Experiment 1

Experiment No 1 **1: Installation and Configuration of Flutter Environment.**	
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CLASS	**D15-B**
SUBJECT	**MAD & PWA Lab**
LO-MAPPED	

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 for building natively compiled applications for mobile, web, and desktop from a single codebase. Flutter enables developers to use a single programming language, Dart, to create applications for multiple platforms, streamlining the development process and reducing the need for separate codebases for iOS and Android.

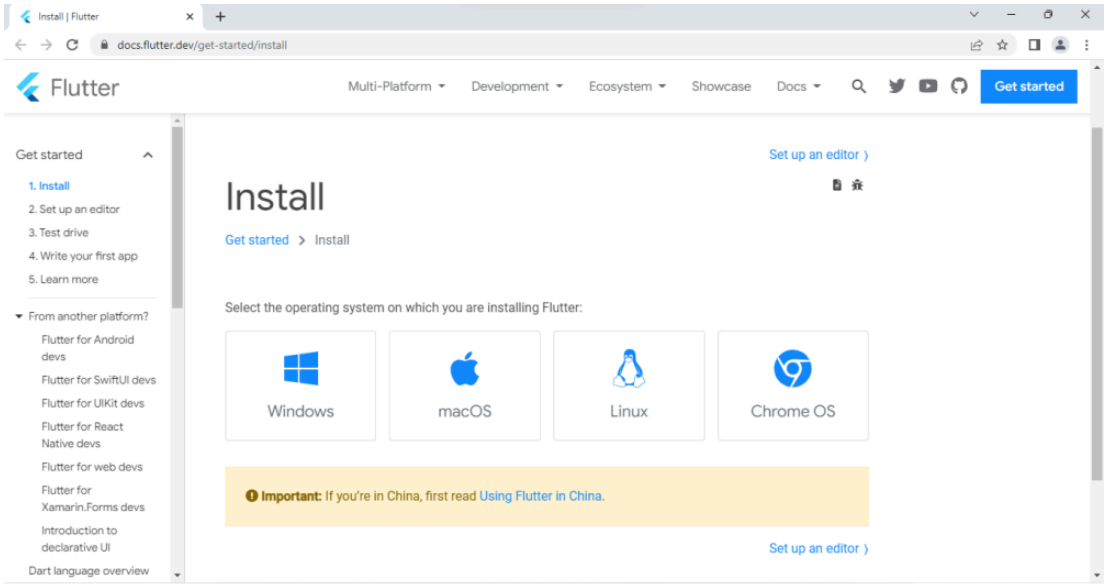
Key features of Flutter include:

1. **Hot Reload**: Developers can make changes to the code and see the results in real-time without restarting the application. This feature accelerates the development process and makes it easier to experiment with different UI elements.
2. **Widgets:** Flutter applications are built using a reactive framework composed of widgets. Widgets are reusable building blocks that help create the user interface. Flutter provides a rich set of pre-designed widgets for common UI elements and allows developers to create custom widgets.
3. **Single Codebase:** With Flutter, developers can write a single codebase that can be deployed on multiple platforms, including iOS, Android, web, and desktop. This can save time and resources compared to developing separate codebases for each platform.
4. **High Performance:** Flutter compiles to native ARM code, providing high performance that is comparable to natively developed applications. This is achieved through the use of the Skia graphics engine.
5. **Expressive UI:** Flutter allows developers to create highly customized and visually appealing user interfaces. The framework provides extensive support for animations and allows for pixel-perfect designs.
6. **Community and Ecosystem:** Flutter has a growing and active community of developers, which means there is a wealth of resources, plugins, and packages available to enhance the development process.

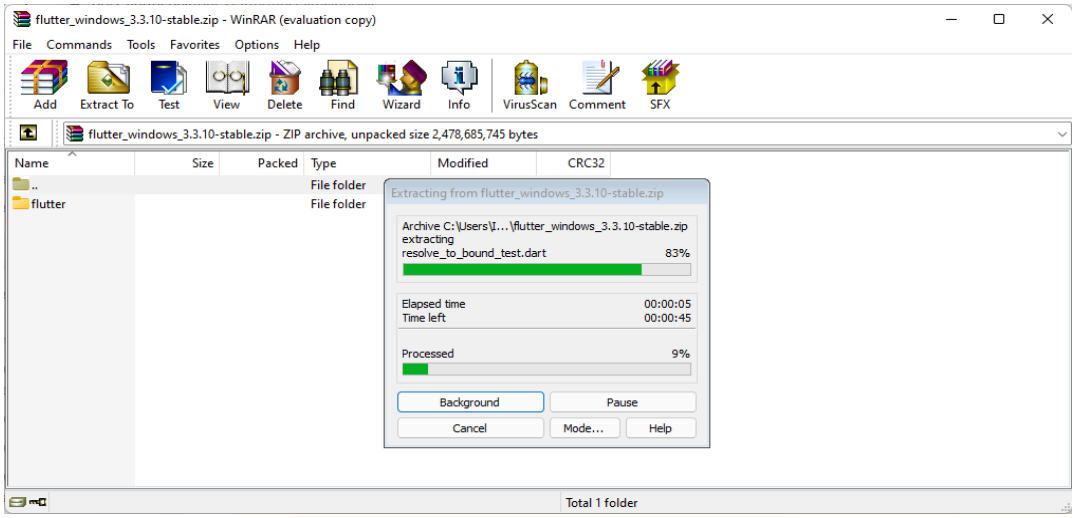
Flutter has gained popularity for its efficiency, flexibility, and ability to create visually appealing and high-performance applications across different platforms.

Flutter Installation:

Step 1: Install the Flutter SDK Download the Flutter Software Development Kit from the official website for Windows.



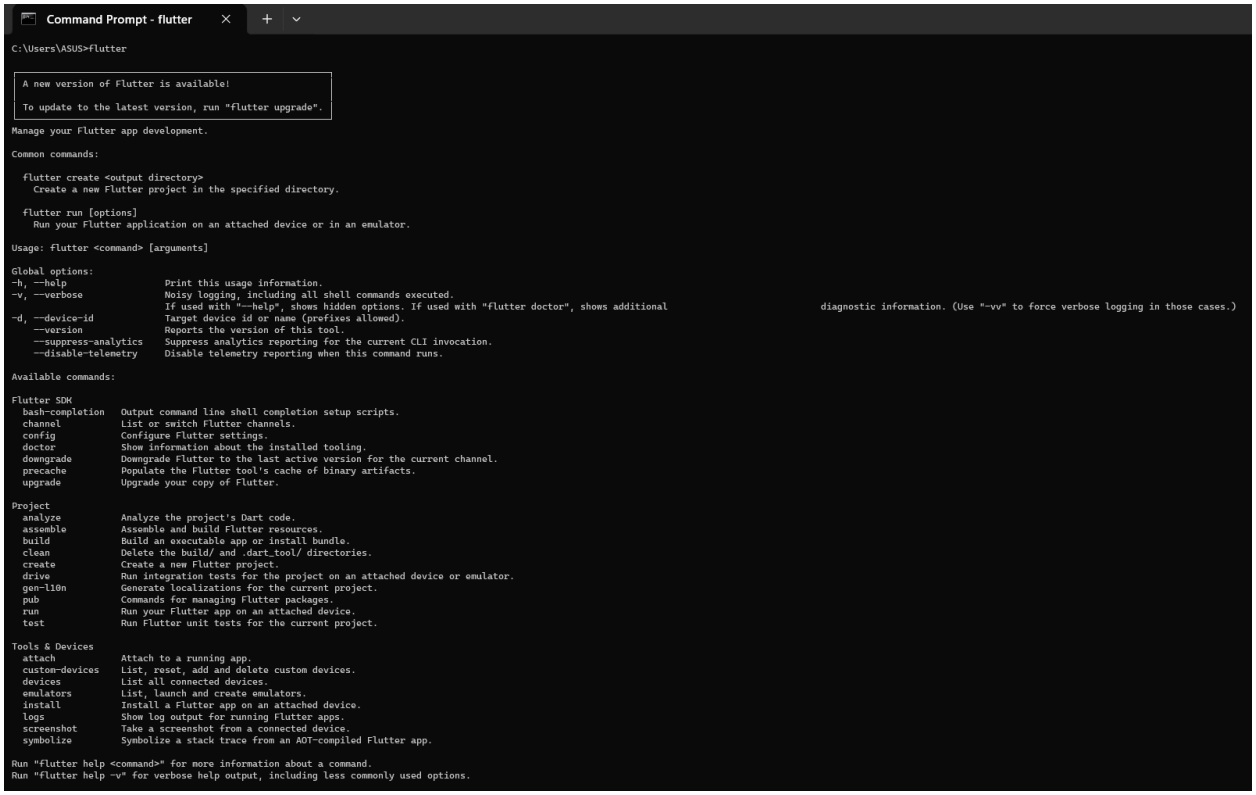
Step 2: Once the download is complete extract the zip file and place it in the desired folder.



Step 3: To run the Flutter command in the 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 4: Select the Path -> click on Edit and add the path to the Flutter bin folder.

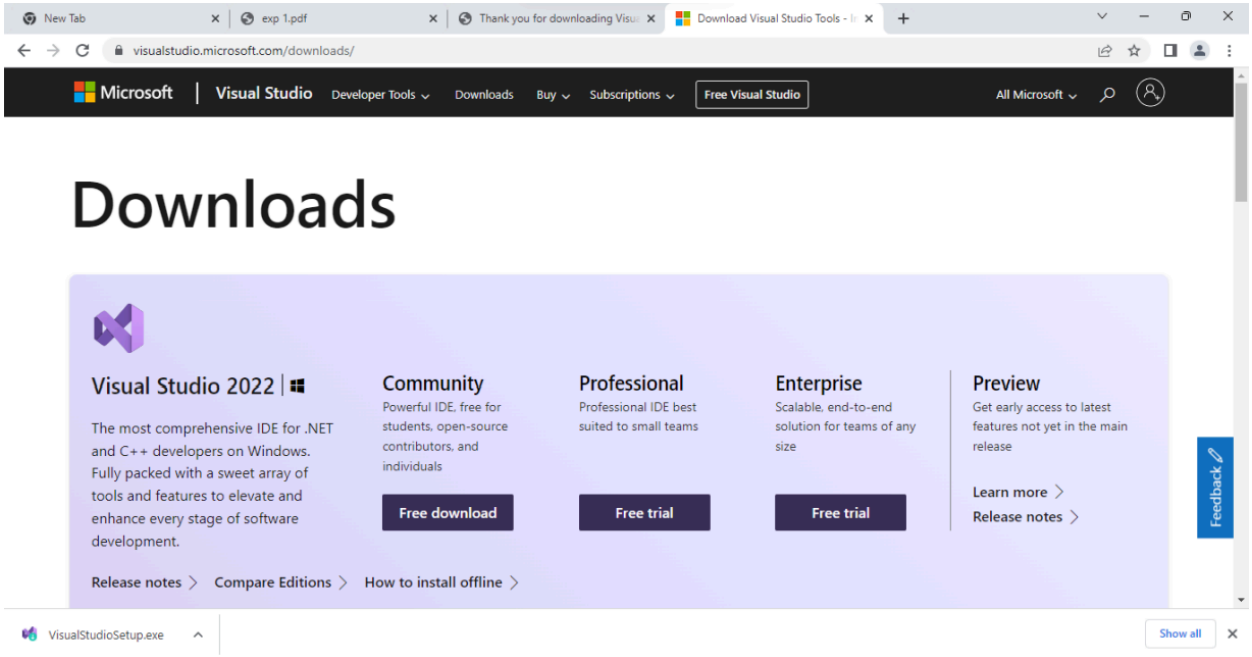
Step 5: Run the flutter command in the Command Prompt.

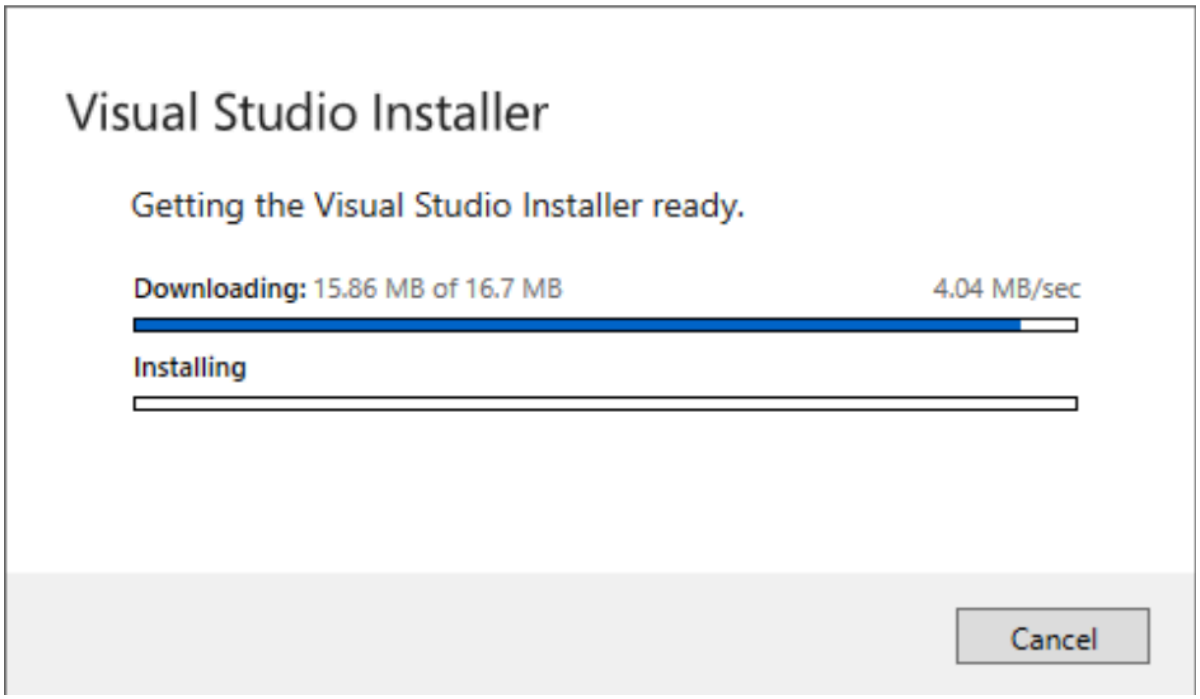


Also, run the flutter doctor command. This command checks for all the requirements of Flutter app development and displays a report of the status of your Flutter installation.

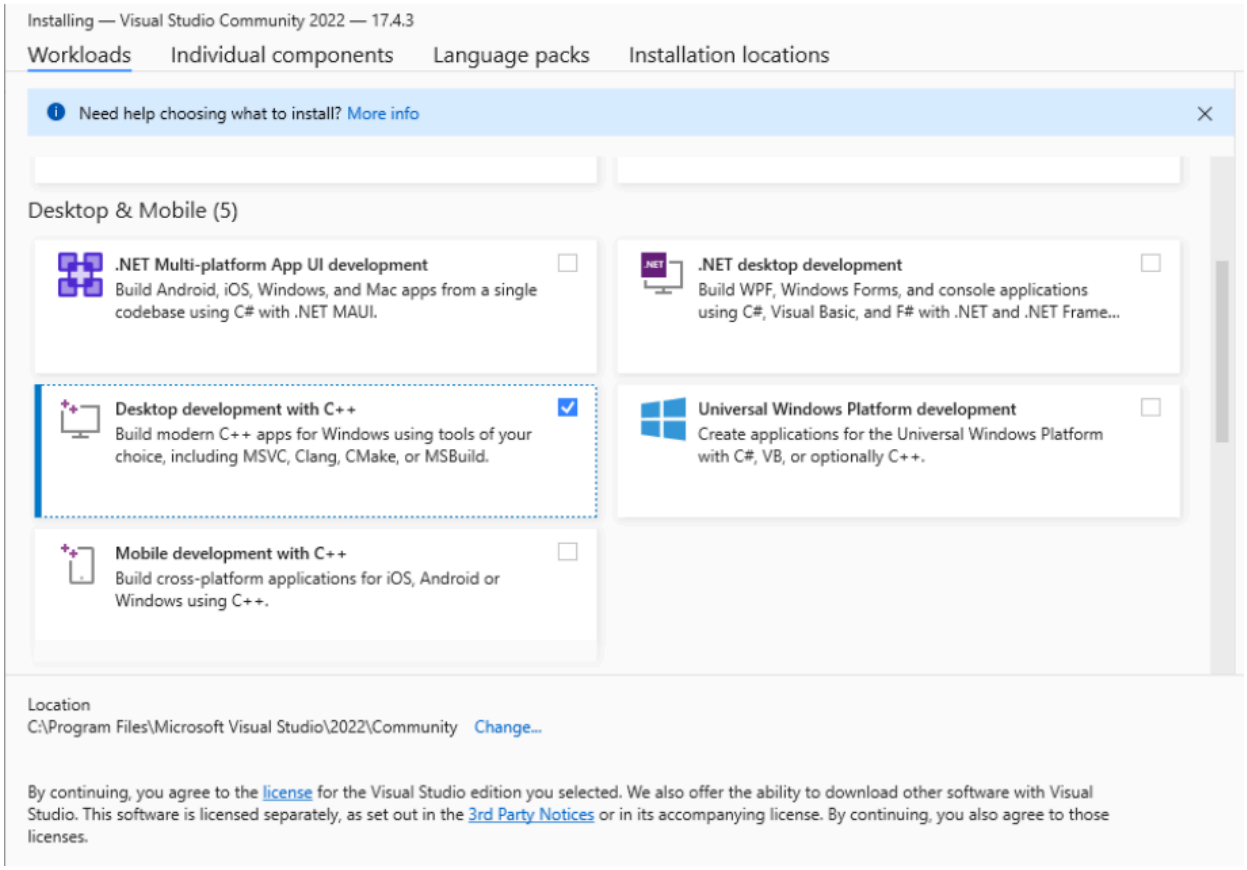
Step 6: Now we will resolve all the issues and install and add the missing tools required for Flutter app development.

Step 6.1: Download and install Visual Studio.



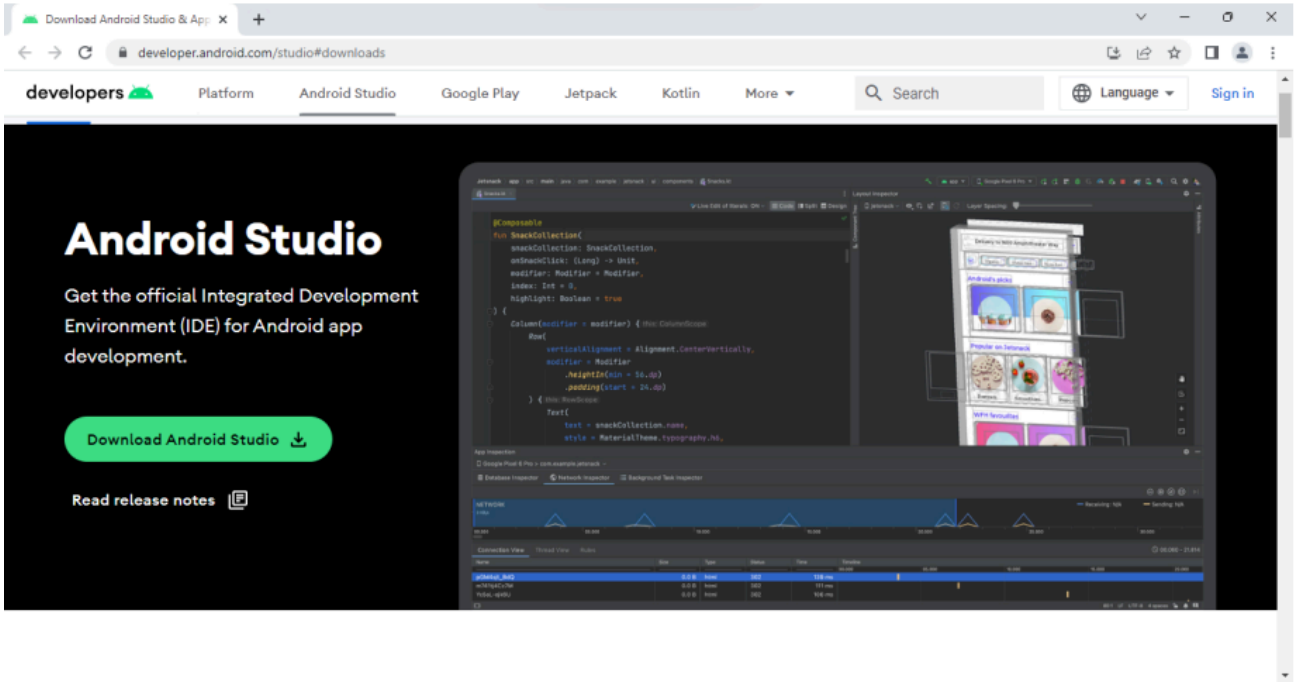


While Installing Visual Studio, make sure to select Desktop development with C++.



We can see that the Visual Studio issue has been solved.

Step 6.2: 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.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developers
Platform
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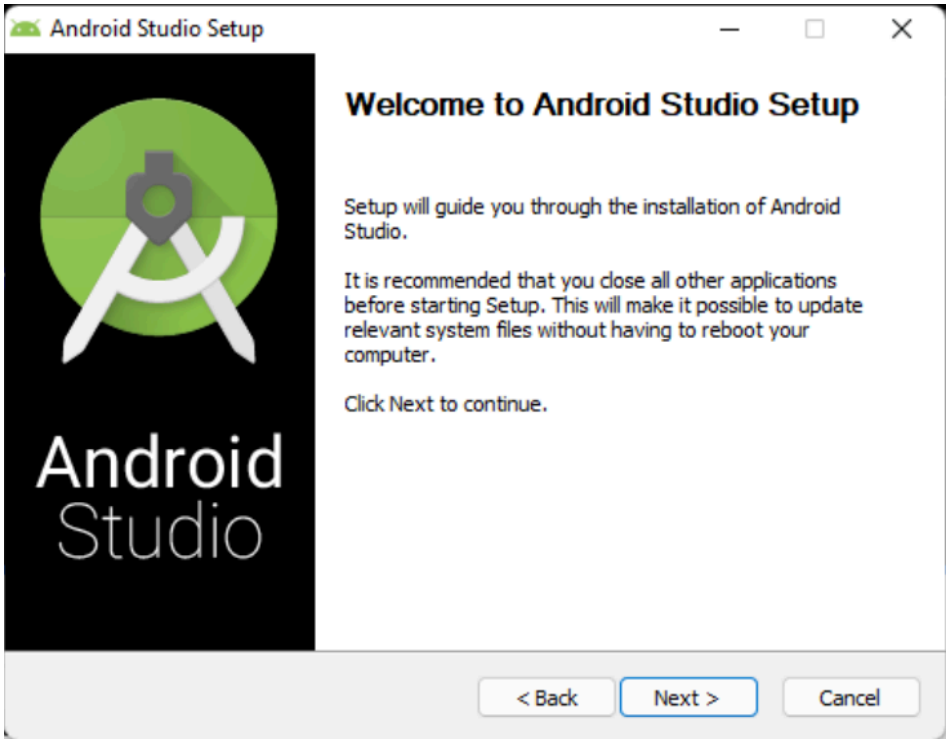
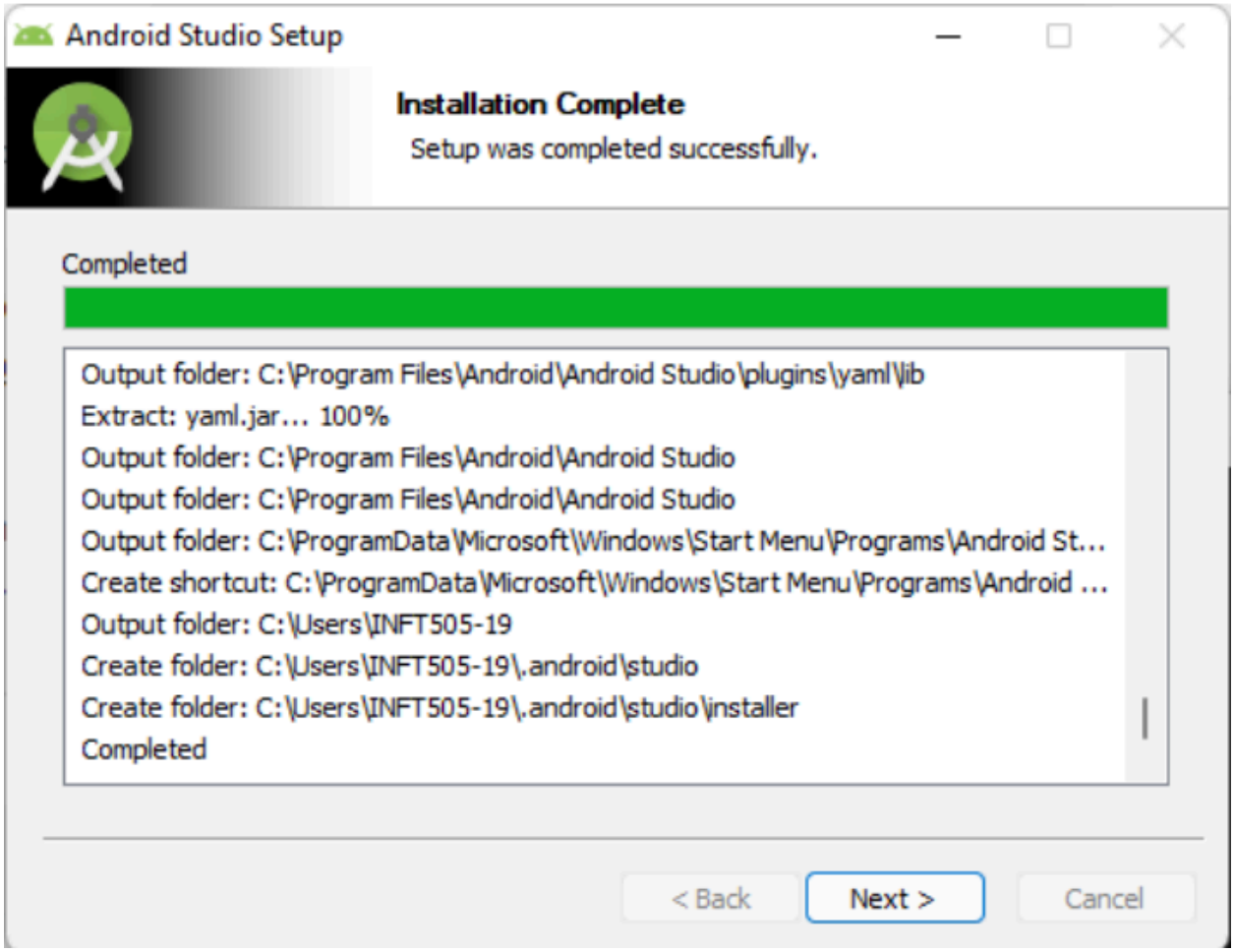
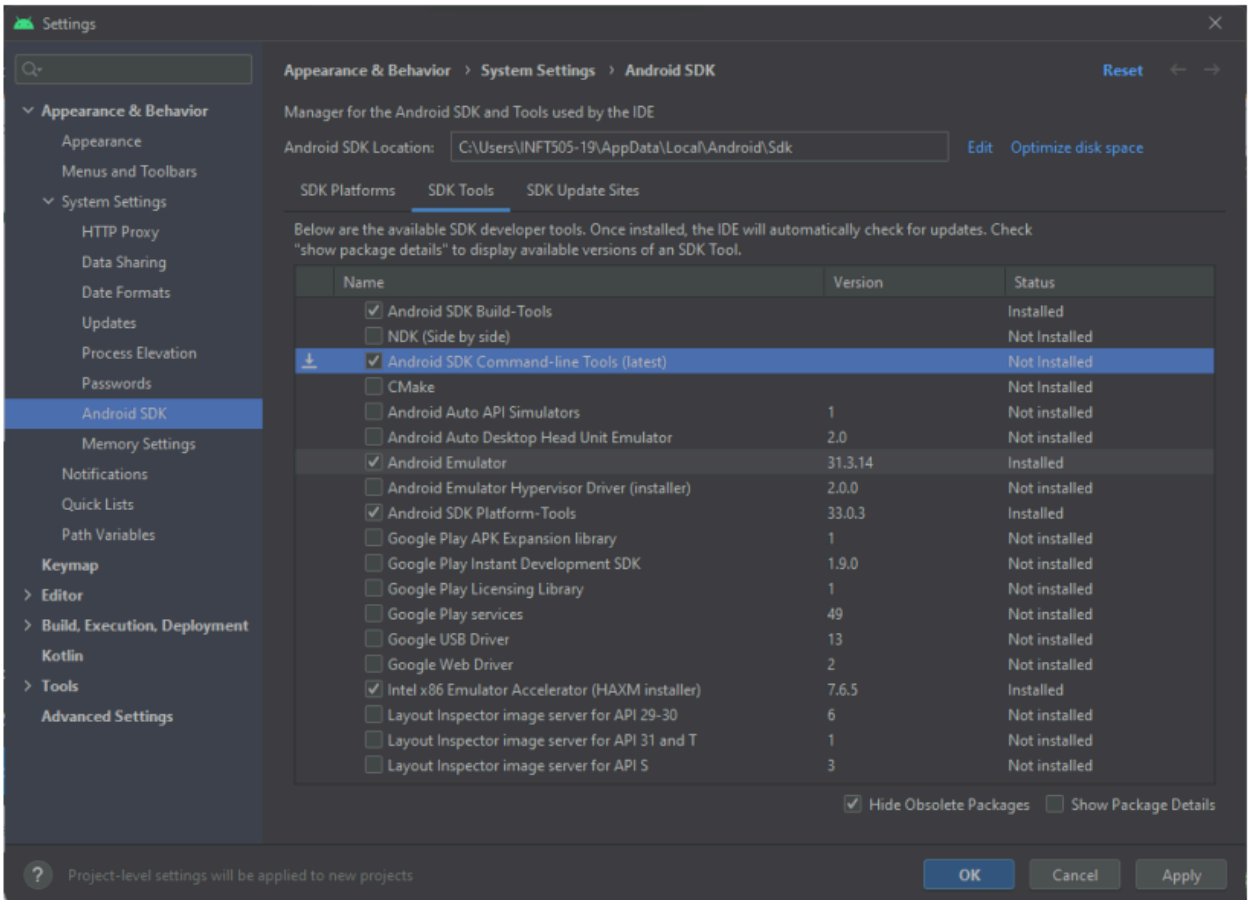

Android Studio Setup
Welcome to Android Studio Setup
Setup will guide you through the installation of Android Studio.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Android Studio
< Back
Next >
Cancel

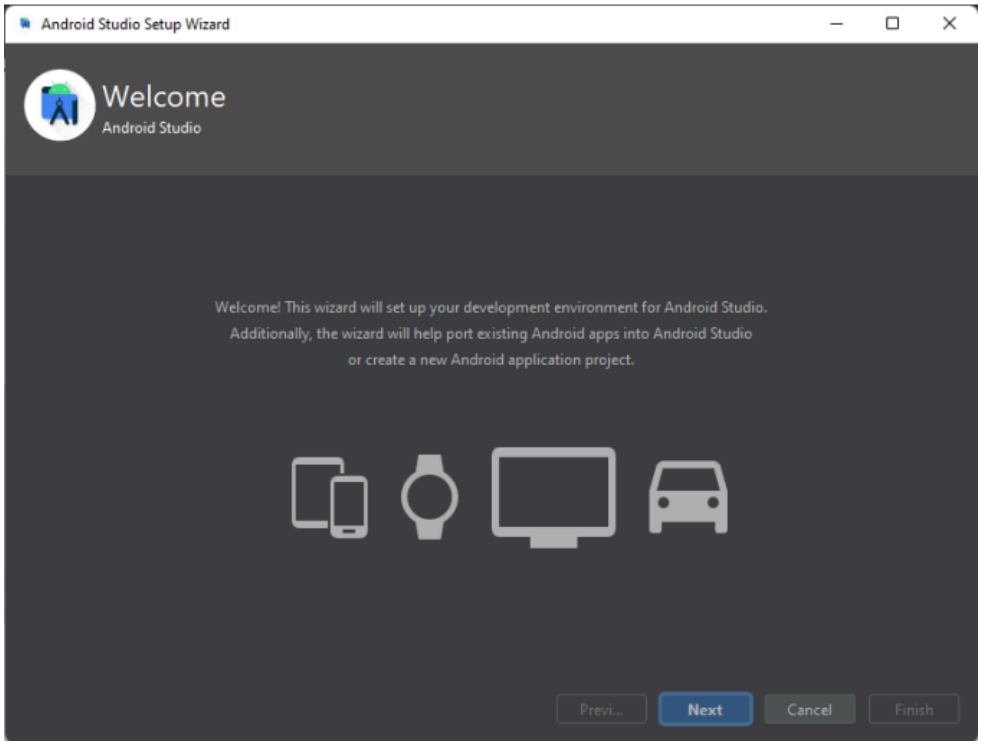


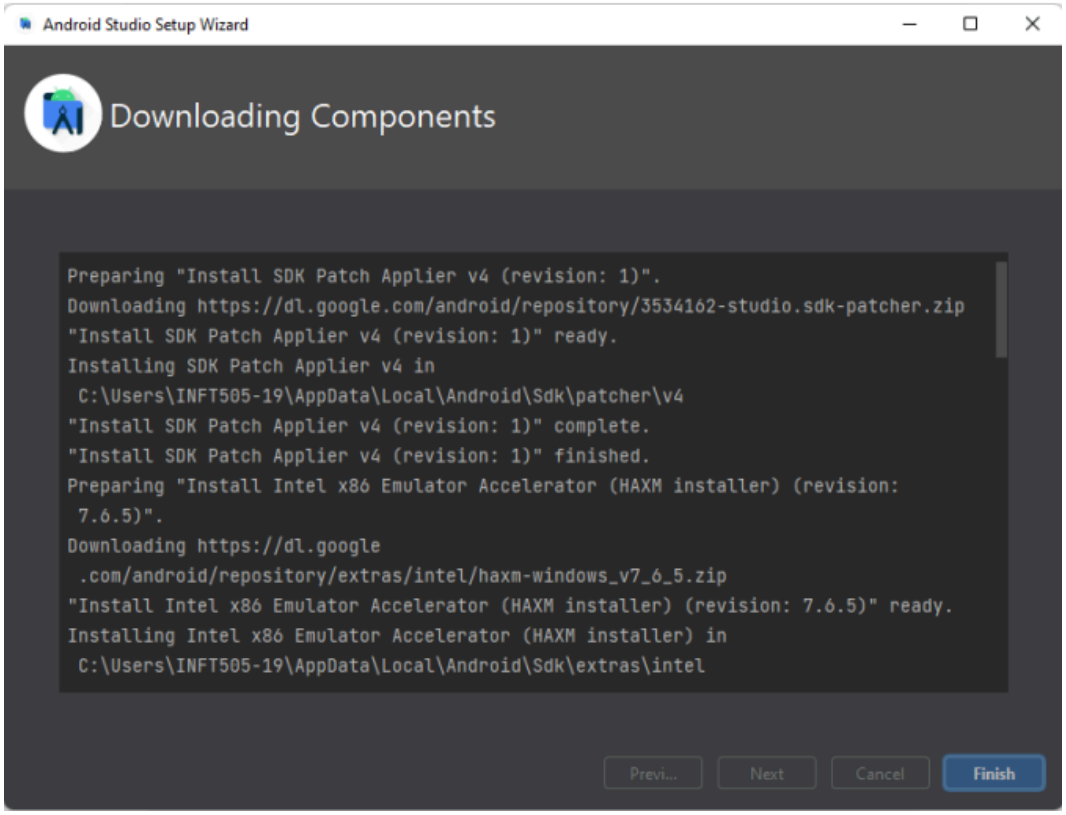
Once the android Studio is installed, Download the Android SDK Command-Line Tools present in the Android SDK section in Android Studio.



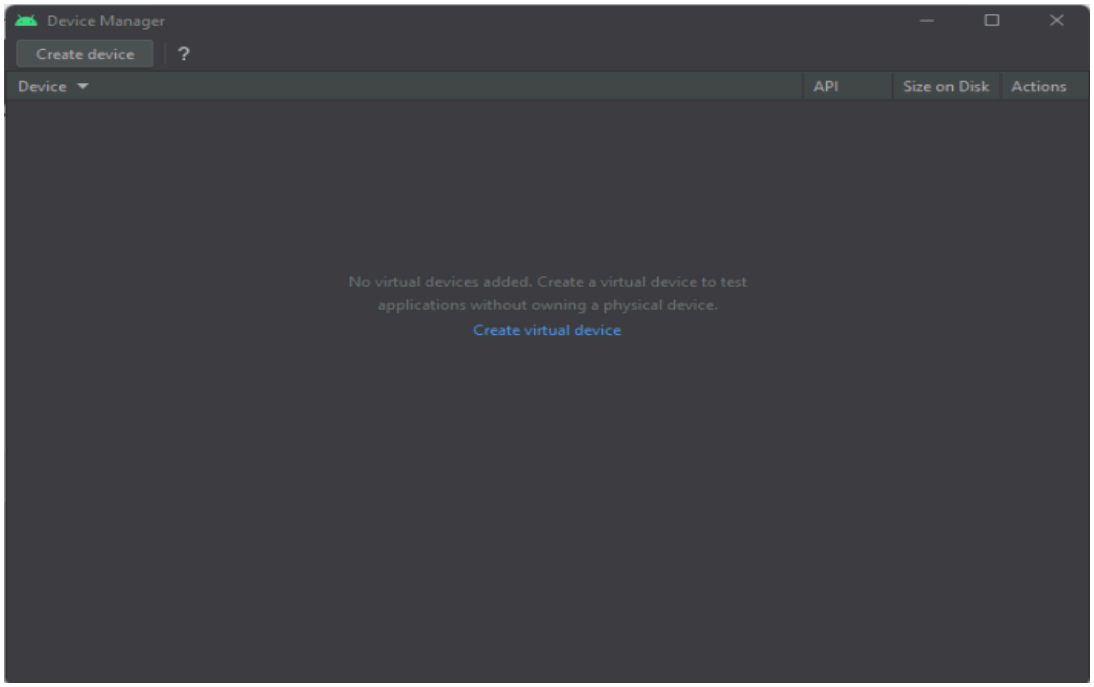
Run the flutter doctor command and run flutter doctor –android licenses to accept all the required licenses.

Step 7: Next, you need to set up an Android emulator. It is responsible for running and testing the Flutter application.

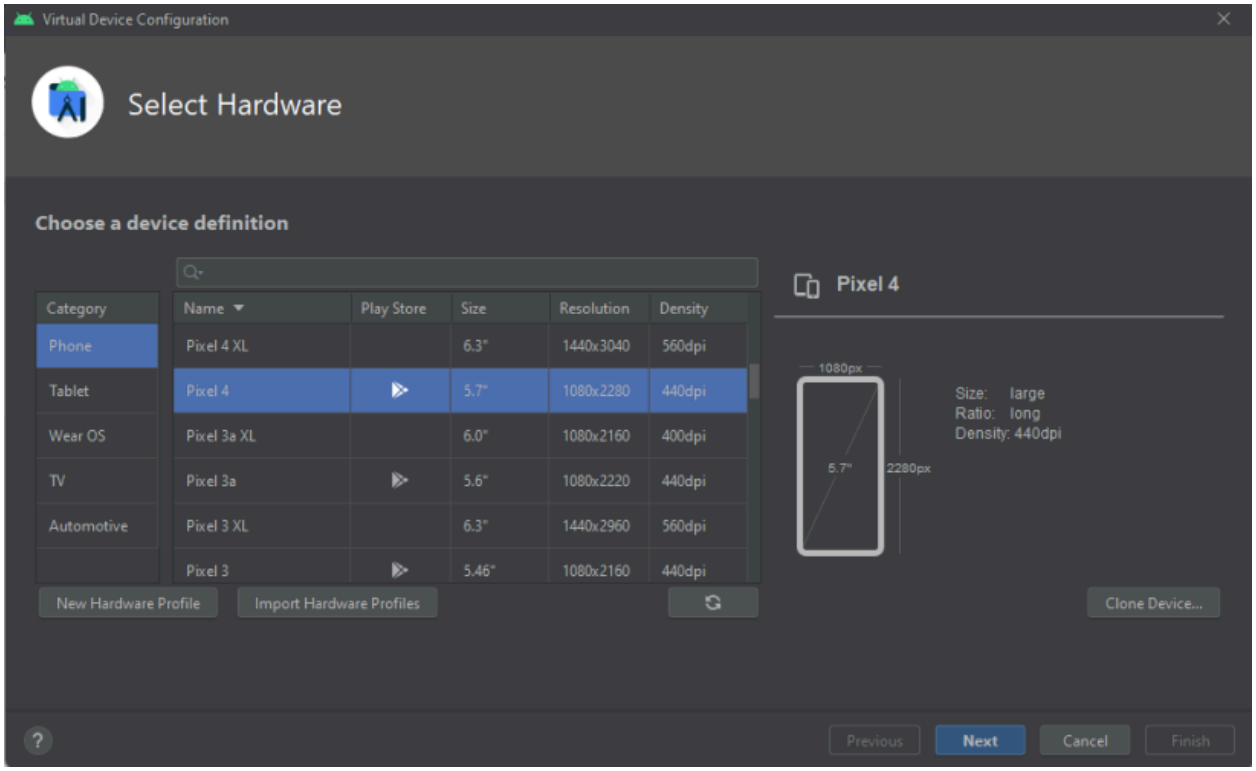

Android Studio Setup Wizard
Welcome
Android Studio
Welcome! This wizard will set up your development environment for Android Studio.
Additionally, the wizard will help port existing Android apps into Android Studio
or create a new Android application project.
Previ...
Next
Cancel
Finish


Android Studio Setup Wizard
Downloading Components
Preparing "Install SDK Patch Applier v4 (revision: 1)".
Downloading https://dl.google.com/android/repository/3534162-studio.sdk-patcher.zip
"Install SDK Patch Applier v4 (revision: 1)" ready.
Installing SDK Patch Applier v4 in
C:\Users\INFT505-19\AppData\Local\Android\Sdk\patcher\v4
"Install SDK Patch Applier v4 (revision: 1)" complete.
"Install SDK Patch Applier v4 (revision: 1)" finished.
Preparing "Install Intel x86 Emulator Accelerator (HAXM installer) (revision:
7.6.5)".
Downloading https://dl.google
.com/android/repository/extras/intel/haxm-windows_v7_6_5.zip
"Install Intel x86 Emulator Accelerator (HAXM installer) (revision: 7.6.5)" ready.
Installing Intel x86 Emulator Accelerator (HAXM installer) in
C:\Users\INFT505-19\AppData\Local\Android\Sdk\extras\intel
Previ...
Next
Cancel
Finish

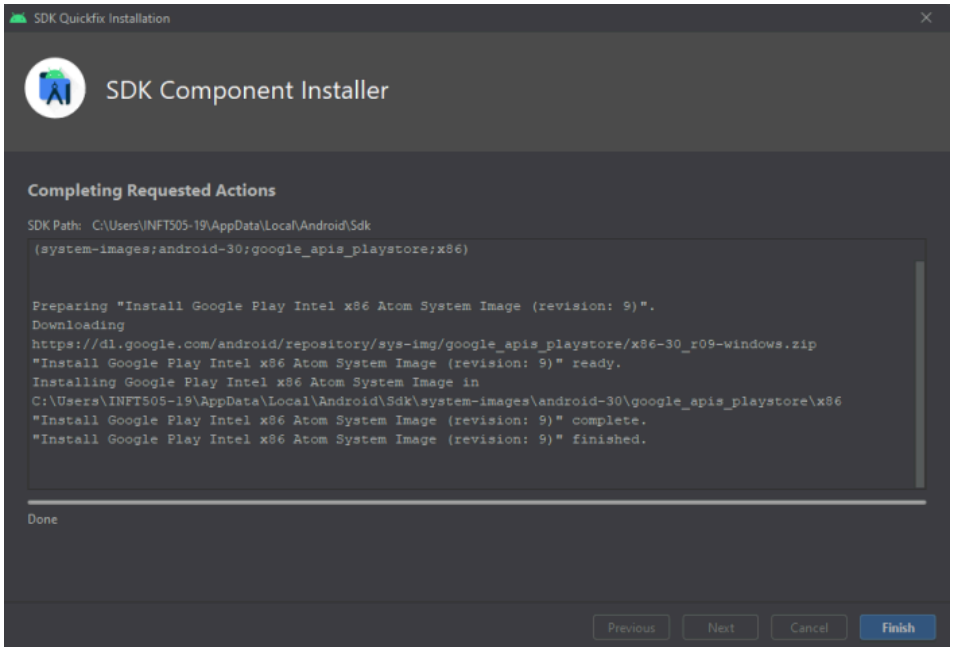
Step 7.1: To set an Android emulator, go to Android Studio > Tools > SDK Manager and select Create Virtual Device. You will get the following screen:



Step 7.2: Choose your device definition and click on Next.



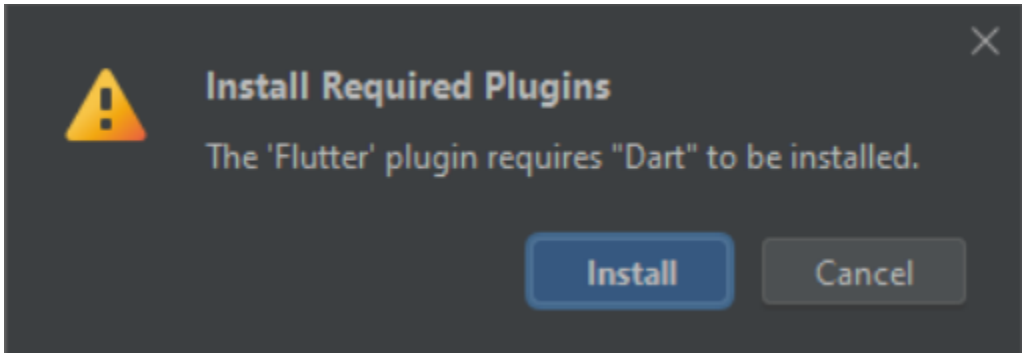
Step 7.3: Select and download the latest operating system for our Emulator and click on Finish.



Step 7.4: Click on the Run button and the following screen will be displayed.

Step 8: Now, install Flutter and Dart plugins for building the Flutter application in Android Studio. These plugins provide a template to create a Flutter application and give the option to run and debug the Flutter application in the Android Studio itself.

Open the Android Studio and then go to File->Settings->Plugins. Now, search the Flutter plugin. If found, select the Flutter plugin and click install. When you click on install, it will ask you to install the Dart plugin as shown below screen. Click Install to proceed.



Finally when all these Steps are followed restart the Android Studio once and then your Flutter environment is successfully configured.

Conclusion: In conclusion, the installation and configuration of the Flutter environment are crucial steps that set the foundation for efficient and seamless app development. By following the platform-specific installation instructions provided by Flutter, developers can ensure they have the necessary tools and dependencies in place.