TIERS LIMITED SUMMER INTERNSHIP 2024

MOBILE APP DEVELOPMENT

INTRODUCTION TO FLUTTER

AND DART

CLASS # 1

Introduction to Flutter

Flutter is a popular open-source framework developed by Google for building high-performance, natively compiled applications for mobile (iOS and Android), web, and desktop from a single codebase. It empowers developers to create visually attractive and responsive user interfaces with ease. It uses the Dart programming language, also developed by Google, which is known for its simplicity and performance.

1. Why Choose Flutter?

Flutter stands out among other frameworks for several reasons:

- Single Codebase for Multiple Platforms
- Fast Development
- Expressive and Flexible UI
- High Performance
- Strong Community and Ecosystem

2. Popular Apps Built with Flutter

Several well-known applications have been built using Flutter, showcasing its versatility and performance capabilities:

INTRODUCTION TO DART

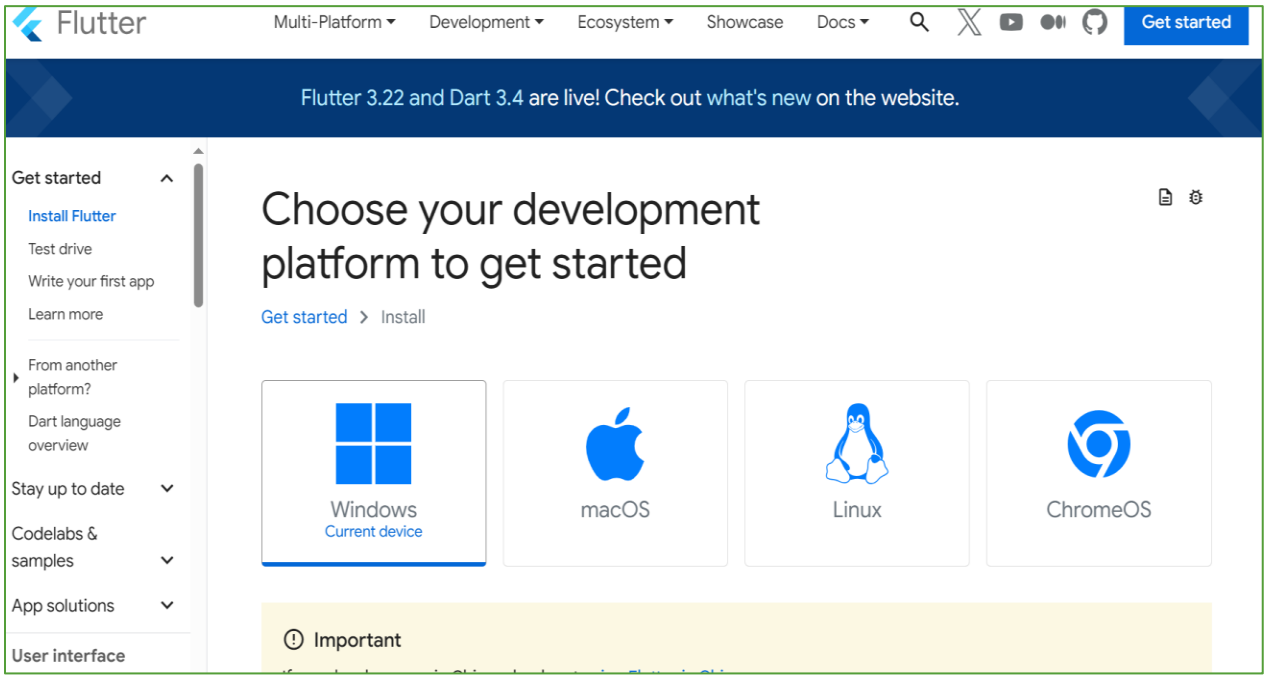
Dart is a modern, object-oriented programming language developed by Google. It is the language used to build Flutter applications. Dart is designed to be easy to learn, highly efficient, and capable of building both client and server-side applications.

1. WHAT IS DART?

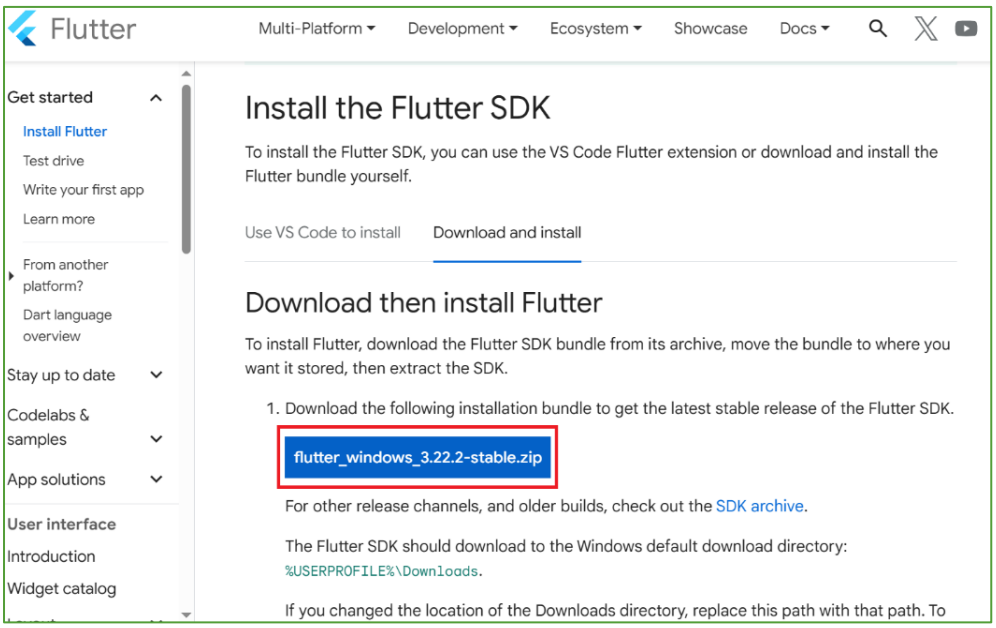
Dart is a general-purpose programming language optimized for building fast, high-performance applications. It was designed with the goal of enabling developers to create complex, scalable apps with ease. Dart syntax is similar to other C-style languages such as Java, JavaScript, and C#, making it familiar to many developers.

Getting Started with Flutter

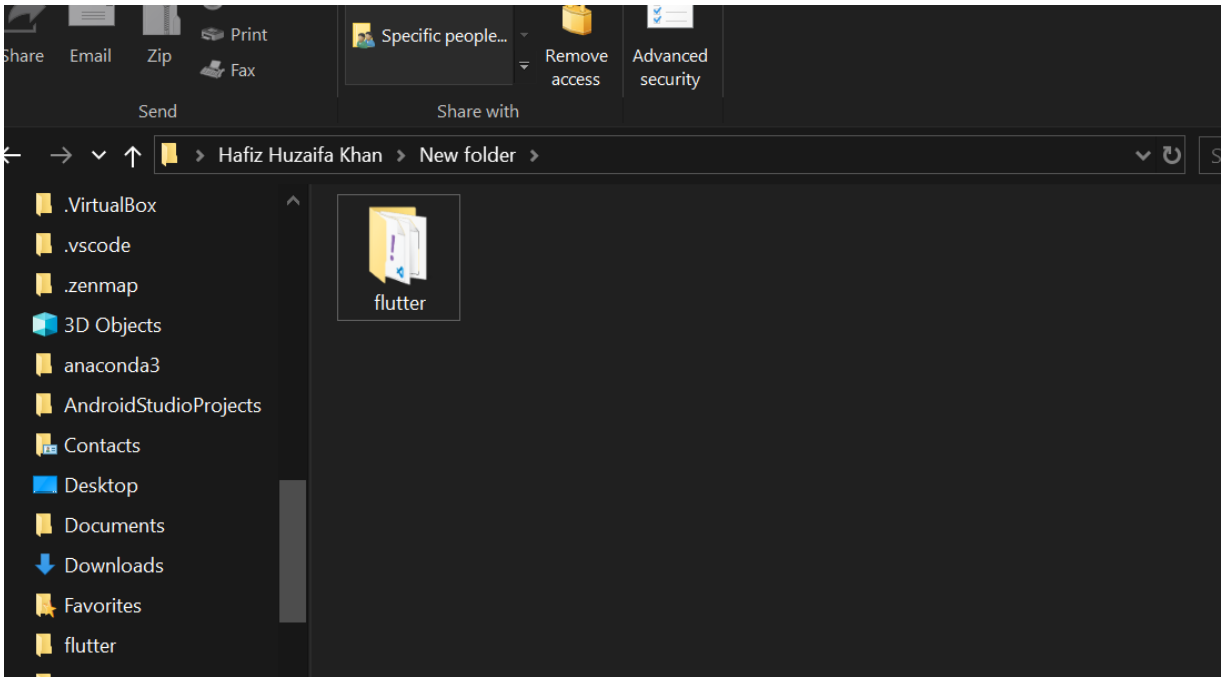
- **Download the Flutter SDK:**
    - Visit the official Flutter site to download the Flutter SDK **Download & Install Flutter**.
    - Select your platform (Windows, macOS, or Linux):



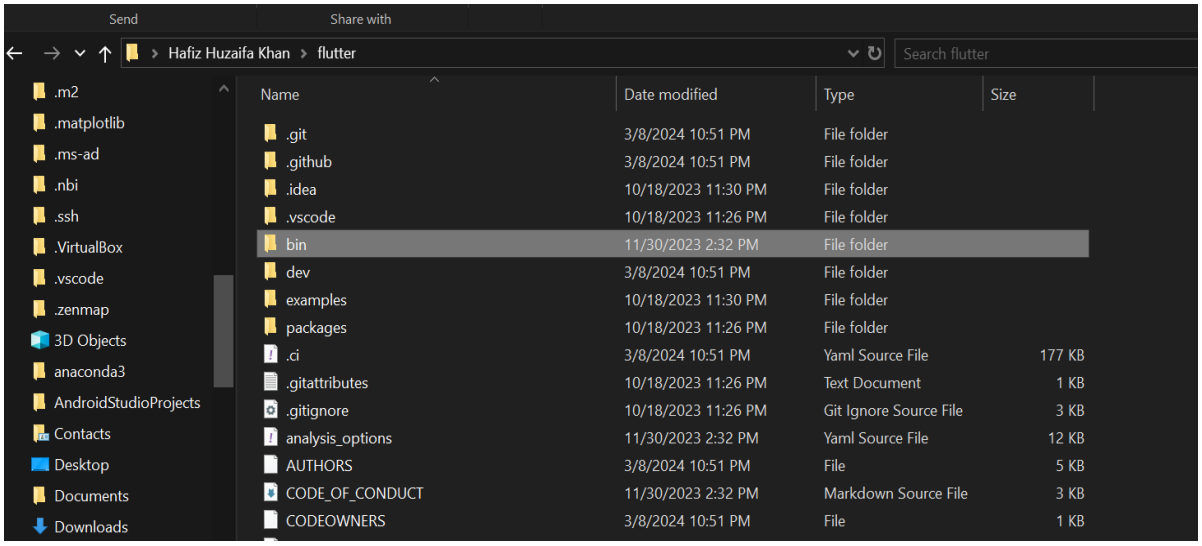
- In **Install the Flutter SDK** Goes to **Download and Install > Download the zip file of Flutter SDK:**



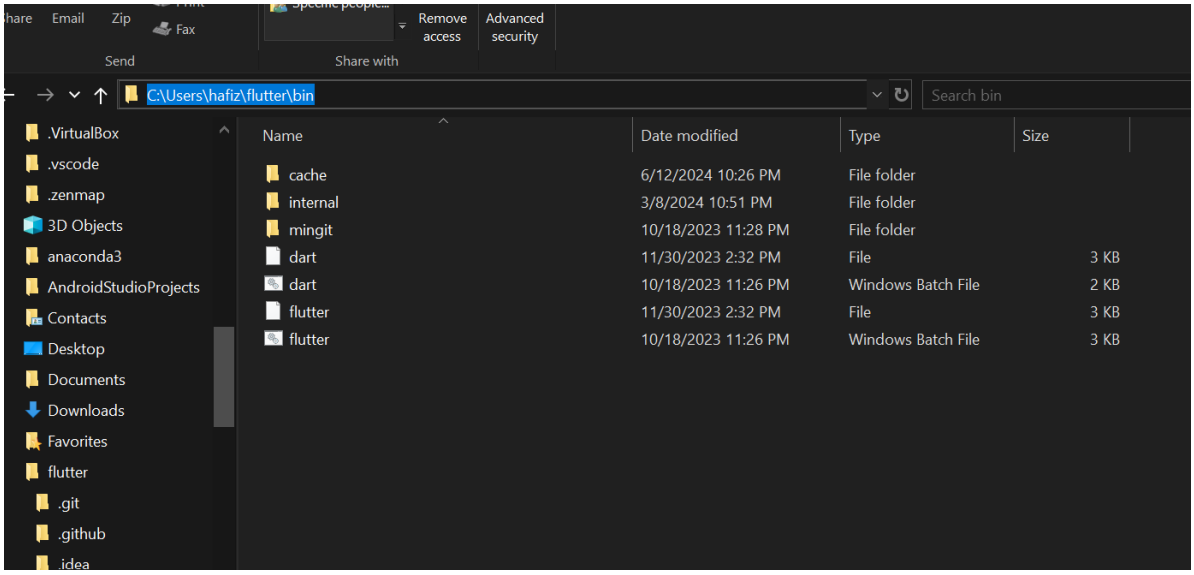
- **Extract the Flutter SDK:**
  - Once the download is complete, **unzip** the downloaded Flutter SDK file to the desired location on your system.



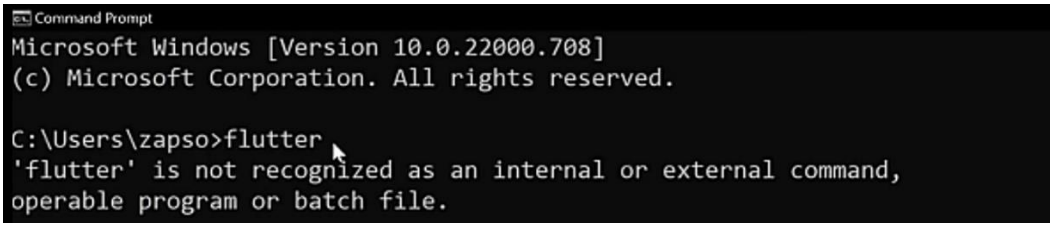
- Navigate to the extracted **Flutter folder** and locate the `bin` directory within it.



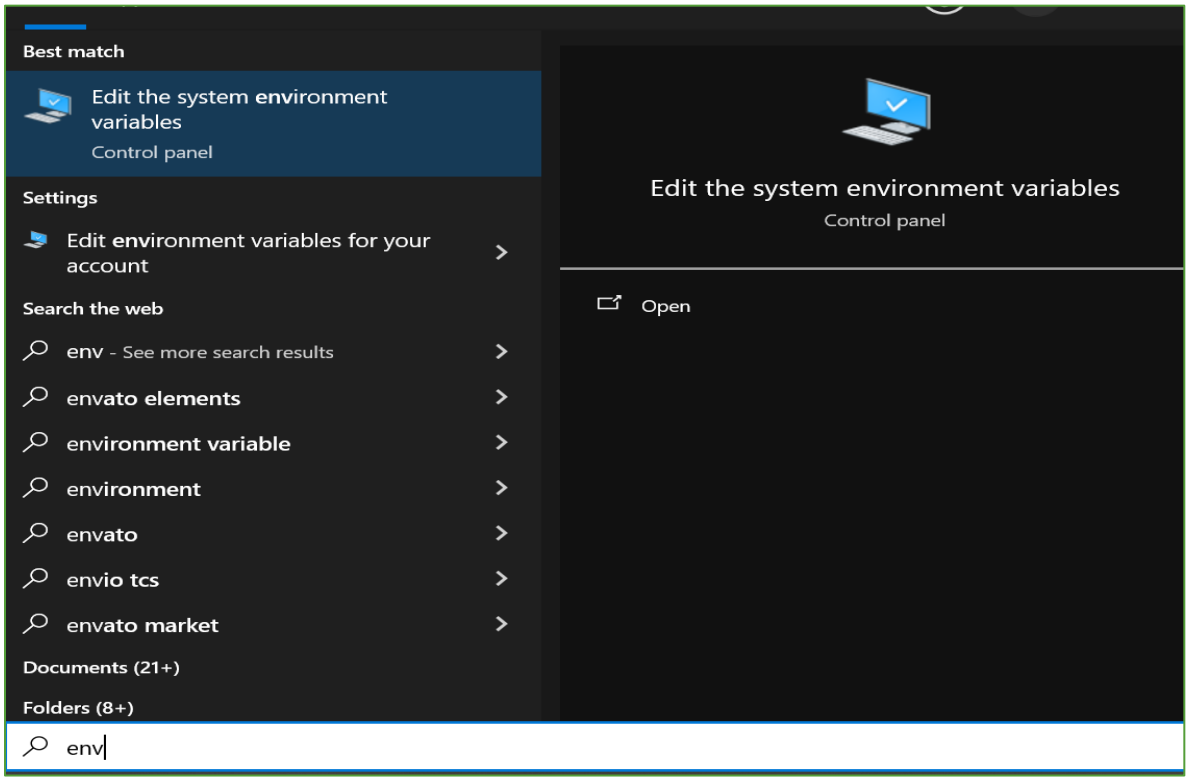
- **Copy** the **path of the bin** directory in the Flutter folder.

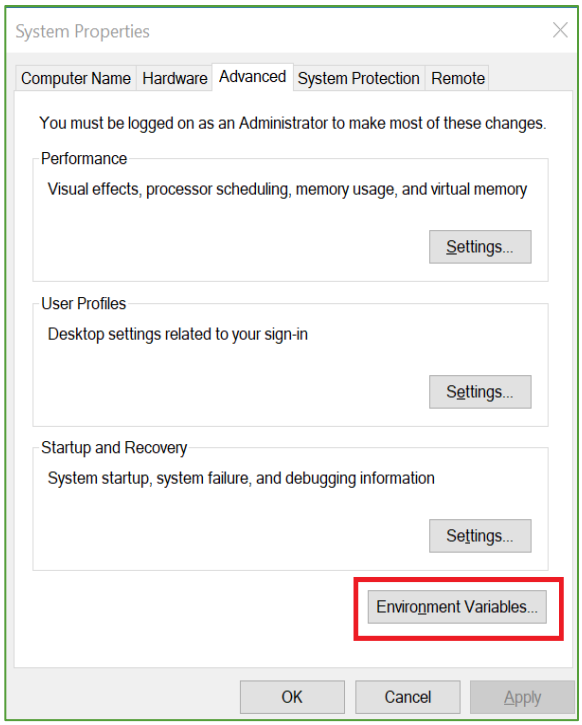


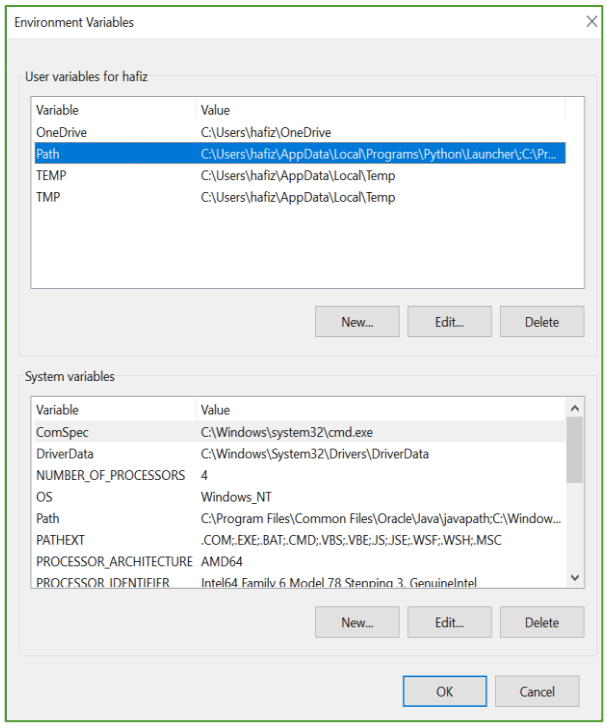
- Open the Command Prompt (cmd) and type `flutter` to check if it is recognized (it won't be recognized until the path is set in environment variables).



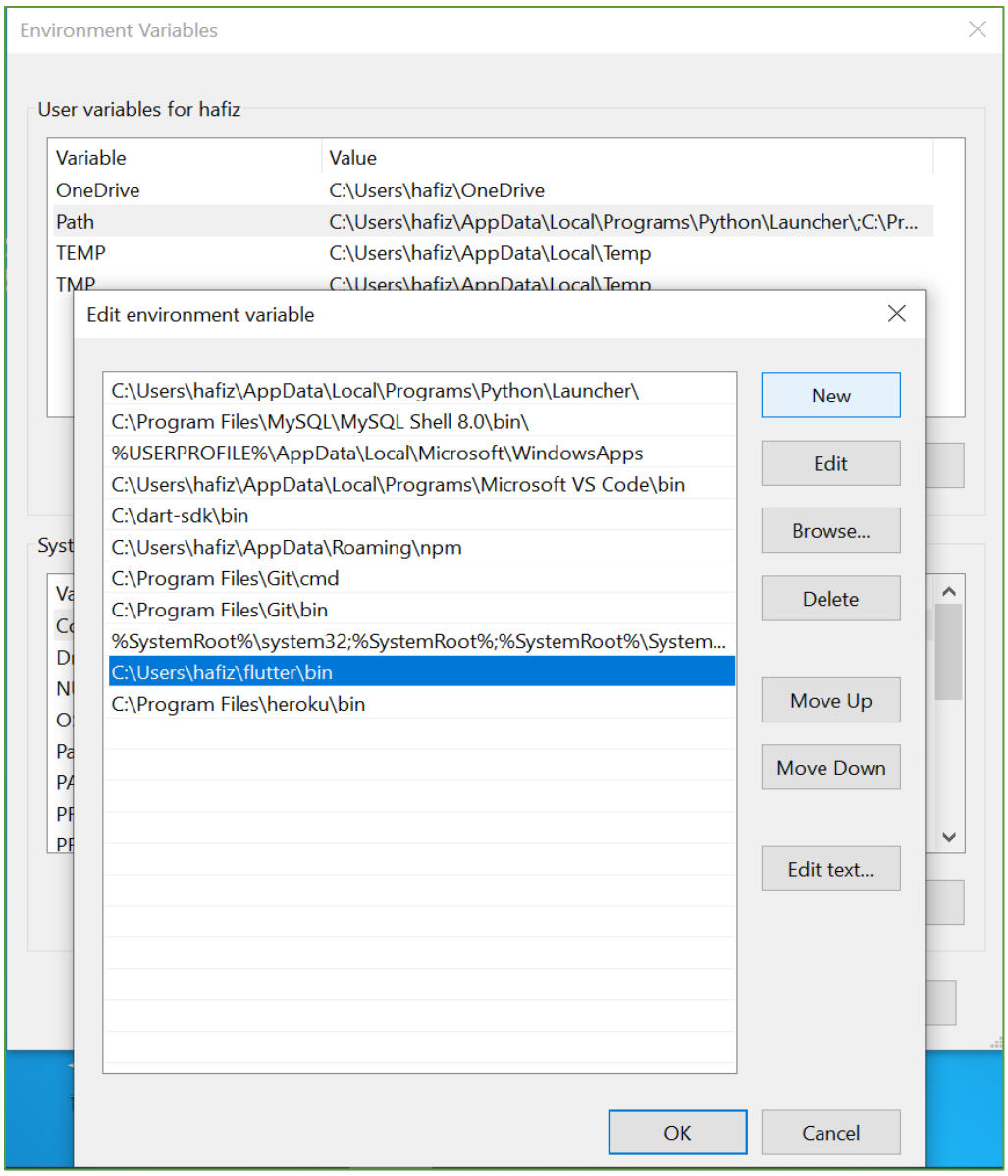
- **Configure Environment Variables:**
  - Open the Environment Variables settings on your system.





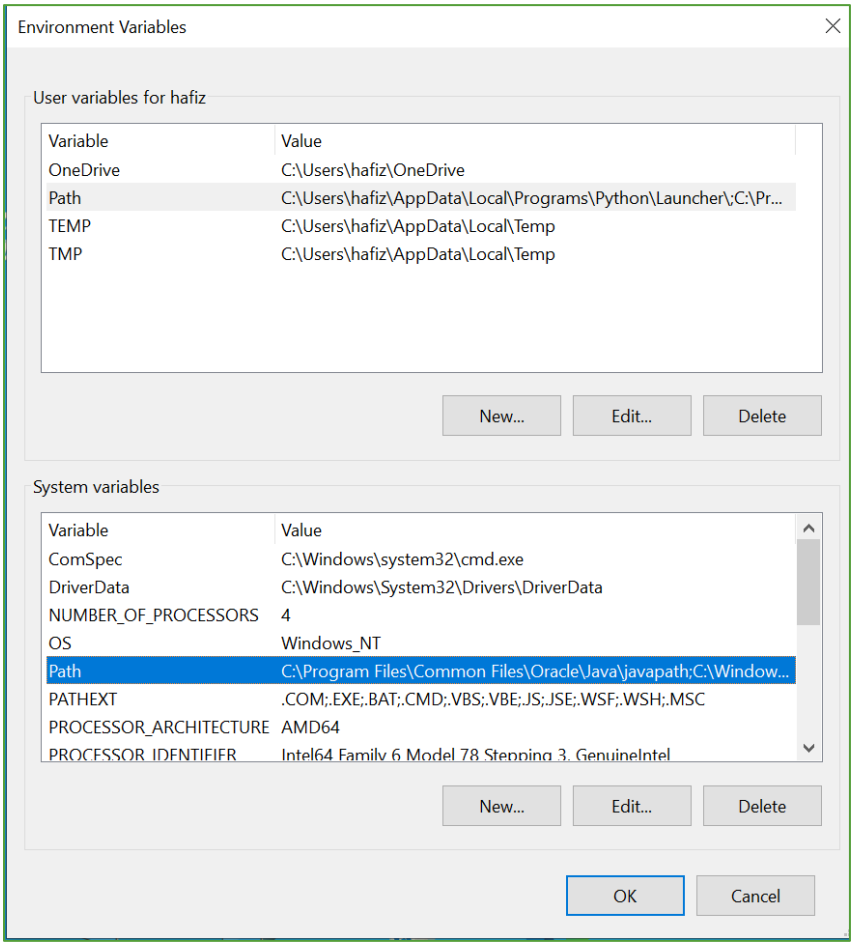


- In the Environment Variables window, locate the '**Path**' variable under 'User variables' and double-click on it to open.
- Click '**New**' and paste the path to the `bin` folder that you copied earlier.



- Click '**OK**' to save the changes.

- Repeat the same steps to add the path under 'System variables' if needed, and click 'OK'.



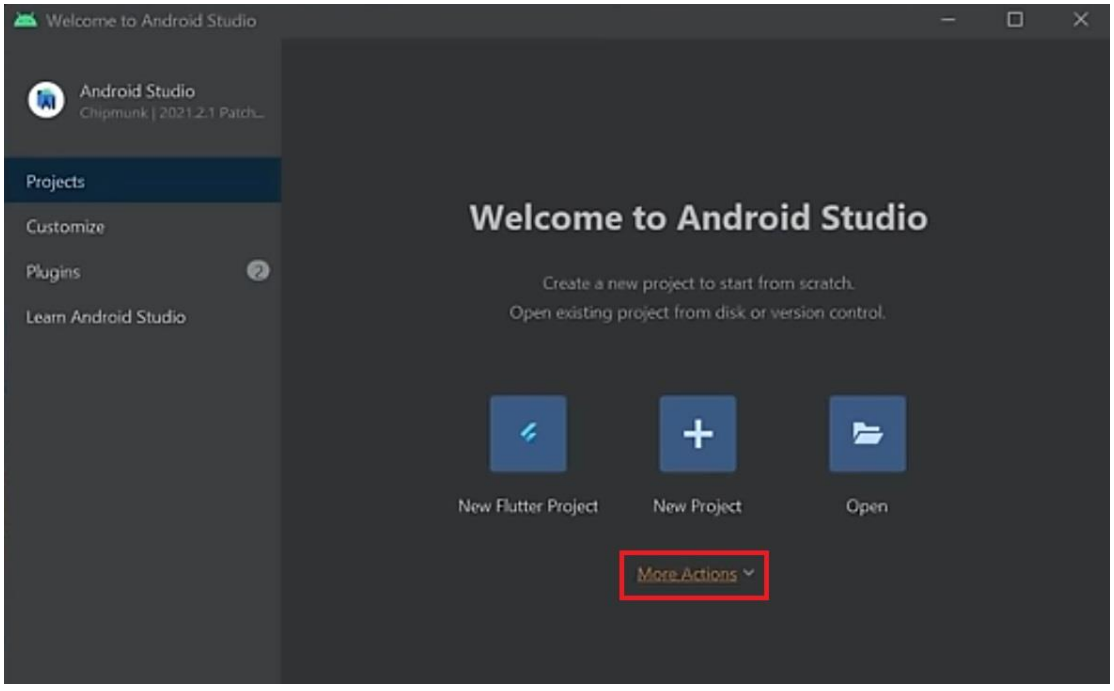
- Open the Command Prompt (cmd) again and type **`flutter`**. This time, it should recognize the Flutter command, indicating that the SDK is successfully installed and configured.

- Now, type **flutter doctor** in the Command Prompt. This command checks your environment and displays a report of the status of your Flutter installation. It helps ensure that all necessary dependencies are installed and properly configured.

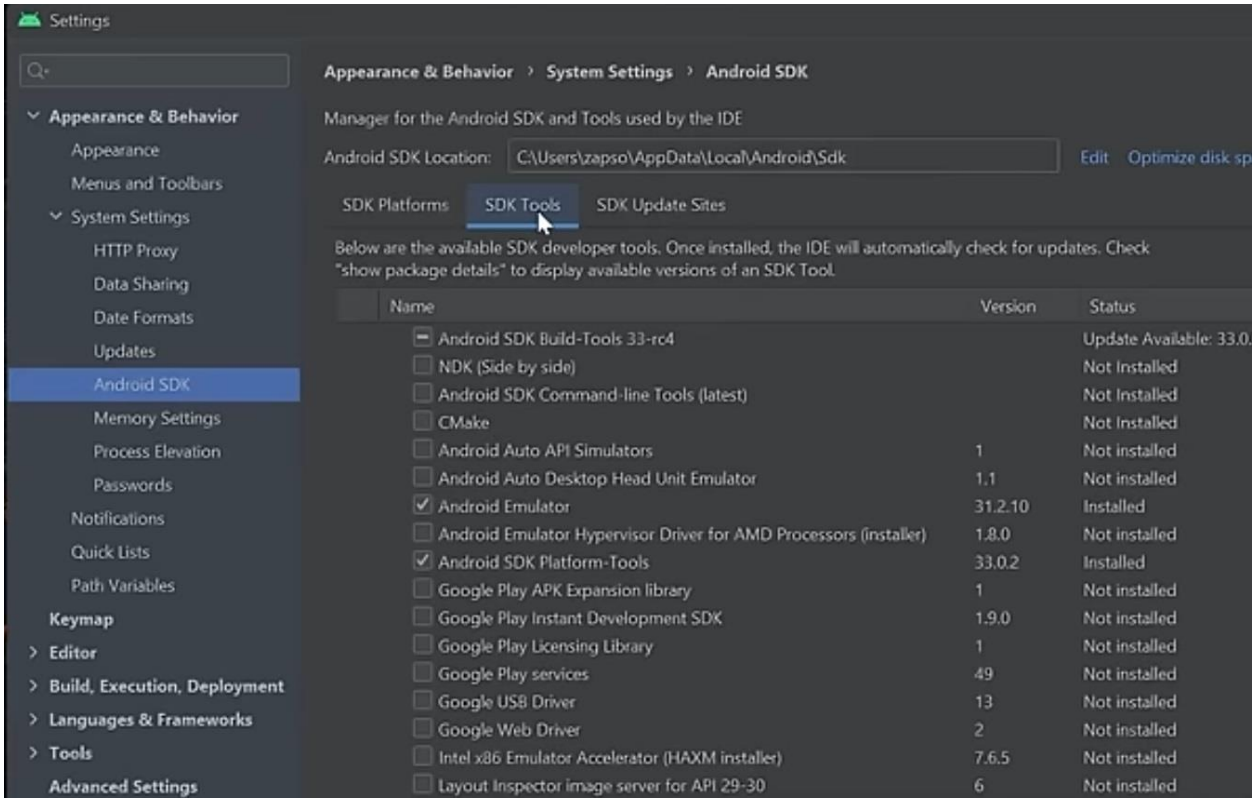
```
C:\Users\zapso>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[√] Flutter (Channel stable, 3.0.1, on Microsoft Windows [Version 10.0.22000.708],
[!] Android toolchain - develop for Android devices (Android SDK version 32.1.0-rc
    X No Java Development Kit (JDK) found; You must have the environment variable
      binary in your PATH. You can download the JDK from
      https://www.oracle.com/technetwork/java/javase/downloads/.
[√] Chrome - develop for the web
[X] Visual Studio - develop for Windows
    X Visual Studio not installed; this is necessary for Windows development.
      Download at https://visualstudio.microsoft.com/downloads/.
      Please install the "Desktop development with C++" workload, including all of
[!] Android Studio (not installed)
[√] Connected device (3 available)
[√] HTTP Host Availability

! Doctor found issues in 3 categories.
```

- **Set Up an IDE:** Install an Integrated Development Environment (IDE) like Visual Studio Code or Android Studio, along with the Flutter and Dart plugins

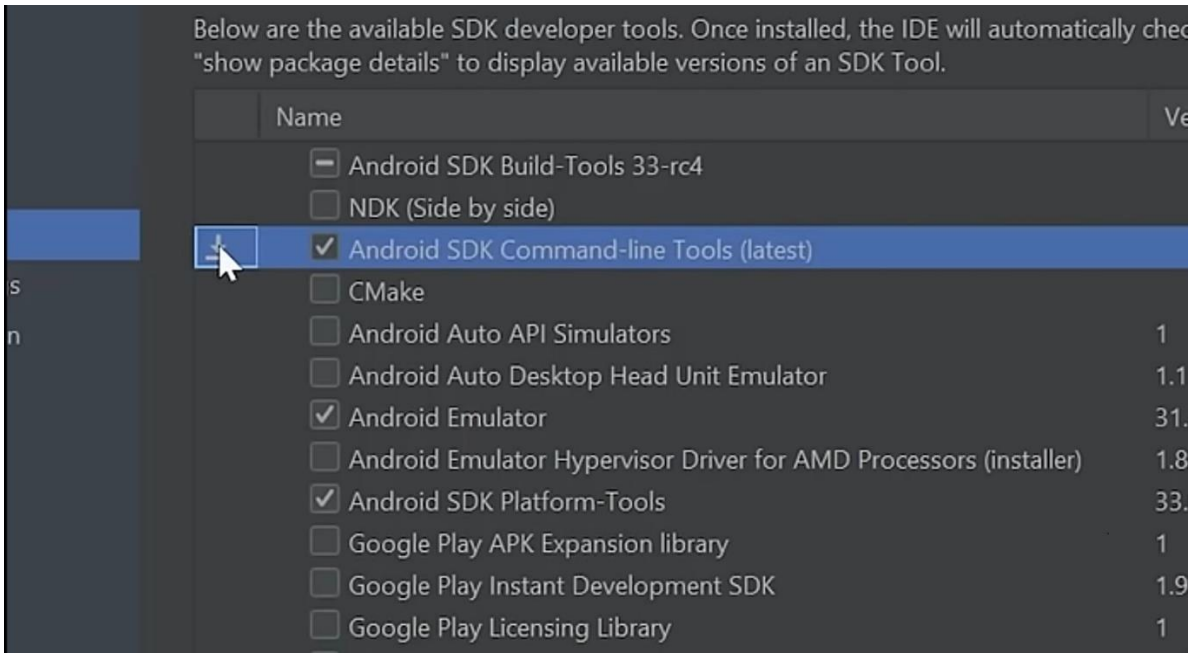
- After Downloading **Android Studio** Click on **More Actions >> SDK Manager**



- **Android SDK >> SDK Tools**



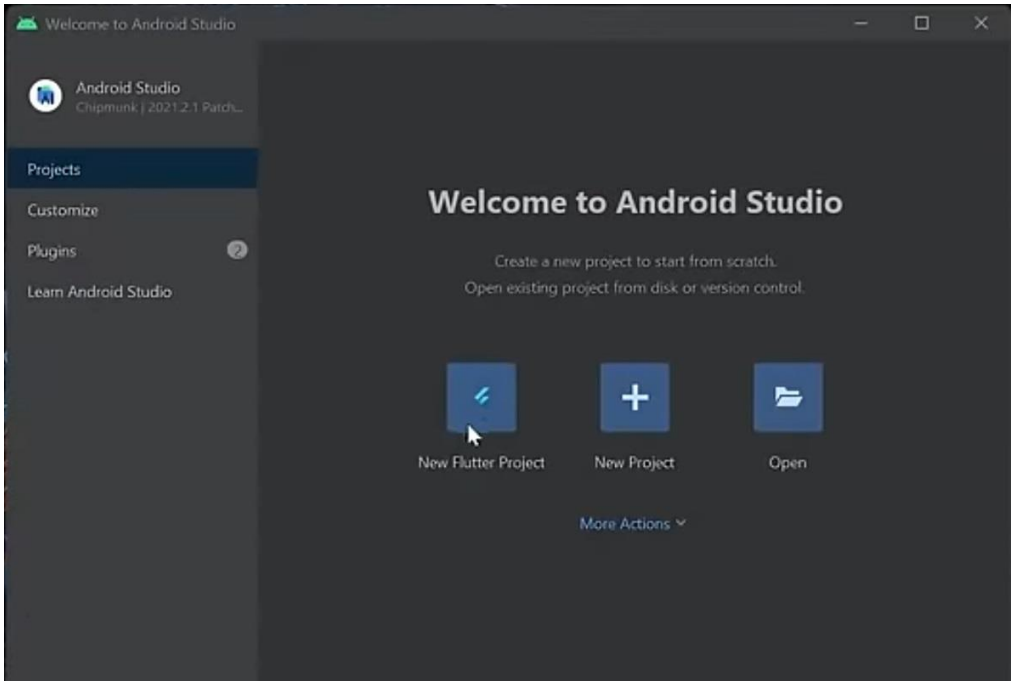
- Download Android SDK Command Line Tools



Creating a New Flutter Project

After completing the setup of the Flutter SDK, you are ready to create a new Flutter project using Android Studio. Follow these steps to create your first Flutter application:

1. **Open Android Studio**
2. **Install Flutter and Dart Plugins**
3. **Start a New Flutter Project**



4. **Configure Your New Project:**
   - In the New Flutter Project dialog, select Flutter Application and click Next.
   - Enter your project name (e.g., my_first_flutter_app).
   - Choose the Flutter SDK path if it is not automatically detected.
   - Set the project location where you want to save the project.
   - Optionally, you can configure the description, organization name, and other project settings.
5. **Project Setup:**
   - Click Finish to create the new Flutter project.
   - Android Studio will generate the necessary files and set up your project structure.
6. **Open the Main Dart File:**
   - Navigate to the lib directory in the Project Explorer and open main.dart.
7. **Run the Flutter App:**
   - Connect a physical device via USB or start an Android emulator.
   - Click the green play button (Run) in the toolbar or select Run > Run 'main.dart' from the menu.
   - Android Studio will build and run the app on the selected device or emulator.

Assignments:

- **Task 1:** Install the Flutter SDK and complete Flutter setup
- **Task 2:** Create a New Project and Run it on your Device/Emulator/Web

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