

Exp-1

Aim : Installation and Configuration of Flutter Environment.

Theory:

Flutter:

Flutter is an open-source UI software development toolkit created by Google for building natively compiled applications for mobile, web, and desktop from a single codebase.

Key Features of Flutter:

Single Codebase:

Flutter allows developers to write code once and deploy it on multiple platforms like Android, iOS, web, and desktop.

Hot Reload:

One of the most significant features of Flutter is its hot reload capability. Changes to the code can be instantly reflected in the running app, making the development process faster and more interactive.

Widget-Based Framework:

Flutter is based on a reactive widget framework. Widgets are the basic building blocks of the user interface, and they are used to create complex UIs.

Rich Set of Widgets:

Flutter provides a comprehensive set of customizable widgets, including material design and Cupertino-style widgets, to create visually appealing and platform-specific user interfaces.

Native Performance:

Flutter compiles to native code, resulting in high performance and smooth animations. It does not rely on a bridge to communicate with the native modules, enhancing the app's speed.

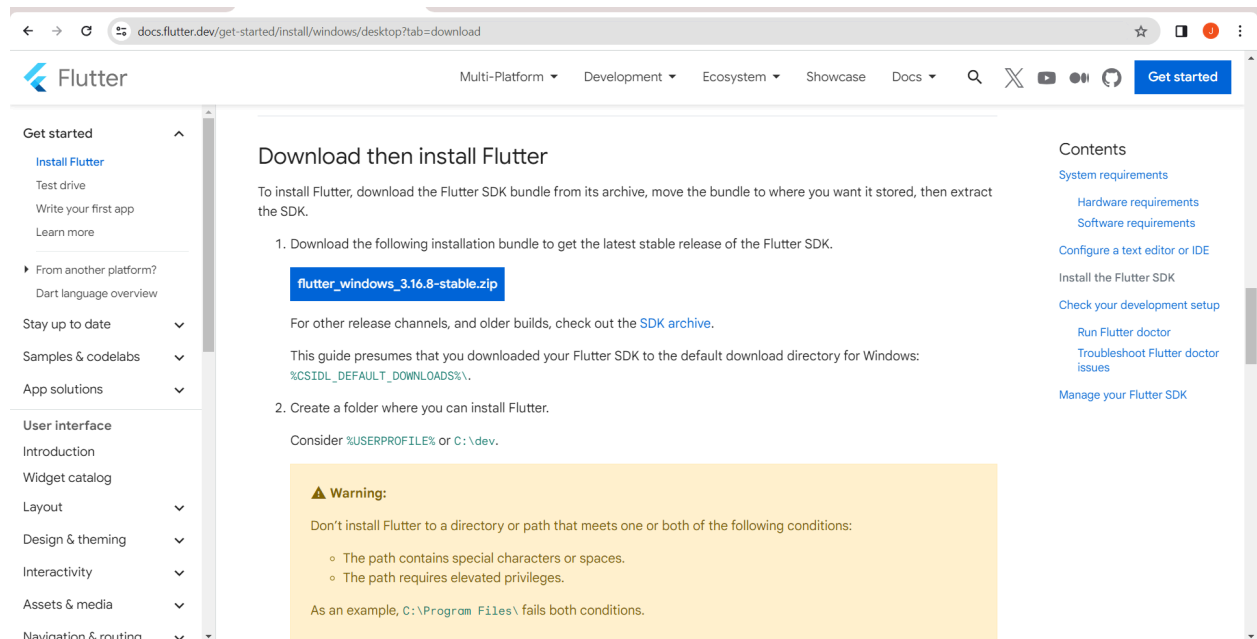
Dart Programming Language:

Flutter uses Dart as its programming language. Dart is an object-oriented, garbage-collected language that is easy to learn and provides a good developer experience.

Community and Ecosystem:

Flutter has a growing and active community that contributes to its ecosystem. There is a wide range of packages and plugins available on pub.dev, Flutter's package repository.

Installation of flutter:



The screenshot shows the Flutter documentation website at docs.flutter.dev. The page is titled "Download then install Flutter". It provides instructions for downloading the Flutter SDK bundle for Windows. The main content area includes a list of steps: 1. Download the following installation bundle to get the latest stable release of the Flutter SDK. A blue button labeled "flutter_windows_3.16.8-stable.zip" is provided. 2. Create a folder where you can install Flutter. A warning box highlights that the installation path should not contain special characters or spaces and should not require elevated privileges. The warning box also provides an example of a path that fails both conditions: C:\Program Files\.

Flutter

Multi-Platform Development Ecosystem Showcase Docs

Get started

Install Flutter

Test drive

Write your first app

Learn more

From another platform?

Dart language overview

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Layout

Design & theming

Interactivity

Assets & media

Navigation & routing

Download then install Flutter

To install Flutter, download the Flutter SDK bundle from its archive, move the bundle to where you want it stored, then extract the SDK.

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

[flutter_windows_3.16.8-stable.zip](#)

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

This guide presumes that you downloaded your Flutter SDK to the default download directory for Windows: `%CSIDL_DEFAULT_DOWNLOADS%\`.

- Create a folder where you can install Flutter.

Consider `%USERPROFILE%` or `C:\dev`.

Warning:

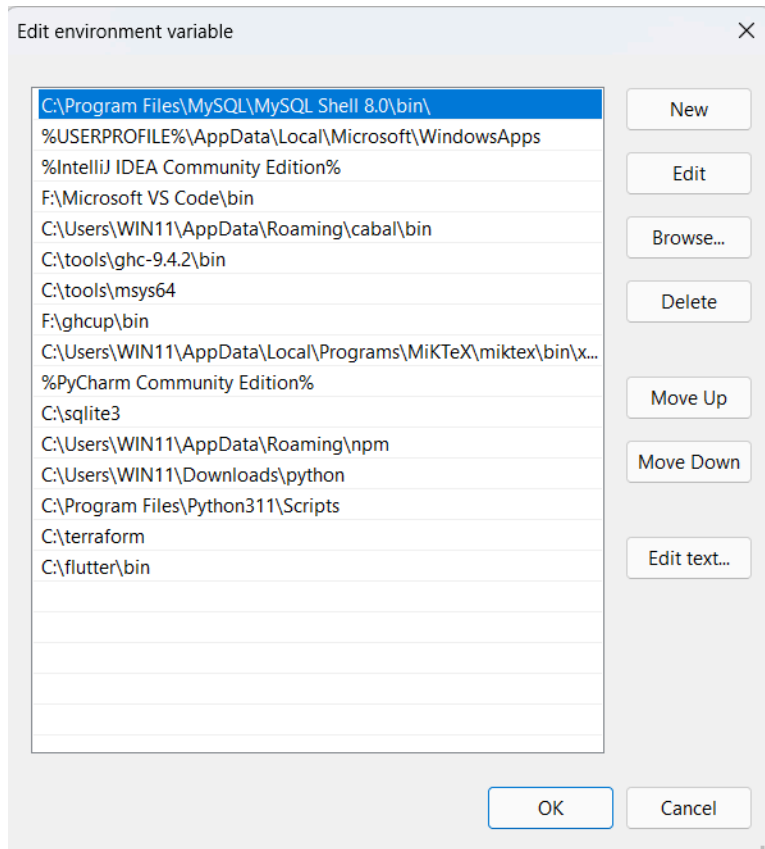
Don't install Flutter to a directory or path that meets one or both of the following conditions:

- The path contains special characters or spaces.
- The path requires elevated privileges.

As an example, `C:\Program Files\` fails both conditions.

Contents

- System requirements
 - Hardware requirements
 - Software requirements
- Configure a text editor or IDE
- Install the Flutter SDK
- Check your development setup
- Run Flutter doctor
- Troubleshoot Flutter doctor issues
- Manage your Flutter SDK



```
C:\Users\WIN11>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:\> Command Prompt - flutter - flutter doctor

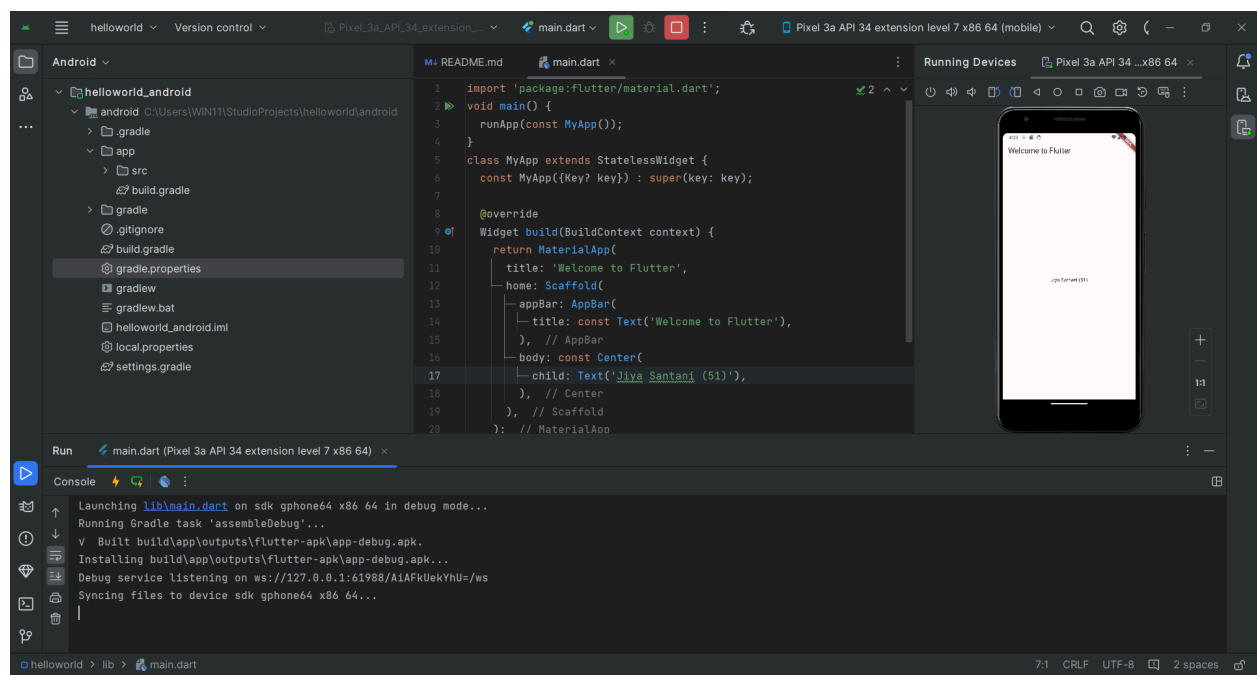
Run "flutter help <command>" for more information about a command.
Run "flutter help -v" for verbose help output, including less commonly used options.

C:\Users\WIN11>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.16.8, on Microsoft Windows [Version 10.0.22621.3007], locale en-IN)
[✓] Windows Version (Installed version of Windows is version 10 or higher)
[!] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
    X cmdline-tools component is missing
      Run `path/to/sdkmanager --install "cmdline-tools;latest"`
      See https://developer.android.com/studio/command-line for more details.
    X 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
[✗] 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 (version 2023.1)
[✓] Connected device (4 available)
[✓] Network resources

! Doctor found issues in 2 categories.

C:\Users\WIN11>
```

Android Studio:

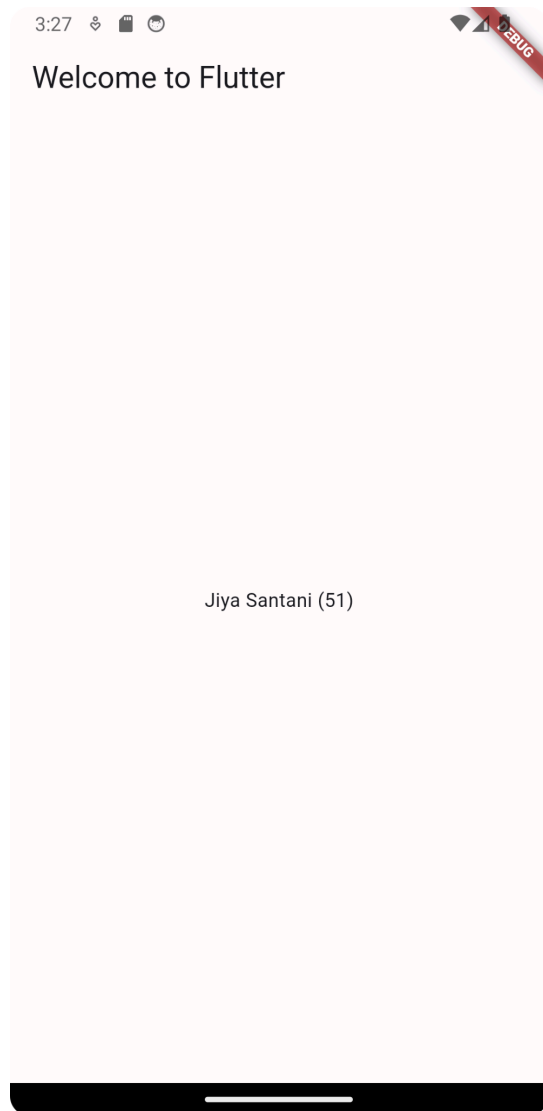


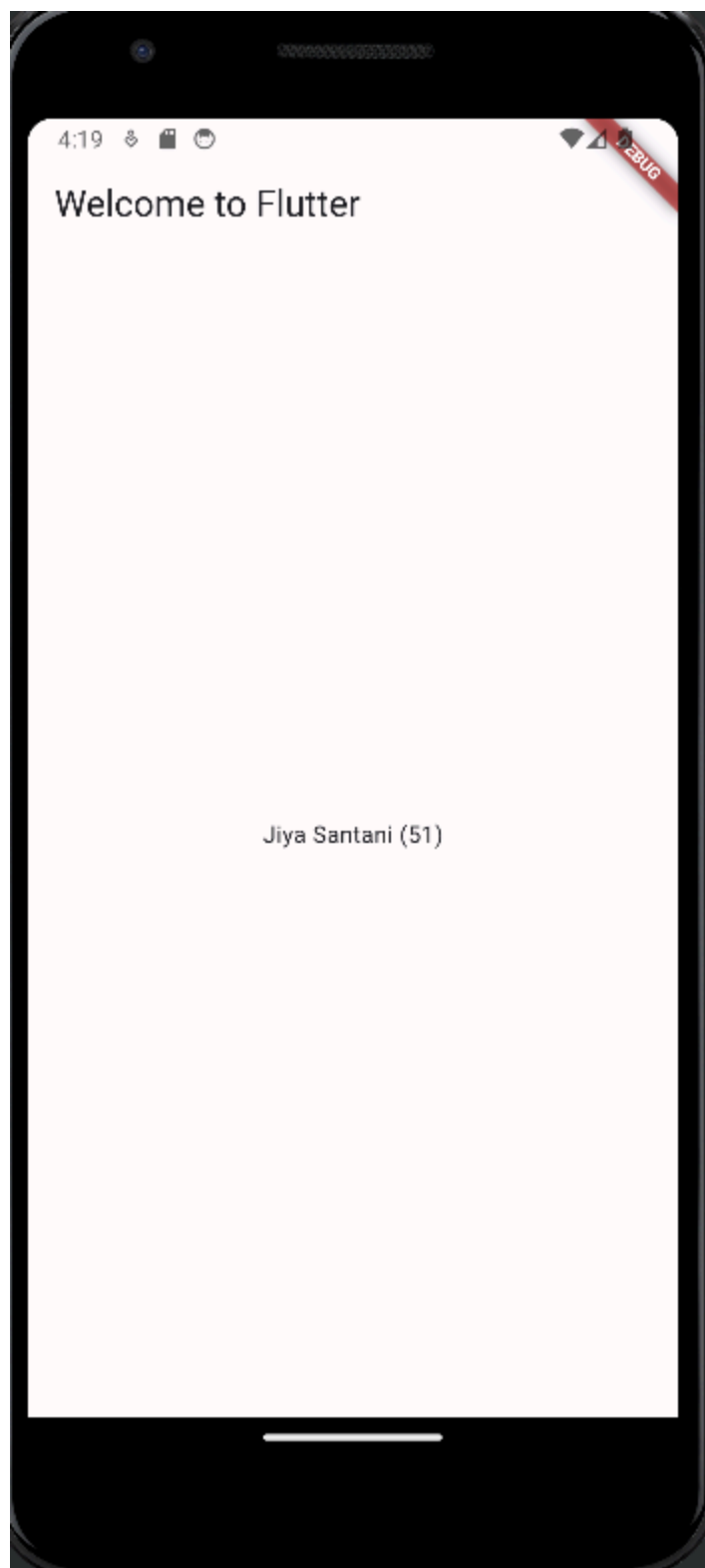
Code:

```
import 'package:flutter/material.dart';
void main() {
```

```
runApp(const MyApp());  
}  
class MyApp extends StatelessWidget {  
  const MyApp({Key? key}) : super(key: key);  
  @override  
  Widget build(BuildContext context) {  
    return MaterialApp(  
      title: 'Welcome to Flutter',  
      home: Scaffold(  
        appBar: AppBar(  
          title: const Text('Welcome to Flutter'),  
        ),  
        body: const Center(  
          child: Text('Hello World'),  
        ),  
      ),  
    );  
  }  
}
```

Output:





Conclusion:

In this experiment I installed flutter and android studio in windows, edited the environment variable for flutter and performed the first hello world program in android studio.