

**Experiment No : 1**

**Aim**: Installation and Configuration of Flutter Environment.

**Theory**:**What is Flutter?**

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 allows developers to write code once and deploy it on multiple platforms, which is known as cross-platform development.

Flutter has gained popularity in the mobile app development community due to its ease of use, fast development cycle, and ability to deliver high-quality, native-like user experiences across different platforms. It has been adopted by companies and developers for building applications in various domains, including business, education, entertainment, and more.

**Key features of Flutter:**

- **Single Codebase:** Developers can write their application code once and use it for both iOS and Android platforms, reducing development time and effort.
- **Expressive UI:** Flutter provides a rich set of customizable widgets that make it easy to create complex and beautiful user interfaces. The framework also supports a hot reload feature, allowing developers to see the results of their code changes in real-time without restarting the application.
- **High Performance:** Flutter apps are compiled to native ARM code, providing high performance that is comparable to native applications. It uses the Dart programming language, which is optimized for fast execution.

**Advantages of flutter**

1. **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.
2. **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.

3. Less Development Cost: Since there are a smaller number of developers needed, the cost incurred for the development of the app also reduces.
4. 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.
5. 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, flutter 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.

### **Installation Steps :**

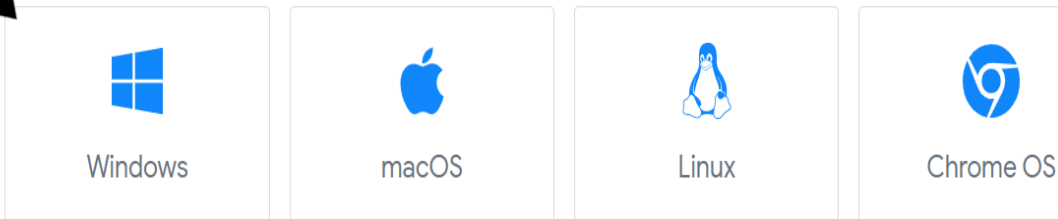
**Step 1:** Download the installation bundle of the Flutter Software Development Kit for windows. To download Flutter SDK, Go to its official website <https://docs.flutter.dev/get-started/install> , you will get the following screen.

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

# Install

[Docs](#) > [Get started](#) > [Install](#)

Select the operating system on which you are installing Flutter:



## Get the Flutter SDK

1. Download the following installation bundle to get the latest stable release of the Flutter SDK:

`flutter_windows_2.2.3-stable.zip`

For other release channels, and older builds, see the [SDK releases](#) page.

2. Extract the zip file and place the contained `flutter` in the desired installation location for the Flutter SDK (for example, `C:\Users\<your-user-name>\Documents`).

**Warning:** Do not install Flutter in a directory like `C:\Program Files\` that requires elevated privileges.

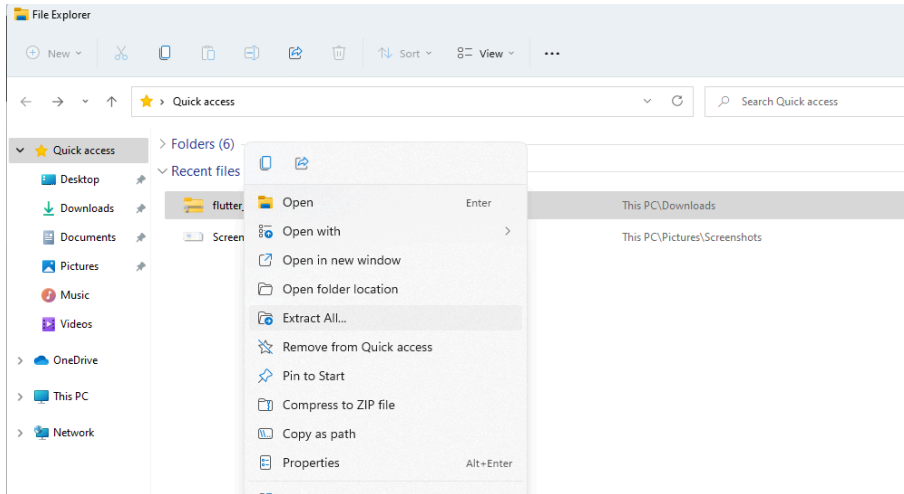
If you don't want to install a fixed version of the installation bundle, you can skip steps 1 and 2. Instead, get the source code from the [Flutter repo](#) on GitHub, and change branches or tags as needed. For example:

```
C:\src>git clone https://github.com/flutter/flutter.git -b stable
```



You are now ready to run Flutter commands in the Flutter Console.

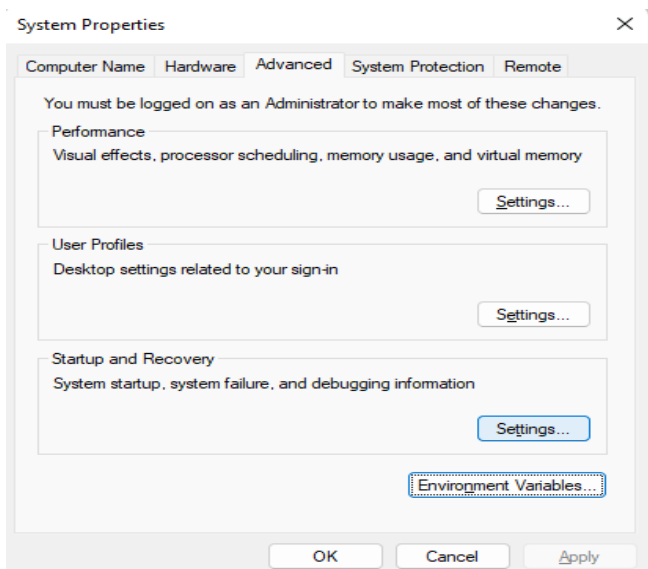
**Step 3:** When your download is complete, extract the zip file and place it in the desired installation folder or location, for example, `C:/Flutter`.



**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:

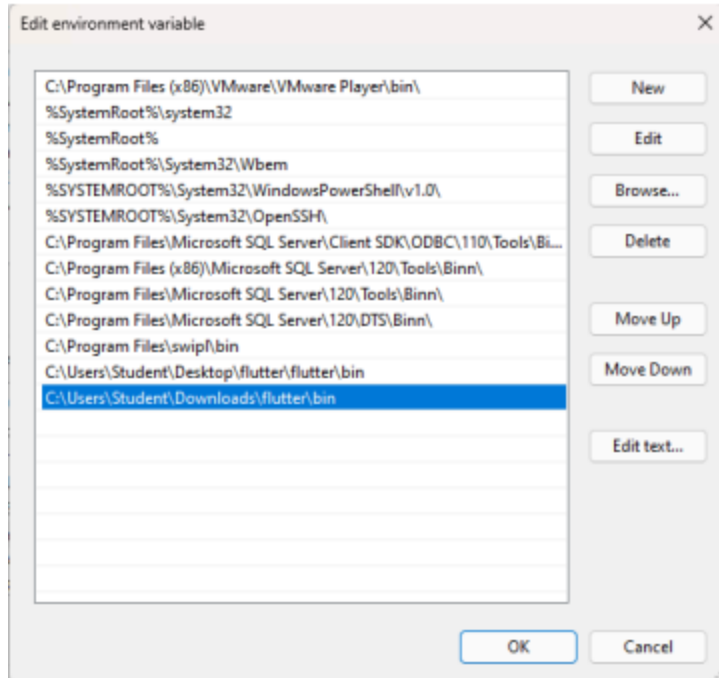
**Step 4.1:** Go to My Computer properties -> advanced tab -> environment variables. You will get the following screen.

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



**Step 4.3:** Edit environment variables . Add flutter bin path to the path .





### Step 5 : Run flutter command on cmd.

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.

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.

```
C:\Users\student>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.

Available commands:
```

```

C:\Users\student>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.16.8, on Microsoft Windows [Version 10.0.22000.2538], locale en-IN)
[✓] Windows Version (Installed version of Windows is version 10 or higher)
[X] 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
[X] 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 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.

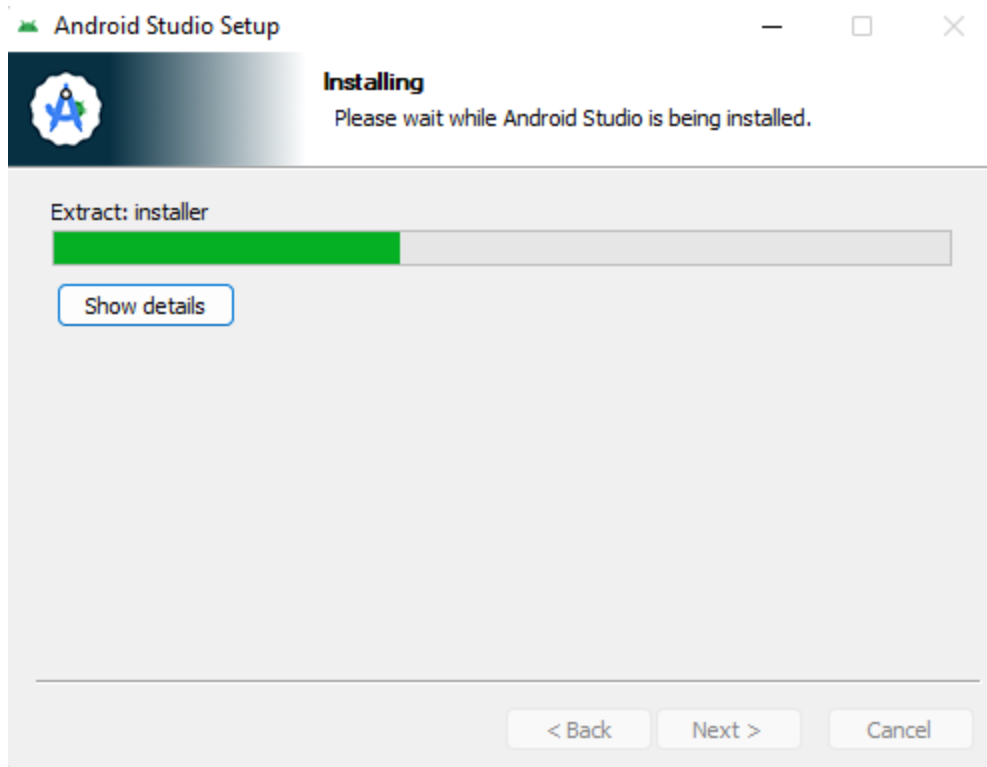
[Download](#)
[Android Studio editor](#)
[Android Gradle Plugin](#)
[SDK tools](#)
[Preview](#)

# Android Studio

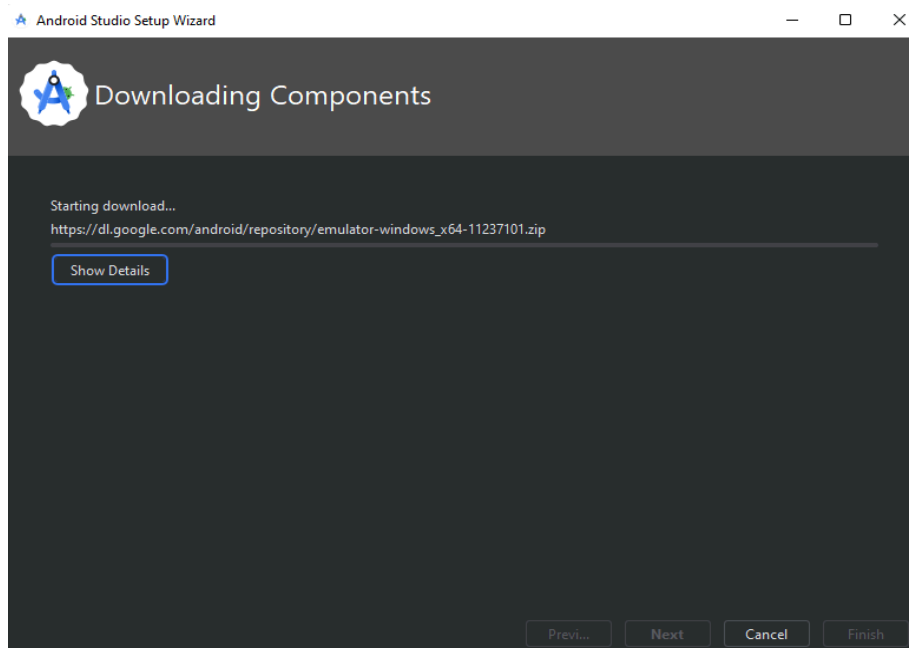
Get the official Integrated Development Environment (IDE) for Android app development.

[Download Android Studio Hedgehog](#)

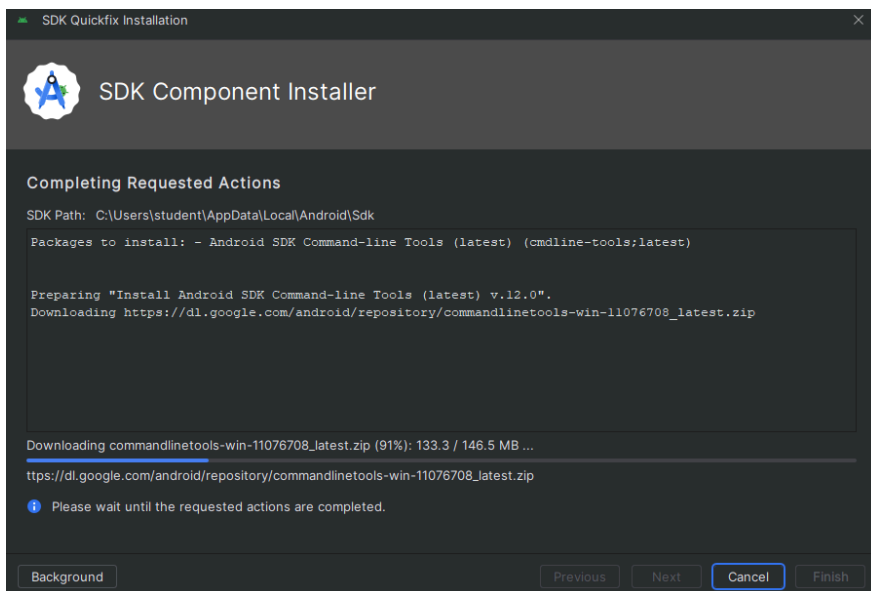
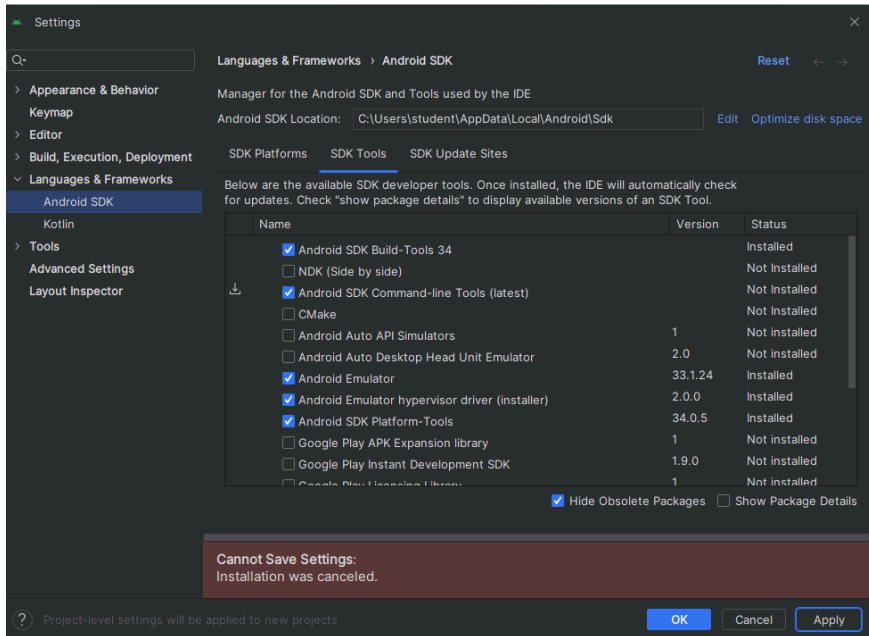
[Read release notes](#)



**Step 7.2:** Follow the steps of the installation wizard. Once the installation wizard completes, you will get the following screen.





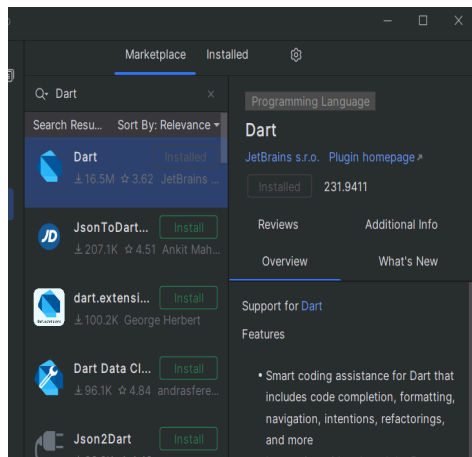
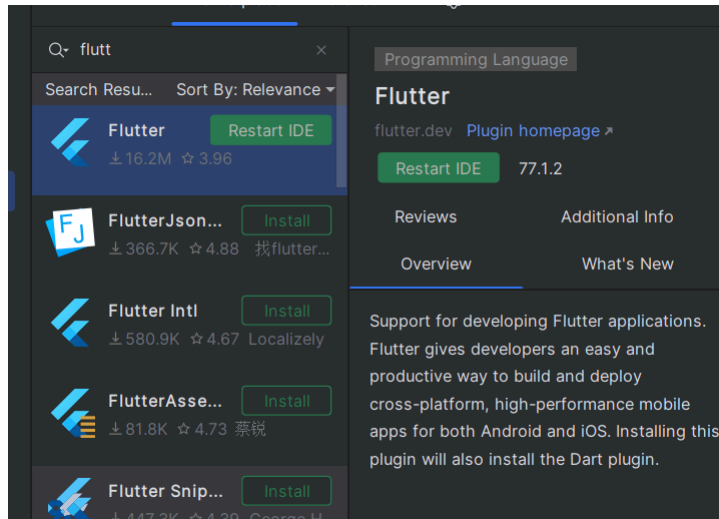


**Step 7.5:** run the \$ flutter doctor command and Run flutter doctor --android-licenses command.

```
C:\Users\student>flutter doctor --android-licenses
Warning: Failed to download any source lists! Fetch remote repository...
Warning: IO exception while downloading manifesttch remote repository...
Warning: IO exception while downloading manifesttch remote repository...
Warning: Still waiting for package manifests to be fetched remotely.
[=====] 100% Computing updates...
All SDK package licenses accepted.
```

**Step 8 :** 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 8.1:** Open android studio file->setting ->plugins.



**Step 8 :** Click yes and restart the android studio.

### **Conclusion :**

In this experiment we understood and implemented installation steps of Flutter and Android Studio in the Windows operating system. On downloading Flutter we copied the extracted flutter bin path and added it to the environment variable of our system. Then we installed Android Studio. Next we edited some settings from the SDK manager. Then we installed Flutter and Dart plugins in Android studio. In this way we have successfully installed Flutter and Android Studio and completed experiment 100%.