



android

Group 7 | Members

Chea Kimleang

Norn Siem Mann Socheat

Nang Vannith Morn Moniroit

Course : ITE308

Lecturer : Vichhaiy Serey

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I. Introduction

Android is a open source linux based operating system for mobile devices such as tablet and smartphones. It is developed by Google. Java language is mainly used to write the android code even though other languages can be used.



Applications

Home

Contacts

Phone

Browser

Camera

Application Framework

Activity
Manager

Window
Manager

Content
Providers

View
System

Package
Manager

Telephony
Manager

Resource
Manager

Location
Manager

Notification
Manager

Libraries

Surface
Manager

Media
Framework

SQLite

OpenGL | ES

FreeType

Webkit

SGL

SSL

Libe

Android Runtime

Libraries Core

Dalvik Virtual
Machine

Linux Kernel

Display
Driver

Camera
Driver

Flash Memory
Driver

Binder (IPC)
Driver

Keypad
Driver

WiFi
Driver

Audio
Driver

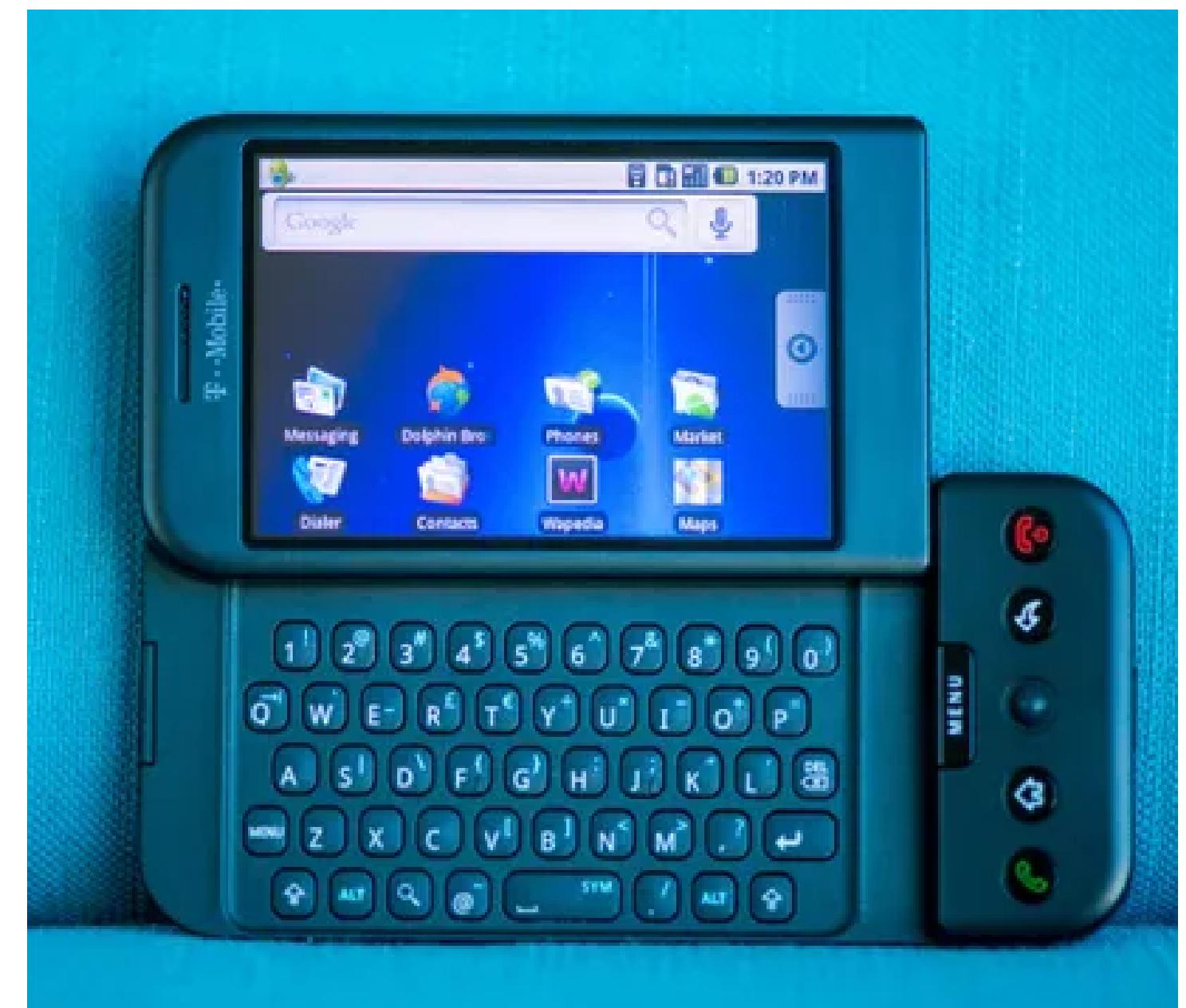
Power
Management

II. History of Android

Android was originally developed by a company called *Android Inc.*, which was founded in 2003 by *Andy Rubin, Rich Miner, Nick Sears, and Chris White*. Their goal was to create an operating system for digital cameras, but they later shifted their focus to smartphones.



In 2005, Google acquired Android Inc. and continued developing the operating system with the help of the Open Handset Alliance, a consortium of technology and mobile phone companies. The first smartphone to run Android was the T-Mobile G1, which was released in 2008. Since then, Android has become the most popular mobile operating system in the world, with billions of active devices and millions of apps available.



T-Mobile G1
(Android 1.0, 2008)

III. Ways to develop Android App



Kotlin

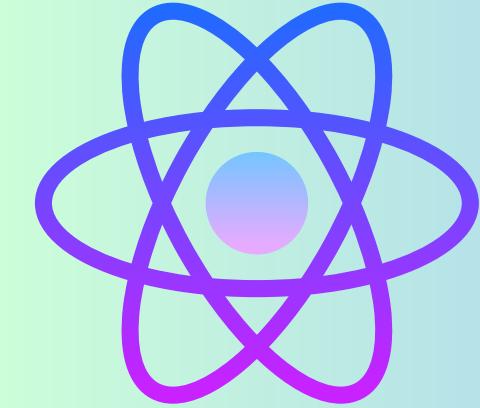


Native

VS



Flutter



Cross-Platform

There are several ways to develop Android apps, including:

- Using Android Studio: provides a full-featured development environment that includes tools for designing, coding, debugging, and testing Android apps.
- Using Kotlin: has many features that make Android app development faster and more efficient.
- Using React Native: using JavaScript and provides a way to create apps for both iOS and Android with a single codebase.

- Using Flutter: It uses the Dart programming language and provides a way to build high-performance, visually rich apps for both iOS and Android with a single codebase.
- Using App Inventor: provides a way to drag and drop components and connect them together to create an app.



Android 1.0
September 23, 2008



1.5 - Cupcake
April 27, 2009



1.6 - Donut
September 15, 2009



2.0/2.1 - Éclair
October 26, 2009



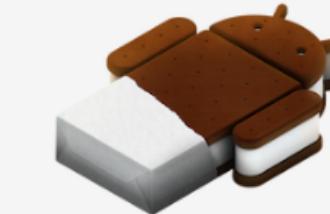
2.2 - Froyo
May 20, 2010



2.3 - Gingerbread
December 6, 2010



3.0 - Honeycomb
February 22, 2011



4.0 - Ice Cream Sandwich
October 18, 2011



4.1/4.3 - Jelly Bean
July 9, 2012



4.4 - KitKat
October 31, 2013



5.0 - Lollipop
November 12, 2014



6.0 - Marshmallow
October 5, 2015



7.0 - Nougat
August 22, 2016



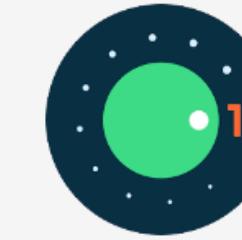
8.0 - Oreo
August 21, 2017



9.0 - Pie
August 6, 2018



Android 10
September 3, 2019



Android 11
September 8, 2020



Android 12
October 17, 2021



Flutter



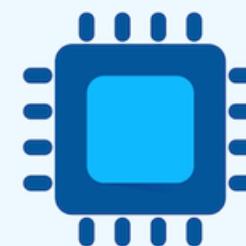
Mobile



Web



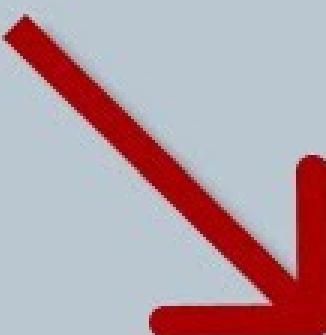
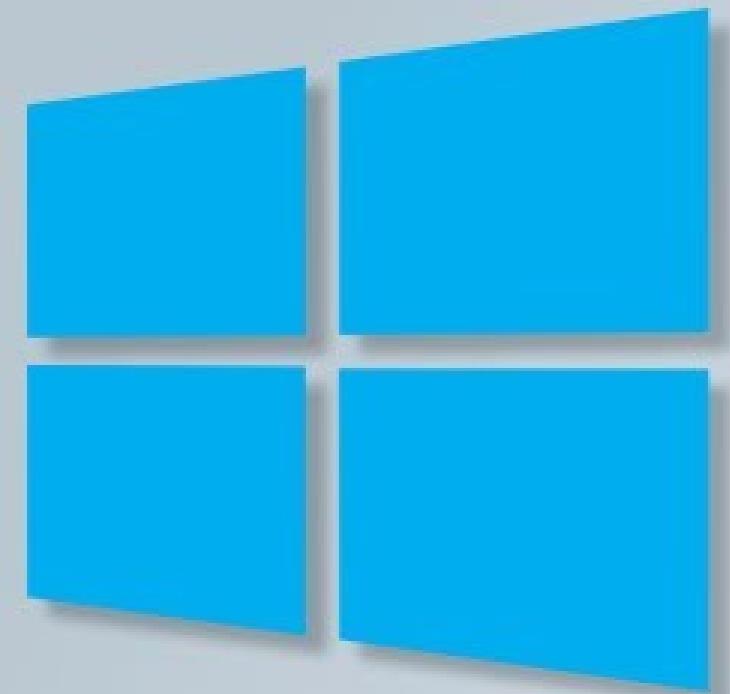
Desktop



Embedded

INSTALL FLUTTER ON WINDOWS

android



Step:1

IV. Installation Flutter

Install



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

Select the operating system on which you are installing Flutter:

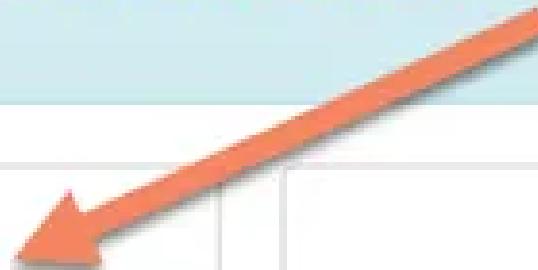
❶ Note: Are you on Chrome OS?

If so, see the official [Chrome OS Flutter installation docs](#)!

Windows

macOS

Linux



Step:2

☞ Get the Flutter SDK

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

flutter_windows_1.17.5-stable.zip



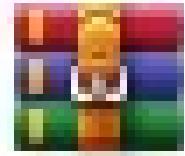
For other release channels, and older builds, see the [SDK archive](#) page.

Step:3

This PC ➔ Downloads



flutter_windows_1.17.5-stable



flutter_windows_1.17.5-stable

Extract it

Step:4

This PC > Local Disk (C:)

Name	Date modified	Type
android-sdk	7/4/2020 2:32 PM	File folder
flutter_windows_1.17.5-stable	7/3/2020 5:01 AM	File folder
Intel	5/8/2020 7:05 PM	File folder
PerfLogs	5/29/2020 7:25 AM	File folder
Program Files	6/16/2020 7:43 AM	File folder
Program Files (x86)	6/25/2020 12:08 PM	File folder
Users	5/28/2020 3:28 PM	File folder
wamp64	5/28/2020 8:08 PM	File folder
Windows	6/16/2020 5:00 PM	File folder

Step:5

▶ This PC ▶ Local Disk (C:) ▶ flutter_windows_1.17.5-stable

Name	Date n
flutter	7/2/20



Step:6

C:\flutter_windows_1.17.5-stable\flutter\bin

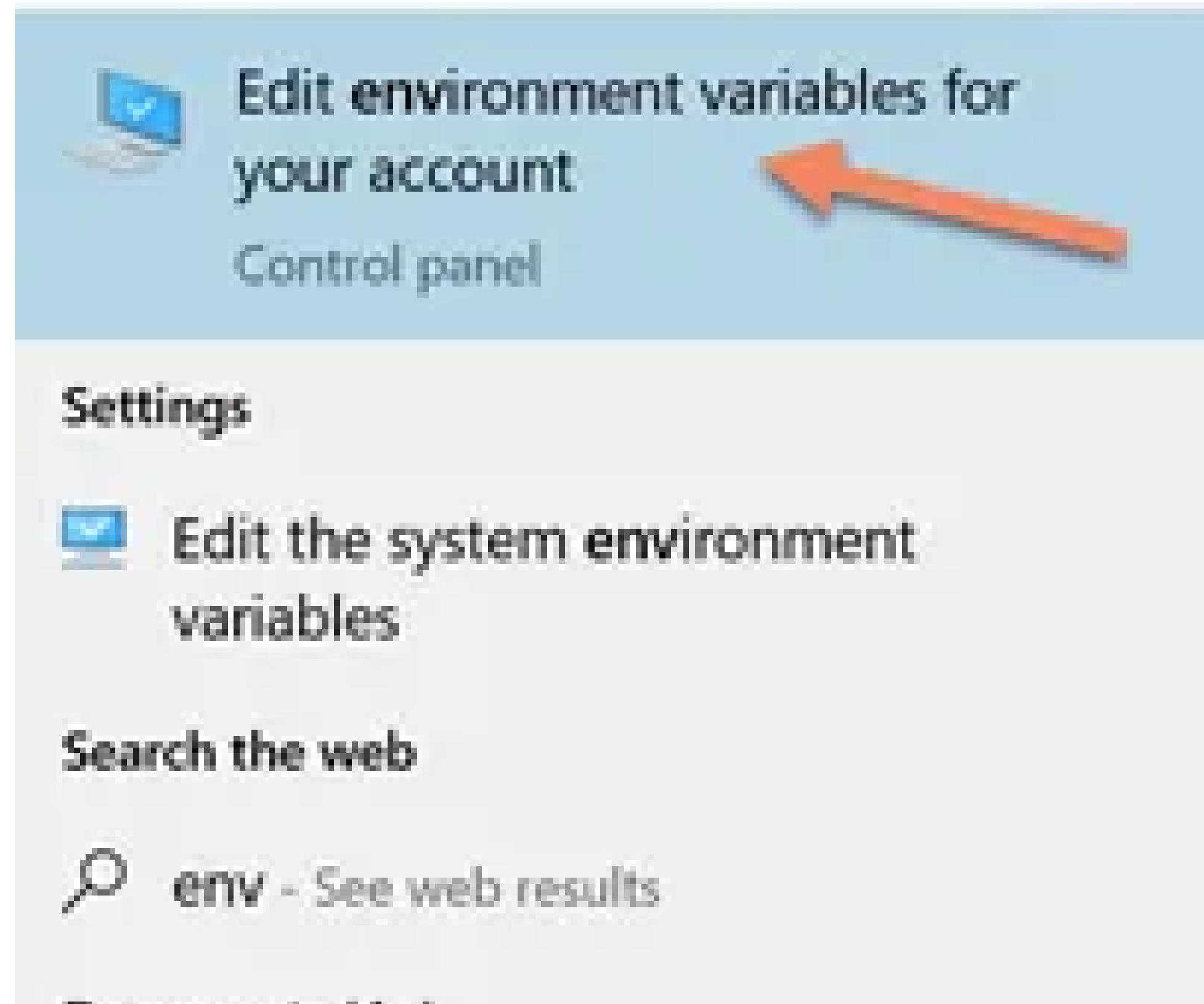


Name

- cache
- internal
- mingit
- flutter
- flutter

Step:7

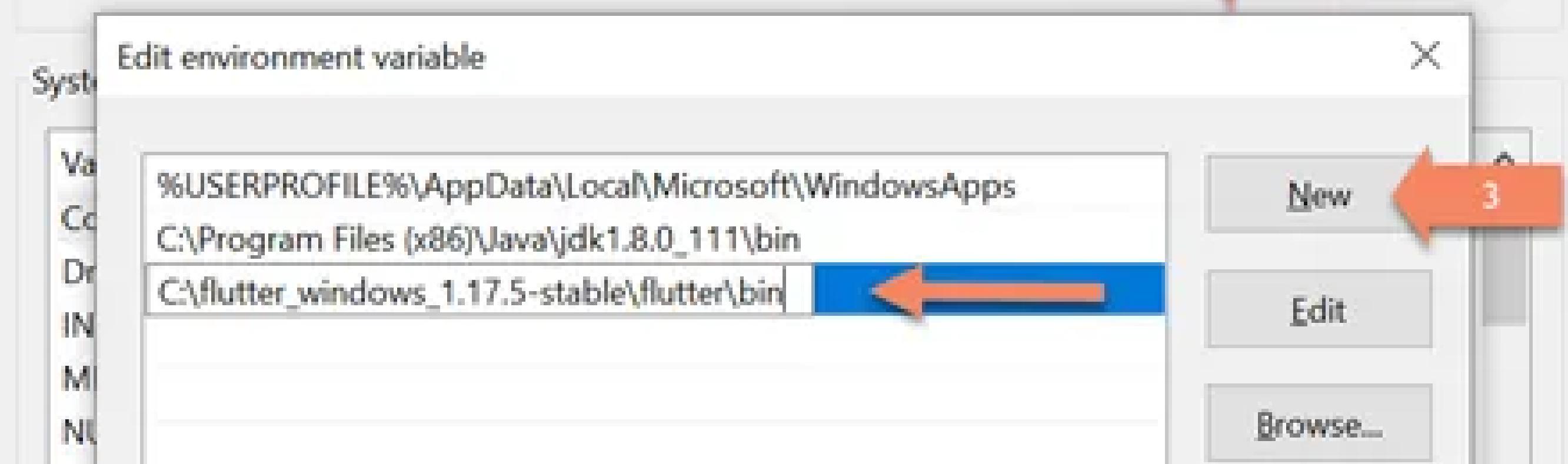
HOW TO UPDATE PATH VARIABLE WITH FLUTTER SDK PATH IN WINDOWS



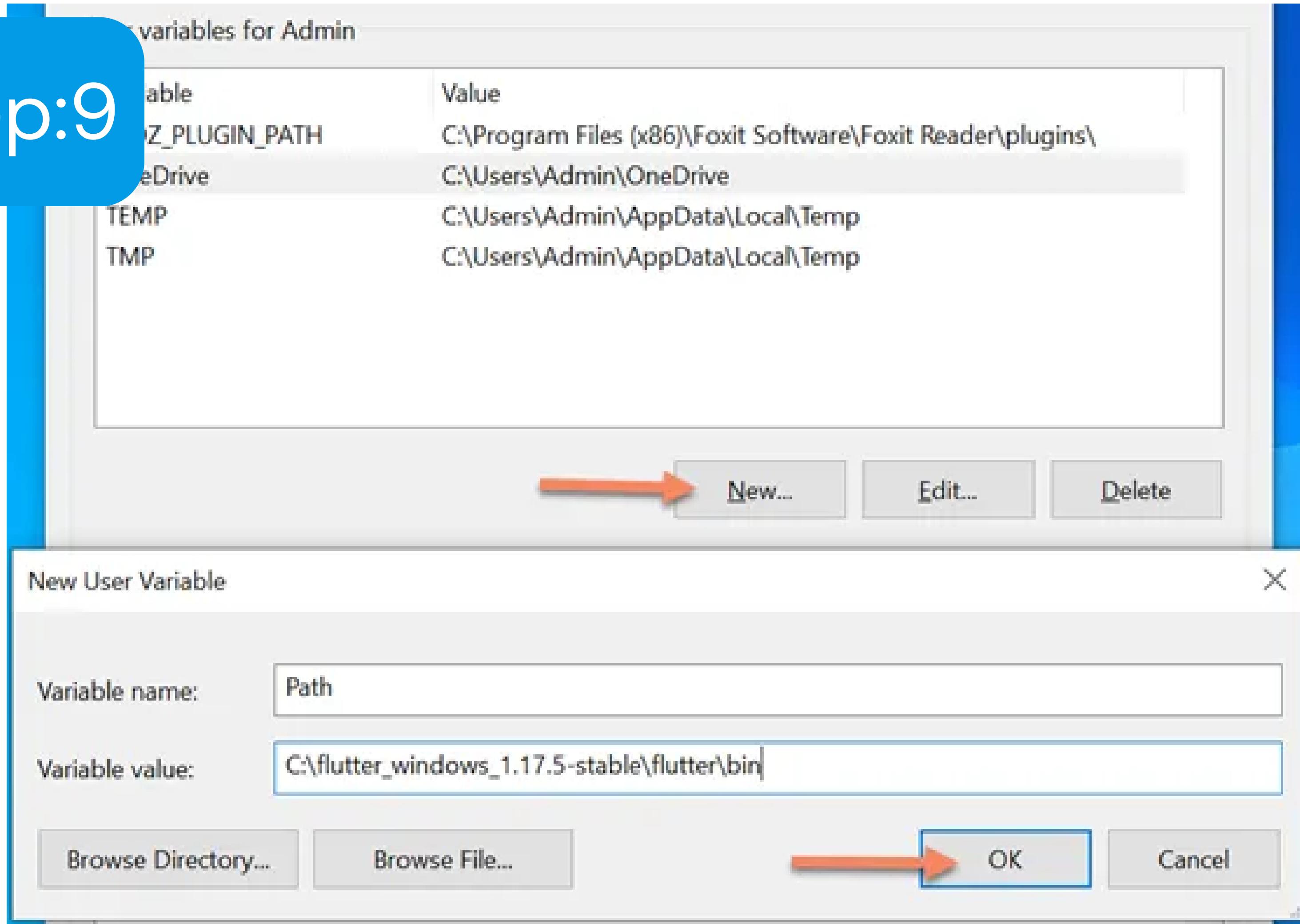
Step:8

Variable	Value
MOZ_PLUGIN_PATH	C:\Program Files (x86)\Foxit Software\Foxit Reader\plugins\
OneDrive	C:\Users\Admin\OneDrive
Path	1 C:\Users\Admin\AppData\Local\Microsoft\WindowsApps;C:\Pro...
TEMP	C:\Users\Admin\AppData\Local\Temp
TMP	C:\Users\Admin\AppData\Local\Temp

New... Edit... 2 Delete



Step:9



Microsoft Windows [Version 10.0.19044.2604]
(c) Microsoft Corporation. All rights reserved.

```
C:\Users\Siem Dev>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.7.0, on Microsoft Windows [Version 10.0.19044.2604], locale en-US)
[✓] Windows Version (Installed version of Windows is 10 Pro)
[!] Android toolchain - develop for Android devices
    ✘ cmdline-tools component is missing
      Run `path/to/sdkmanager --install "cmdline-tools;latest"`
      See https://developer.android.com/studio/command-line/
    ✘ Android license status unknown.
      Run `flutter doctor --android-licenses` to accept the SDK licenses.
      See https://flutter.dev/docs/get-started/install/windows#android-setup for more details.
[✓] Chrome - develop for the web
[X] Visual Studio - develop for Windows
    ✘ 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 its default components.
[✓] Android Studio (version 2021.3)
[✓] VS Code (version 1.76.2)
[✓] Connected device (4 available)
[✓] HTTP Host Availability

! Doctor found issues in 2 categories.
```

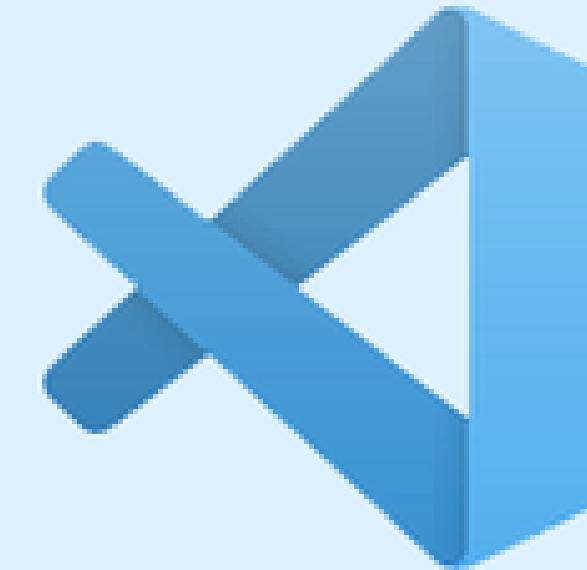
C:\Users\Siem Dev>

flutter doctor

BEST IDE FOR FLUTTER



Android Studio



Visual Studio Code

EXTENSIONS: MARKETPLACE ⚙️ ⚙️ ...

Extension: Flutter X

Flutter

Flutter 3.25.0 Dart Code | 2,831,121 ⭐⭐⭐⭐⭐

Flutter support and debugger for Visual Studio Code.

Dart Code Install

Awesome Flutter Snippets 2.0.0 Neevash Ramdial Install

Awesome Flutter Snippets is a collection of Flutter snippets.

[FF] Flutter Files 3.1.2 Igor Kravchenko Install

Quickly scaffold flutter bloc file template.

Flutter Widget Snippets 2.0.0 Alexis Villegas Torres Install

A set of helpful widget snippets for Flutter.

flutter

This VS Code extension provides support for the Flutter framework, including editing, refactoring, and debugging.

EXTENSIONS: MARKETPLACE ⚙️ ⚙️ ...

Extension: Dart X

dart

Dart v3.60.1 Dart Code | 6,453,987 ⭐⭐⭐⭐⭐

Dart language support and debugger for Visual Studio Code.

Dart 162ms Dart language support and debugger for Visual Studio Code.

Dart Code 162ms Dart language support and debugger for Visual Studio Code.

Disable Uninstall Switch to Pre-Release Version

This extension is enabled globally.

dart

Categories

Programming Languages

22

V. Challenges

1. Installation flutter

- Fluter SDK
- Unsupported operating system
- Setting up environment variables
- Firewall or antivirus blocking installation
- Install Android Studio or Visual Studio Code
- Set up an Android emulator or iOS simulator

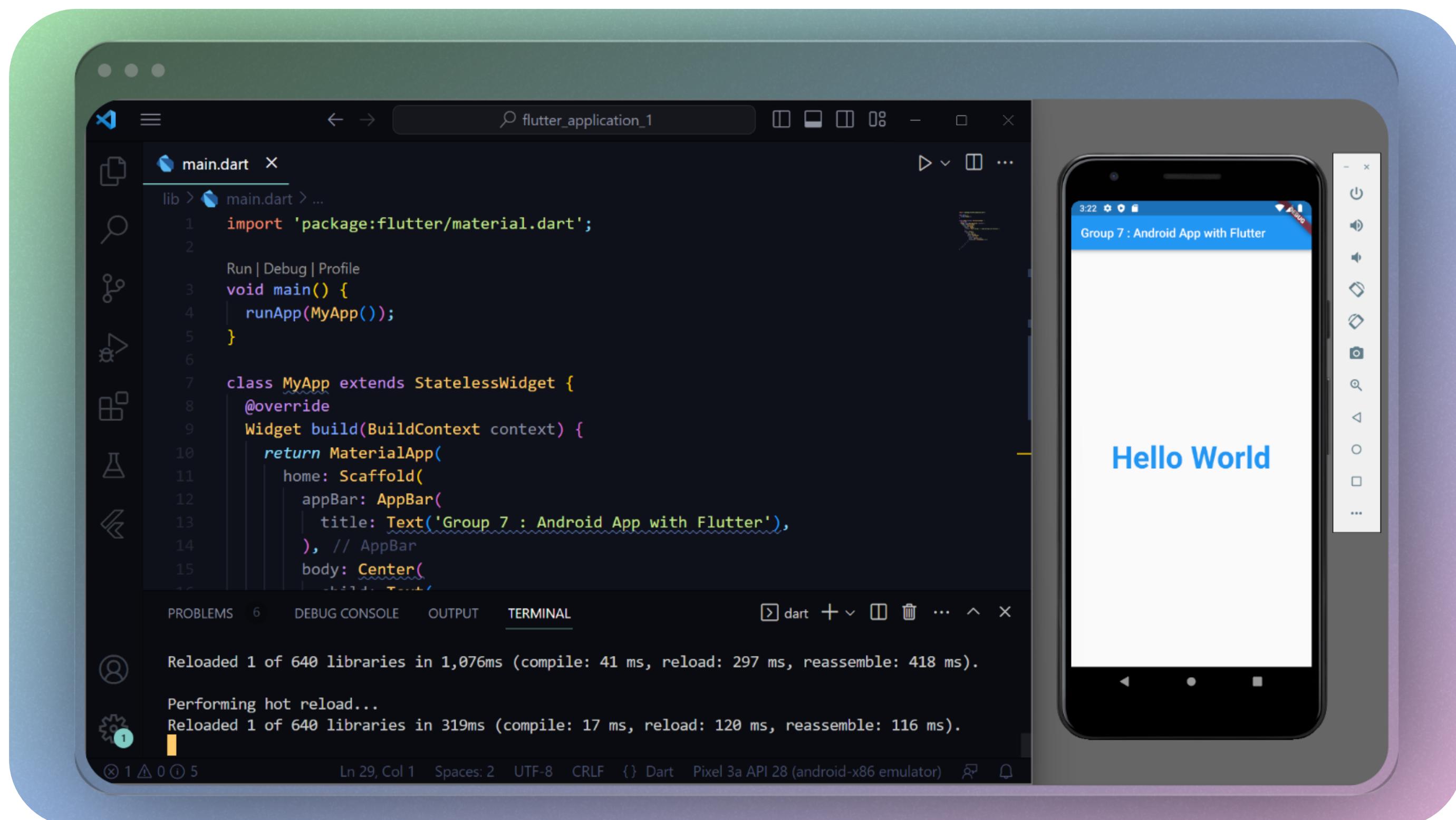
2. When you start writing code in Flutter, there are a few key things you should know

- Dart programming language
- Widgets
- Layouts
- State management
- Material Design

3. Version Control System

- **Simultaneous development:** Everyone has their own local copy of code and can work simultaneously on their own branches¹
- **Faster releases:** Branches allow for flexible and simultaneous development¹
- **Built-in integration:** Due to its popularity, Git integrates into most tools and products¹
- **Strong community support:** Git is open-source and has become the de facto standard for version control¹
- **Git works with any team:** Git's flexibility and popularity make it a great choice for any team¹

VI. Run "Hello world"



VII. Demo

DEMO