Native Application Development using flutter

SYNOPSIS

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BY

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Approval Sheet

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is approved for the partial fulfilment of the requirement for the award of **Diploma** in **Information Technology**

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Abstract

Flutter is a cross-platform User Interface development framework that is used to develop cross platform applications using a single code base. Flutter can be used to build beautiful, natively compiled application for various platforms such as Android, iOS, Windows, Mac, Linux, Web, etc. using a single codebase.

The key features of the Flutter Framework are Fast Development using the Hot Reload, Expressive and Flexible User Interface(UI) and the Native Performance.

Fast Development : Flutter's hot reload helps you quickly and easily experiment, build UIs, add features, and fix bugs faster. Experience sub-second reload times without losing state on emulators, simulators, and hardware.

Expressive, beautiful UIs: Flutter comes with easy to build, highly customizable UI widgets which can be used for easy development. Flutter also supports custom widget building using other widgets.

Native Performance : Flutter's widgets incorporate all critical platform differences such as scrolling, navigation, icons and fonts to provide full native performance on both iOS and Android.

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Chapter 1

Introduction

1.1 Introduction

If you ask ten different mobile developers how they develop their mobile applications for Android or iOS devices, you'll probably get 10 different answers. This use of different languages for different Operating systems creates the need of employment of development teams for each operating system like Android, iOS, Windows, Mac, Linux, as well as web-apps,etc. This severely affects the cost of the project to build.

To avoid this reason there was a need for cross platform development from the old-fashioned porting of apps. For solving this problem, Google developed the flutter framework to make cross platform development easier, with the view of -'One codebase, multiple platforms!'.

- **History of Flutter :**

Flutter began it's life in the year 2017 under the name 'sky' at the dart developer summit.At first, it ran only on google's own own Android operating system, but before long was ported to Apple's ios.

Various preveiw versions of Flutter were released subsequent to its initial announcement, culminating in the December 4th,2018, release of Flutter 1.0, the first "Stable" release. One of the main goals of Flutter as stated was, 'being able to render app UIs at consistent 120fps no matter what."

Fltter iffers twi sets if wudgets : Material design widgets and Cupertino design widgets.

1.2 Flutter Keywords

1. UI : User Interface

Chapter 2

Problem Statement

2.1 Problem Statement

Native Application Development using Flutter.

2.2 Solving Approach

Flutter is a comparatively new framework in the cross platform development field, released recently in the December of 2018. From it's release it has received a lot of adoration from the developer community, as it is build on Dart a language developed by Google itself.

2.3 Outcomes

These are the different tags which will be included in the Seminar :

1. Home :
    - Flutter
    - Dart
    - Native App
    - OS
    - Web
    - Cross Platform
    - Contents

2. History :

   - The first version of flutter was known by the codename as 'sky' and ran on the Android OS. It was unvailed at the Dart developer summit in the year 2015.
   - The main intent of flutter SDK was to render at a consistent 150 frames per second.
   - On 4th December 2018, the first stable version of Flutter , v1.0 was released at the flutter live event.
   - On September 8th 2021, Dart SDK version 2.14 and flutter SDK version 2.5 were released by Google.

3. Importance :

   - Flutter framework is very important and is trending for a reason: it's an efficient way of building great-performing and beautiful apps.
   - Flutter allows you to create cross-platform apps that provide native performance.
   - Apps created with Flutter feature beautiful and intuitive design and are able to run animations smoothly.
   - It comes with a wide variety of dependencies which are easily accessible and well documented.
   - The dependencies can be found on 'https://pub.dev/'.

4. Photo Gallery :

2.3.4.1 Dash: Official Mascot of Dart and Flutter

2.3.4.2 Flutter logo

2.3.4.3 Dart Logo

5. Hot Reload :

- Flutter's hot reload feature helps you quickly and easily experiment, build UIs, add features, and fix bugs.
- Hot reload works by injecting 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 rebuilds the widget tree, allowing you to quickly view the effects of your changes.

6. Overview:

- So overall flutter is a very efficient and cost effective framework which has a high scope for development of cross platform as well as native applications in the present as well as upcoming future.

Chapter 3

References

1. https://flutter.dev/
   "This is the official website of Flutter."

2. https://pub.dev/
   "This is a website where developers can access various open source dependencies and implement them in their project."

3. https://dart.dev/
   "This is the official website for Dart programming language."

4. Practical Flutter - Frank Zammetti
   "This is a great book for anyone who wants to learn to code using flutter framework and build cross platform apps."

5. https://www.youtube.com/playlist?list=PLOU2XLYxmsIJ7dsVN4iRuA7BT8XHzGtCr
   "This is a link to a flutter playlist on youtube made by people working on flutter at google themselves."

6. https://www.reddit.com/r/FlutterDev/
   "Flutter forum on reddit contains various doubts, release notes , bugs, bug fixes, etc."

7. https://discord.com/invite/N7Yshp4
   "Flutter community on discord is a great place to chat with other flutter developers, post your doubts, solve other people's doubts and to grow better as a developer."