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App Development using Flutter Technology

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ABSTRACT: Cross-platform mobile application development is the pressing priority in today's world and generation. Developers are enforced to either construct the same application numerous times for various OS (operating systems) or accept a low-quality similar solution that trades native speed and accuracy for portability. Flutter is an open-source SDK for developing high-performance and more reliable mobile applications for operating systems like iOS and Android. Significant features of the Flutter are Just-in-time compilation which executes the computer code that encompasses compiling during program execution at run time rather than preceding execution. More frequently, this comprises of bytecode translation lesser known as source code to machine code, which is unswervingly executed. AOT compilation (Ahead-of-time compilation) compiles a high-level programming language such as C or C++, or an intermediary representation such as Java bytecode or NET Framework Common Intermediate Language (CIL) code, into native system-dependent machine code so that the subsequent binary file can execute natively. Flutter has a feature called as hot reload which helps you easily experiment, build UIs, add features, and fix bugs. Hot reload works by inserting updated source code files into the running Dart Virtual Machine (VM). After the VM updates classes with the new versions of fields and functions, the Flutter framework automatically reconstructs the widget tree, permitting you to rapidly view the special effects of your changes. Flutter targets the top mobile operating systems like Android and iOS, it gives you a solution for GPU rendering and UI, powered by native ARM code

KEYWORDS: Cross-Platform Mobile application development, IDE, Android development, iOS development, Flutter, Dart

I. INTRODUCTION

Flutter is a tool for making applications on different devices. It was made by Google in 2017. Here are some good things about Flutter:

Makes apps for many things (phones, web, desktops and supports different types of operating systems) with one set of instructions and Apps made with Flutter work well and look nice. They have good speed and smooth movements because Flutter has its way to draw things quickly.

Flutter apps look and feel like the regular apps on each device because they use the same building blocks.

Flutter has many useful things you can use to make your app look good and work well.

Using Flutter technology for web development is exciting. Flutter, made by Google, It was first used for developing a mobile applications but can now we used for web development too. This is a big helpful for web developers because it gives them a new way to develop good User-interface(UI) and interactive web applications. With the of Flutter, web developers can make web applications that look great and work well on different devices. This is an advantage for the frontend of web development.



II. FLUTTER

Flutter is a software development kit(SDK), which is free software (opensource) UI and developed by Google. It is used for produce multiplatform or platform independent applications that execute on multiple operating systems like Android, iOS, Linux, macOS, Windows, and single codebase use for all OS. First described in 2015, In May 2017 Flutter was released.

Flutter work on reactive programming language called Dart, making development faster and easier than another method.

It is a fast-rendering engine that makes it possible to develop high-performance applications. It does this by compiling Dart code into native code for each platform. This makes Flutter apps as fast as native apps.

III. ADVANTAGE OF FLUTTER

- A. Cross-platform development: - You can use Flutter to make apps for different devices like phones, web, and computers. This means you have to write only single codebase for all these devices, which is a big timesaver for developers.
- B. High performance: - Flutter web apps work really well and have smooth movements. They're this way because Flutter uses its own rendering engine that's made to be fast and efficient.
- C. Native look and feel: - Flutter web apps look and feel like they belong on each device. This is because Flutter uses the building blocks from each device to make its interface look right.
- D. Rich UI component: - Flutter has lots of amazing buttons and things you can use to make your web apps look great (It is also known as a Widgets). It's easy to create awesome and user-friendly web apps with these.

IV. DART

Dart is a object-oriented programming and general-purpose, that is made by Google. It is helps to create web and mobile applications, as well as server side and desktop applications. Dart is designed to run efficiently on devices such as smart phones and tablets.

Dart is useful for making different kinds of apps:-

- a) Web apps: You can use Dart to make fast and interactive web apps.
- b) Mobile apps: Dart works for making apps on Android and iOS phones.
- c) Desktop apps: You can use Dart for apps on Windows, macOS, and Linux computers.
- d) Server apps: Dart is good for making things like APIs and microservices that run on servers.

V. KEY FEATURES OF FLUTTER

There are some of the features of Flutter.

- a. Hot reload :- Hot reload is like a speedy way to see your code changes on the app. It makes designing your app faster and helps you correct errors, which saves time and money. For instance, when you change your code, Flutter updates your app without making you restart it. This way, you see the changes right away, making app design quicker and more efficient. Plus, hot reload makes finding and fixing bugs easier because you instantly see the results of your changes.
- b. Cross-platform development :- Flutter helps developers use one set of code for different platforms. You can write the same code for multiple operating system's apps. Not only can you share the way the app looks, but also how it appears. This makes it simpler to manage one codebase instead of different ones for various platforms.



- c. Widget library :- Everything is called a widget, like building blocks for your app. Widgets can be simple things, like colors or menus, or more complex things. Flutter has its own widgets, like Cupertino pack and Material Design, which help make your app work well. These widgets are like pieces you put together to build your app.

In Flutter, there are main two types of widget: -

- i. Stateless widgets: These widgets stay the same and don't change. No matter what you change in code, it always look the original UI. Some examples are Text, Button, and Icon. ii. Stateful widgets: These widgets can change and look different based on what you do. For example, things like Text Field, Slider, and Checkbox are stateful widgets. Here are some examples of widgets in Flutter: -

- Text: Displays text.
 - Button: A button that can be clickable.
 - Icon: Displays an icon.
 - Image: Displays an image.
 - Container: A container that can hold other widgets.
 - Row: A widget that arranges its children in a row.
 - Column: It's like things lined up one below the other.
 - Stack: It's like things stacked on top of each other.
 - ListView: It's like a list that shows items one after another. □ Form: A widget that allows users to enter data.
 - Scaffold: A widget that provides the basic structure for a Flutter app.
- e) Native Performance :- In Flutter, there are widgets for different systems like Google Fuchsia, Android, and iOS. You can use these widgets to get system-specific features in your Flutter app. You can also use code from Java, Swift, or Objective-C to use things like the camera and location services. This means Flutter can easily work with other apps and services.
- f) Open-source :- Flutter is developed by Google as a free tool for everyone. It gives developers many ways to design apps. You can develop an user-friendly applications with Material Design and another widgets. If you need help or have questions about Flutter, there's a community called Flutter Form where people talk about it. You can find lots of information and help for Flutter online because it's free, and there's detailed documentation.

VI.CONCLUSION

Flutter, made by Google, is a simple tool for building apps on phones, the web, and computers with the same instructions. It has a cool "hot reload" feature that quickly shows changes, making design and fixing mistakes faster. Flutter has different pieces to make your app look how you want, and it works on many devices. It's free and has a friendly community, which is good for developers. In short, Flutter is an easy tool to make apps that work on different devices, looks good, and is free with lots of help available.

REFERENCES

1. Bhagat, S. A. "Review on Mobile Application Development Based on Flutter Platform." *International Journal for Research in Applied Science and Engineering Technology* 10.1 (2022): 803-809.
2. Feature of [Flutter](https://www.educative.io/answers/what-are-the-features-of-flutter):[-https://www.educative.io/answers/what-are-the-features-of-flutter](https://www.educative.io/answers/what-are-the-features-of-flutter)
3. thefeatures-of-flutter
4. TĂBUȘCĂ, Alexandru, Cristina Coculescu, and Mironela Pîrnău.
5. "FLUTTER TECHNOLOGY AND MOBILE SOFTWARE APPLICATIONS." *Journal of Information Systems & Operations Management* 16.2 (2022).
6. Tashildar, Aakanksha, et al. "Application development using flutter." *International Research Journal of Modernization in Engineering Technology and Science* 2.8 (2020): 1262-1266.



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