A

Seminar Report

on

Deployment of app using Google cloud platform (GCP)

Submitted in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

In

INFORMATION TECHNOLOGY

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Academic Year 2021-2022

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CERTIFICATE

*This is to certify that the Seminar entitled "**Deployment of App using Google cloud Platform(GCP)**" is submitted by **Dhiraj Ravindra Bodaake (18141216)** under my supervision and guidance, partial fulfillment for the award of the BACHELOR OF TECHNOLOGY in Department of Information Technology from Government College of Engineering, Karad for the academic Year 2021-22 Sem. VII.*

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Seminar Guide

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ACKNOWLEDGEMENT

Apart from individual efforts, the success of any Seminar project depends largely on the encouragement and guidelines of many others. We take this opportunity to express our gratitude to the people who have been instrumental throughout the project work.

It is our privilege to express our gratitude towards our guide, **Prof. A.B. Chaudhari**, for their valuable guidance, encouragement, inspiration and whole-hearted cooperation throughout the project work. We thank him for being a motivation through all our highs and importantly, our lows.

We deeply express our sincere thanks to our Head of Department **Dr. Prof. S. J. Wagh** for encouraging and allowing us to present the seminar project on the topic "**Deployment of App using Google cloud Platform(GCP)**" and providing us with the necessary facilities to enable us to fulfill our project requirements as best as possible. We take this opportunity to thank all faculty members and staff of Department of Information Technology, who have directly or indirectly helped our project.

We pay our respects to honorable Principal **Dr. A. T. Pise** for their encouragement. Our thanks and appreciations also go to our family and friends, who have been a source of encouragement and inspiration throughout the duration of the project.

ABSTRACT

Today, Google Cloud Platform (GCP) is one of the leaders among cloud APIs. Although it was established only five years ago, GCP has gained notable expansion due to its suite of public cloud services that it based on a huge, solid infrastructure. GCP allows developers to use these services by accessing GCP Restful API that is described through HTML pages on its website. However, the documentation of GCP API is written in natural language (English prose) and therefore shows several drawbacks, such as Informal Heterogeneous Documentation, Imprecise Types, Implicit Attribute Metadata, Hidden Links, Redundancy and Lack of Visual Support. To avoid confusion and misunderstandings, the cloud developers obviously need a precise specification of the knowledge and activities in GCP. Therefore, this paper introduces GCP MODEL, an inferred formal model-driven specification of GCP which describes without ambiguity the resources offered by GCP. GCP MODEL conforms to the Open Cloud Computing Interface (OCCI) metamodel and is implemented based on the open source model-driven Eclipse-based OCCIware tool chain. Thanks to our GCP MODEL, we offer corrections to the drawbacks we identified.

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List of Abbreviations

Acronym	Definition
GCP	Google Cloud Platform
IT	Information Technology
UI	User Interface
AWS	Amazon Web Services
DevOps	Development and Operations

CHAPTER NO : 1

INTRODUCTION

1.1 GCP(Google cloud platform):

Google Cloud Platform is a suite of Public cloud computing services offered by Google. The platform includes a range of hosted services for compute, storage and application development that run on Google hardware. Google Cloud Platform services can be accessed by software developers, cloud administrators and other enterprise IT professionals over the public internet or through a dedicated network connection. Google Cloud Platform is a suite of Public cloud computing services offered by Google. The platform includes a range of hosted services for compute, storage and application development that run on Google hardware. Google Cloud Platform services can be accessed by software developers, cloud administrators and other enterprise IT professionals over the public internet or through a dedicated network connection.

1.2 Google Firebase:

Google Firebase is a Google-backed **application development software** that enables developers to develop iOS, Android and Web apps. ... Real-time database – the Firebase Real-time Database is a cloud-hosted NoSQL database that enables data to be stored and synced between users in real time.

1.3 Flutter :

Flutter is an open-source UI software development kit created by Google. It is used to develop cross platform applications for Android, iOS, Linux, Mac, Windows, Google Fuchsia, and the web from a single codebase.
Flutter avoids using a bridge to communicate with the native layer (such as Android or iOS)., Flutter having its own programming language means that to get your app developed, you'll need developers to code in Dart

1.4 Dart :

Dart is a programming language developed by Google and it is client-optimized and is used for building applications that can run on multiple platforms. It can be used to build desktop, server, web, or mobile applications. Dart has a C-style syntax and is a garbage-collected, object-oriented, class-based language. It is developed and maintained by Google and has enormous official and community support as it is the primary language for Flutter development. With the newest version of Dart, rare but very useful features like sound NULL safety are also provided which bolsters the overall ability of the Dart programming language.

1.5 Android Studio :

Built on JetBrains's IntelliJ IDEA integrated development environment software and designed purposely for Android development, Android Studio is the official IDE for the Android operating system. It is a fast, powerful, and feature-rich IDE with a fast Emulator which is very helpful in installing and running Android applications at a remarkably higher speed and testing the application under various Android configurations. Due to the proprietary nature of the iOS environment and various security differences as compared to Windows the IDE of choice for MacBook i.e., iOS testing and development is handled by XCode.

CHAPTER NO : 2

Literature survey

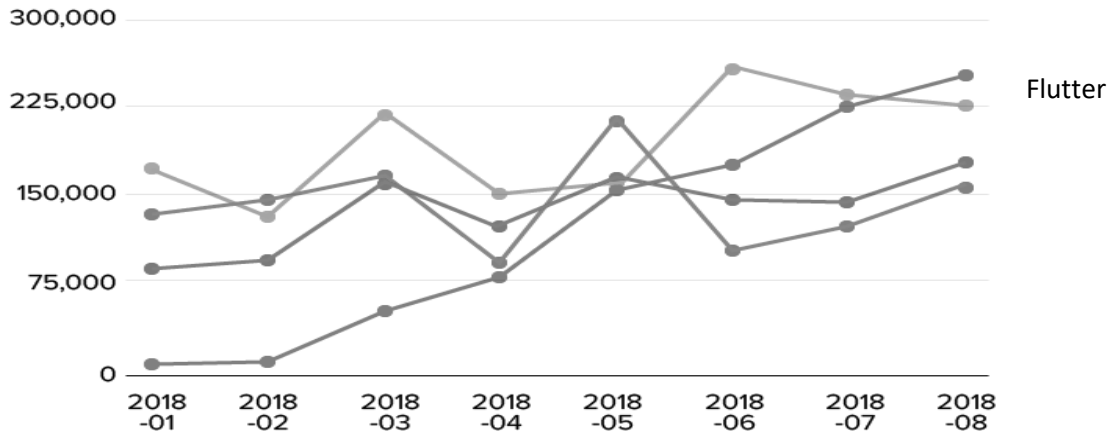
2.1 Flutter Firebase developer survey 2018

The User Experience Research team conducted a survey to review user satisfaction and needs. A respectable 1,016 developers responded to the survey. So, what did they find out ? First off, Flutter developers are a diverse bunch with all kinds of backgrounds. Given that it's for mobile development, it's a given that Android developers are well represented (67%), but web developers (45%) and iOS developers (30%) made a decent showing.

Flutter went live in December 2018 but it reached 2 million users by April 2020.

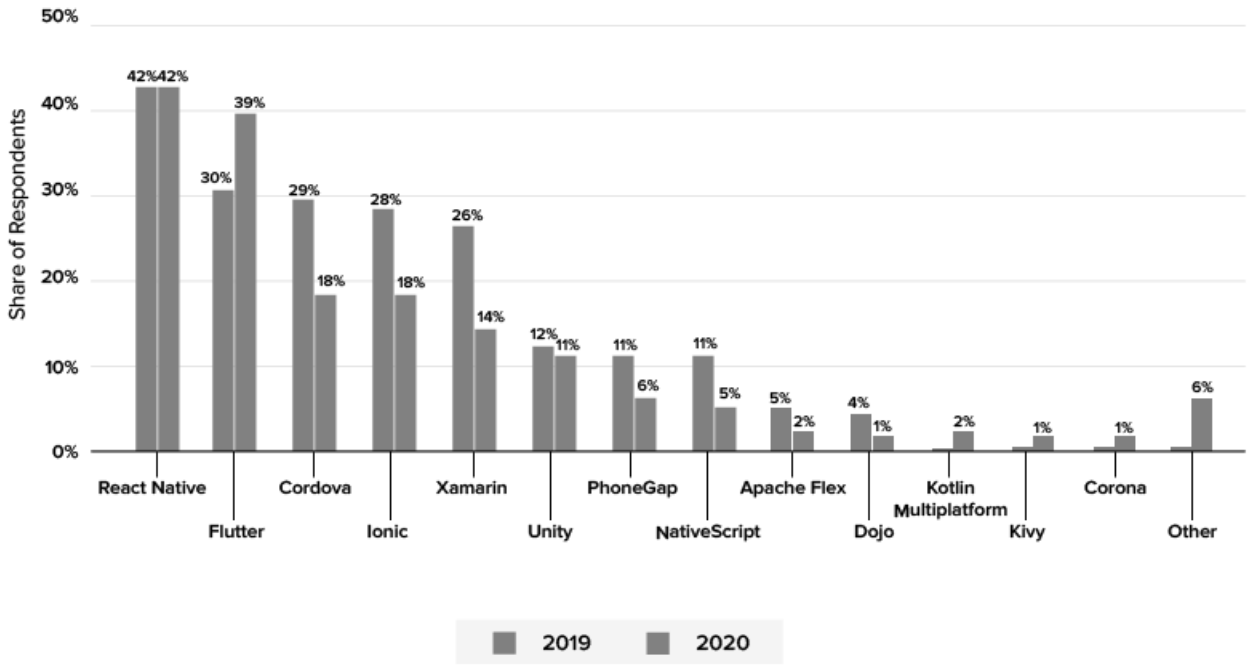
Google released version 1.20 of its Flutter cross-platform framework for mobile, web and desktop, and reports that the number of Flutter-built apps in the Play store has increased from 50,000 to 90,000 since April 2020.

Flutter's beta version was launched on 13th March 2018 and it was first to live on 4th December 2018. In such a short amount of time, Flutter had already established its position in the market. Let's take a look at the graph below to understand the popularity of Flutter when it was just launched as compar



ed to other mobile platforms.

- Flutter has acquired 114k stars on GitHub
- Google broke down the share of Flutter developers and here is all you need to know: 35% work for a startup, 26% are enterprise developers, 19% are self-employed, and 7% work for design agencies.
- In a survey of cross-platform mobile frameworks used by software developers



Worldwide in 2019 and 2020, 39% developers chose Flutter app development.

The state at which Flutter is growing, on both market presence and features front, has made developers confident that the future of cross-platform application development belongs to Flutter and I second their opinion.

CHAPTER NO : 3

Current Case study

3.1 A Research Paper on a Progress Tracking Application using Flutter and Firebase .

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429

Volume 9 Issue 5 May 2021

Parth Jindal, Piyush Sharma, Mohit Kumar (B. Tech Students, Department of Computer Science and Engineering, Global Institute of Technology, Jaipur, Rajasthan, India)

About - Task Management applications are readily used by many individuals; however, various clients utilize the applications distinctively relying upon their specific necessities. To recognize the issues faced by clients of task applications, I directed exploration to build up a comprehension of the market and clients' necessities. Web-based media and other easily available online interruptions make it difficult for us to remain fixed on our tasks and make it hard for us to tackle our job proficiently. Additionally, continually switching between tasks may give us the false inclination that we are being gainful when we are, indeed, not. It's more significant for us to focus on assignments and work on those that are generally significant, instead of zeroing in on erasing little things from our daily agenda only to feel good. The objective of this application is to assist us with getting mindful of how we invest energy and time doing those tasks and how profitable that time is. It can help in improving our productivity by giving is a descriptive, pictorial view of our daily timeline and how to improve it. When we have a description of the assessed time we'll have to spend on our undertakings, alongside the approved time spent on the things for reference or individual/group reviews, we can deal with our day-by-day schedules all the more proficiently. Keywords: Flutter 2.0, Firebase, Dart, Android Studio, Application Development, Cross-Platform Development .

3.2 Application of Firebase in Android App Development-A Study

International Journal of Computer Applications (0975 – 8887) Volume 179 – No.46, June 2020

1.Chunnu Khawas (Department of Computer Applications Sikkim University Gangtok, India)
2.Pritam Shah (Department of Computer Applications Sikkim University Gangtok, India)

About - The web application has become more and more reliant upon large amount of database and unorganized data such as videos, images, audio, text, files and other arbitrary types. It is difficult for Relational Database Management System (RDBMS) to handle the unstructured data. Firebase is a relatively new technology for handling large amount of unstructured data. It is very fast as compared to RDBMS. This paper focuses on the application of Firebase with Android and aims at familiarizing its concepts, related terminologies, advantages and limitations. The paper also tries to demonstrate some of the features of Firebase by developing an Android app.

The server used for Android apps are Oracle SQL, Microsoft SQL Server, and MySQL which are connected to the server with PHP files. Then Firebase came into existence for Android apps which uses JSON for storing data. The other servers use a table (rows and columns) format for storing data. Firebase is NoSQL based. There are very few cloud based server available which are similar to firebase, like: AWS Mobile Hub- It is integrated console that helps to create, build, test, and monitor the mobile apps that leverages AWS services. CloudKit- It is an Apple framework which helps to save data and store assets but similar to iOS only. Parse Server- It was released by Facebook to replicate functionality of Parse which is an open source server. This is no longer in existence as Facebook shutdown this project.

CHAPTER NO : 4

Current Trends in Selected Topic

4.1. MCommerce apps built using Flutter

Mobile Commerce or MCommerce, as it is known, consists of selling to a savvy customer who is on the move, and who accesses eCommerce while being unplugged.Companies have been betting big on the mCommerce market, with mobile e-commerce spending in the U.S crossing a whopping $41.2 billion in mid-2019 itself!!

And Flutter developers have not been left behind. There is a bevy of mCommerce apps built using Flutter out there on the market, the most prominent of them being Alibaba's Xianyu app.

This mCommerce app is also a "re-commerce app," meaning it is primarily geared towards selling used goods. Apart from offering C2C trading, the app also offers services such as recycling, donating, and renting out products.

With 20 million active users and a mammoth 1,4 billion items on the platform, Xianyu (translated Idle fish) is going from strength to strength. In February 2020 alone, the app had a record 2 million downloads.

These statistics show that Flutter is the ideal technology to build a mCommerce app that can scale.

4.2. Flutter for Web apps

A web app uses web technology and a web browser to perform tasks over the internet. Want a good example of a Web app? This blog post was initially written in Google Docs, and the entire G Suite, including Gmail, Google Docs, Google Sheets, Google Calendar, are all examples of a web app.

Since Flutter is relatively new, we could not find a lot of applications that are entirely powered by Flutter for Web. We did, however, find a small web application called Neibre that was built using Flutter. Neibre is a technology platform that aims to connect local businesses to people in

their vicinity. Once you log in to the platform and become a Neibre, you can provide services such as Loans, Insurance, and even a property consultation service.

4.3. Flutter for Embedded Technology

Embedded systems have become an integral part of our lives over the past decade, not just with smartphones and tablets, but also with wearable technology like Smartwatches and the Internet of Things (IoT).

The global embedded systems market is set to grow from $86.5 Billion in 2020 to $116.2 billion by 2025. Wearables and IoT are the leaders in the areas inviting investments, and Flutter is making inroads as a framework of choice.

Flutter now runs directly on devices like the Raspberry Pi, and there are even APIs that can be embedded for Flutter freely available over the internet. This allows Raspberry Pi's powered by Flutter to be used on car screens, home appliances like smart fridges, and beyond.

A good example of Flutter running on an embedded platform is the Smart Display system on Google Home. Some of the Google-built features for the Smart Display system are run exclusively on Flutter, with the aim of extending the entire system UI by the end of the year.

CHAPTER NO : 5

Conclusion

In conclusion, Flutter is a good framework to consider in mobile application development. With all the convenience widgets and support for both Material and Cupertino design it is easy to create a good-looking user interface fast. One of the most helpful features of Flutter that speeds up the development process is the stateful hot reload of the application which allows (in most cases) the developer to see the changes in code immediately in the running application without actually restarting the app and losing its state.

CHAPTER NO : 6

Future Scope

The scope of cloud computing is very bright. According to a report, the cloud computing market in India is at $2 billion and is expected to grow with an annual growth rate of 30%. By 2020, the cloud computing market in India is supposed to reach $4 billion and create more than a million jobs in this country. Roles specific to this domain, such as Cloud Infrastructure Engineer, Cloud Architect, Cloud Enterprise Architect, and Cloud Software Engineer, are in massive demand according to a report. Cloud computing helps companies in saving money as they don't have to buy expensive data storage facilities and servers. These pieces of equipment can be highly costly, and many companies can't afford them. Through cloud computing, however, they can avail the same benefits at a little cost.

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