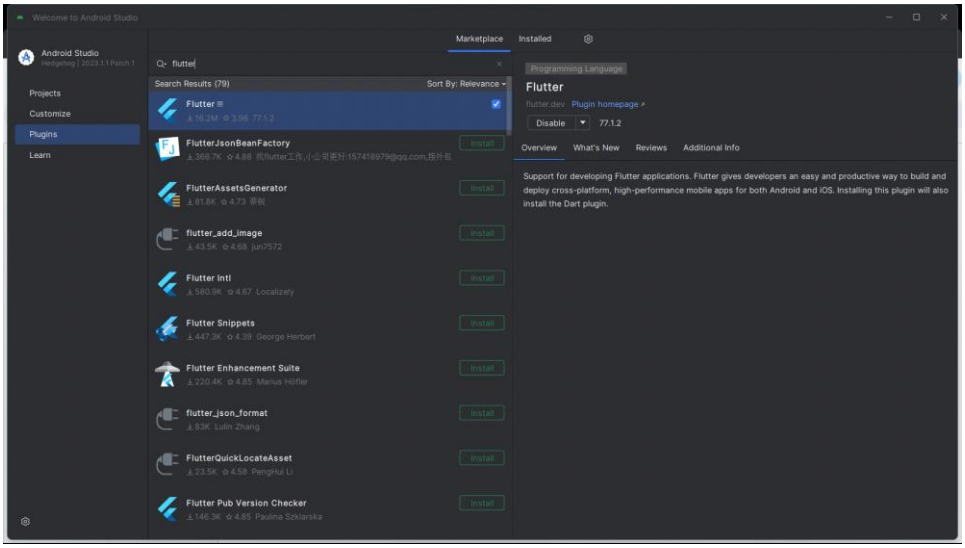


Step 8.4: Now, verify the all AVD configuration. If it is correct, click on Finish. The following screen appears.

Step 8.5: Last, click on the icon pointed into the red color rectangle. The Android emulator displayed as below screen.



Step 9: Now, install Flutter and Dart plugin for building Flutter application in Android Studio. These plugins provide a template to create a Flutter application, give an option to run and debug Flutter application in the Android Studio itself. Do the following steps to install these plugins.



Step 9.1: Open the Android Studio and then go to File->Settings->Plugins.

Step 9.2: Now, search the Flutter plugin. If found, select Flutter plugin and click install. When you click on install, it will ask you to install Dart plugin as below screen. Click yes to proceed.

Step 9.3: Restart the Android Studio.

Conclusion:

In this experiment, we mastered the essential installation steps. We started by installing Flutter on Windows and adding its folder path to the system's environment variables. Next, we installed Android Studio, adjusted SDK Manager settings, and seamlessly integrated Flutter and Dart plugins. This systematic process ensured the successful achievement of our objectives in the experiment.Now we are all set to start building cross platform application as we have all the required installations and required for it.