**Synopsis**

**on**

**Traversing Serverless Architecture**

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**Submitted by**

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**INDEX**

1. **Abstract 1.**
2. **Introduction 2.**
3. **Literature Survey 3.**
4. **Objective 3.**
5. **Research Methodology 4.**
6. **Gantt chart 5.**
7. **References 5.**

# Abstract

A serverless architecture is a way to build and run applications and services without having to manage infrastructure. Your application still runs on servers, but all the server management is done by cloud provider. The purpose of this project is to completely explore the serverless architecture in its whole depth and breadth. It contains the comparison of serverless way of architecting applications with the traditional way of deploying applications on provisioned servers. It includes the comparison of cost, dependency on code quality, type and domain of project and the correct way of architecting applications for serverless.

# Introduction

For a long time, [developers](https://www.bmc.com/blogs/application-developer-roles-responsibilities/) were torn. Instead of concentrating on the part of their job that makes the most difference, creating code, they spent a good portion of their time managing and caring for the [server infrastructure](https://www.bmc.com/blogs/what-is-it-infrastructure-and-what-are-its-components/). Plus, they had to tend to the operating system and web server hosting process required for application.

Their attention divided, maintenance work circular. There had to be an easier way.

Serverless computing allows developers to build apps without the headache of managing infrastructure. More specially, it enables them to write in serverless code *without* having to:

* Provision a server
* Ensure its functionality
* Create test environments on a server
* Maintain server uptime

This frees up teams and resources to focus their attention on [accelerating innovation](https://www.bmc.com/blogs/innovation-lab/) in today’s competitive digital economy.

The system makes use of the Google Maps API to get all the places around the selected location with all their information. Then, these locations are sorted based on ratings, distance, and various other constraints to place it before the user. For teams looking to unburden themselves from server maintenance and wanting to run their apps at scale, serverless computing can be the perfect solution.

Serverless has gone from cutting-edge to the mainstream as developers discover the ease and cost-effectiveness of adopting serverless computing. If you are looking for new ways to [deploy and release applications](https://www.bmc.com/blogs/software-deployment-vs-release/) faster and more frequently, then it’s time to consider serverless computing.

# Literature Survey

A lot of work has been done on traveller android applications. The Traveller applications are very popular android applications. But in our project, we will be adding some new features to the basic traveller application and we will require Google Maps API [2] and firebase cloud [1] to retrieve or store data and these features are:

1. One of the features of “Ease Travels” will be “Hire Guide” feature. The user can hire a traveller guide based on rating and description of a particular guide. The application will also show the location of the guide and also the price guide charges.
2. Another feature of this android application will be that it will show the estimate amount a trip will cost a user considering the number days a user has planned his/her trip as well as the description of places before visiting the city [5].

Earlier work in this field has used other methods for the traveller applications. Some these methods include traveller application based on activity [3], traveller application based on location rating [7], shortest path traveller applications [6], applications providing travel services by getting user location through GPS [8] and many more.

As many traveller applications are available but they differ in the basic idea and approach to that idea. Our project circles around the idea of making travelling easy for those who haven’t booked their trip package from any other source with the help of an easy-to use- android-application.

For UI of the android application, we will use XML and the designing will be done in android studio [4] and Firebase Cloud Firestore [1] is used for the storage of data.

# Objective

The primary objective of our project is to design an effective, optimized, and automated pipeline of the complete serverless architecture. The secondary objective is to create applications with different scenarios and to compare the cost, dependency on code quality, traffic dependency, and fit of different kind of projects in serverless.

We approach this problem:

1. Create a project on serverless architecture.
2. Compare it with the traditional server approach in terms of cost, code quality, flexibility, and fit of projects.
3. Automate the whole serverless architecture.

# Research Methodology

For the proposed system, the entire application is developed on android. Android is widely used in touch screen-based smartphones. Android has very large communities that extend its features and create apps that cover almost all aspects. Java language is the native coding language used in Android Studio and many Android API's available for the Java language. XML (Extensible Markup Language) is used for UI design. Firebase Cloud Firestore is used for storing the data about the user/guide, places to visit and the estimated expense.

The app will be divided into 4 sections. The first section is for the user and the guide login and registration. The second section will provide the estimated expense for visiting a particular city depending upon the days and other aspects. The third section shows the map of the city which will show the route and also provide other features like information about the tourist places around the city. Google Maps API allows maps to be added based on Google Maps data to an application. The fourth section is about adding a Hire Guide option while visiting a place and come into working if user wants to select guide feature, then notification of booking and other details will be shared with the guide.

**IMPLEMENTATION**

**A. Android Studio**: Android Studio is a software for android application development. It provides all the API required to create and application. It is a Gradle-based build Support which easily supports features of performance, compatibility and usability. Android Studio brings incremental changes to an existing app code or resource is now easier and faster. It accommodates a built-in Android Emulator to debug and run developing apps in Android Studio.

**B. Google Maps API**: Google Maps API automatically handles the access to Google Map Servers. It allows maps data to be added to the application. It can be used to add route designs, custom icons and markers to a basic map and change the perspective of a particular map area. User Interactions can be easily made efficient with the help of the API.

**C. Firebase**: Firebase is a platform that provides a Cloud firestore database. The Firebase API allows to store the data in the Firebase cloud and provides backend services. It features a NoSQL format, that indicates it do not require tables or queries and therefore providing an additional advantage over any other traditional relational database.

# Gantt Chart

|  |  |  |
| --- | --- | --- |
|  | August  Week1 Week2 Week3 Week4 | September  Week1 Week2 Week3 Week4 |
| IdentifyResearch Area |  |  |
| Design and Methods |  |  |
| Write Synopsis |  |  |
| Synopsis Presentation |  |  |

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