Covid-19 Tracker an Android based mobile application

BY

Md Mehedi Hasan
ID: 181-15-11233

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Md Azharul Islam Tazib
Lecturer
Department of CSE
Daffodil International University

Co-Supervised By

Mr. Narayan Ranjan Chakraborty
Assistant Professor
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

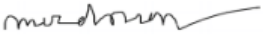
JANUARY 2022

APPROVAL

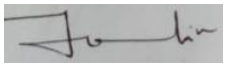
This Project titled **"Covid-19 Tracker"**, submitted by **Md Mehedi Hasan**, ID No: 181-15-11233 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 5 January 2022.

BOARD OF EXAMINERS

Dr. Touhid Bhuiyan (DTB) **Chairman**
Professor and Head
Department of CSE
Faculty of Science & Information Technology
Daffodil International University



Md. Riazur Rahman (RR) **Internal Examiner**
Assistant Professor
Department of CSE
Faculty of Science & Information Technology
Daffodil International University



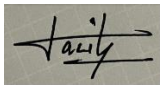
Md. Ohidujjaman Tuhin (MOT) **Internal Examiner**
Assistant Professor
Department of -------
Jahangirnagar University

Shah Md. Imran
Industry Promotion Expert **External Examiner**
LICT Project,ICT Division,Bangladesh

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md Azharul Islam Tazib, Lecturer**,**Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:

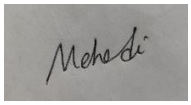


Md Azharul Islam Tazib
Lecturer
Department of CSE
Daffodil International University

Co-Supervised by:

Mr. Narayan Ranjan Chakraborty
Assistant Professor
Department of CSE
Daffodil International University

Submitted by:



Md Mehedi Hasan
ID: -181-15-11233
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

First we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project/internship successfully.

We really grateful and wish our profound our indebtedness to **Md Azharul Islam Tazib**,Lecturer, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of "*Android app development*" to carry out this project. His endless patience ,scholarly guidance ,continual encouragement , constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to the Almighty Allah and Head**,** Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

When the world was at a standstill due to the coronavirus epidemic,it was important for us to get daily updates on coronavirus.so that we have an android based application to know about coronavirus effected news of a country.Covid-19 Tracker is an Android based Application.Basically this is an informational application.From this application we will get everyday Covid-19 tracking updates.There have some screens like World wide,All list,Top effected Countries and some FAQS (For optional there have another screen to Contact with developer if user faced any kind of problem) everyday updates are Confirmed,Active,Recovered,Today Deaths,Total Deaths etc.In this smart world we have to take information in a smart way and our smartphone can easily handle it.so I developed Covid-19 Tracker application with flutter framework.In future we can extend our android app to Cross-platform app.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Introduction

This project is about an android application/software which is developed with Flutter framework.Nowadays, almost every work is being done in a smart way and smartphone help us on a smart way.Android smartphone have a lot of free software source and free download flexibility that gives users confident to use it because android OS is based on Linux and it's open source.So that anybody can make any kinds of application.Nowadays android is the most popular operating system in this world.

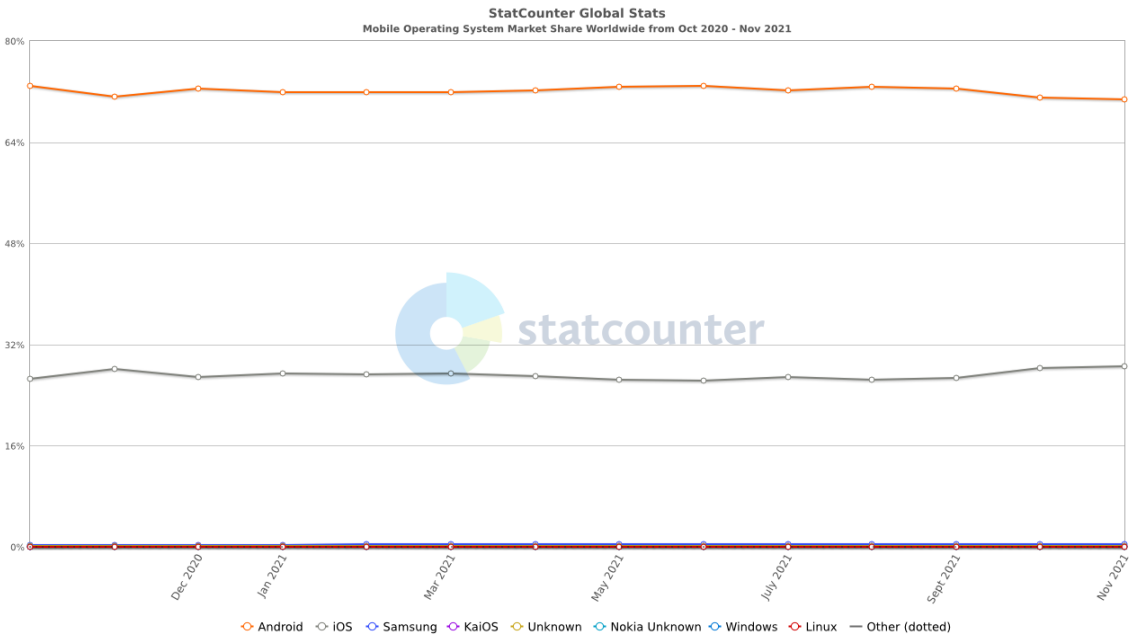


Figure 1.1 : Survey by "statcounter" on different smartphone OS

In this figure we can easily understand that most of the people are using android OS in this world.So This project application should developed based on android platform.Our application name is Covid-19 Tracker which is for informational type application.User can create account on this application or if user not interested then user can skip registration page.

1.2 Motivation

Nowadays Android OS is very popular and it's have a lot of open source application that's provide users easily for uses.Android based application are easy to access with smartphones.Google have App Store which is only for android OS named "playstore".In playstore there have a lot of application but most of those are fake and for fun.So,I decided I will make an application that provide me a realtime data and accurate updates.With this application we can collect donations and help the poor people Or another way We can connect our application with WHO(World Health Organization)for giving our collected donations if we want.

1.3 Objective

We know that people are dying for Covid-19 every day by day But we are not getting accurate updates on how many people are dying,effected or recovered every day.We will get the right updates every day through the application.This application provide us on realtime updates and it happen every Ten(10) minutes.

- To use Our app user must be use Android device.
- Every user can create there own account.
- User can get realtime updates world wide.

1.4 Expected Outcome

Covid-19 Tracker is an informational type application.Through this application user can get on realtime coronavirus effected peoples update.This application have world wide data.If user don't want to registration then user can skip this registration page.Just press on skip this page button.In this application there have FAQs page which will warn the user from coronavirus.

This application has some features:

- User can easily create there own account.
- User can skip registration page if user want.
- Pull to Refresh for realtime update.
- FAQs has information about coronavirus.

1.5 Report Layout :

We divide report layout into six(6) different chapters.Every chapter will discribe the different contexts of this project.

Chapter 1 : Introduction

In this chapter we will discuss about introduction,Objective,motivation and expected outcomes.

Chapter 2 : Background

In this Background chapter we will discuss about background of this project.Comparative studies,Related word,scope of problem and challenges that we face.

Chapter 3 : Requirement Specification

In this chapter contain of Requirement collection,Business process model,diagram and design of this project.

Chapter 4 : Design Specification

This chapter contain design,implementation requirements and interaction design of this project.

Chapter 5 : Implementation and Testing

In this chapter is consists of design,User testing, scope of further developments and Implementation of Database of this project.

Chapter 6 : Conclusion and Future Scope

This last chaper will contain about future scope and conclusion of this project.

CHAPTER 2
BACKGROUND

2.1 Introduction

Covid-19 Tracker is android based application and we can extend this for IOS users if we want.In this chapter we will discribe all about background part that we have been done and there have a lot of details and comparative analysis of this project work.This chapter we will explained that challenges we faced.

2.2 Related Works

In AppStore there has some this type of application but those are properly not working and we are not getting exactly realtime update or real data.Most application are fake and contain a lot of ads.So that I developed this application without contain ads.This application will help people to get realtime updates.

2.3 Comparative Studies

During the coronavirus epidemic time,there are many application is available in online.Lot of application are popular also But application owner getting all information all of the peoples and they are marking with this people.Those application contain ads.when any user open app to see update then the ads shown and this is disturbing for users.On the other hand our covid-19 Tracker application not contain any kind of ads.so that user can easily open the app and get update without bothering.

2.4 Challenges

There are some similar apps and almost similar idea but challenge part is application should support all android devices.Most of the android phone screen little so we have to ensure that's also support.Google has recently release a new programming language that name is Dart and Dart has a Flutter framework to develop android,ios,desktop,mac and linux os.In this project I just make for android OS only.The most challenging part is implementation UX/UI desing to Code.That I have done though it was difficult with a new environment.

CHAPTER 3
REQUIRMENT SPECIFICATION

3.1 Business Process Model

Business process model is a process management and system engineering that represent analyzing,building and process of the system.

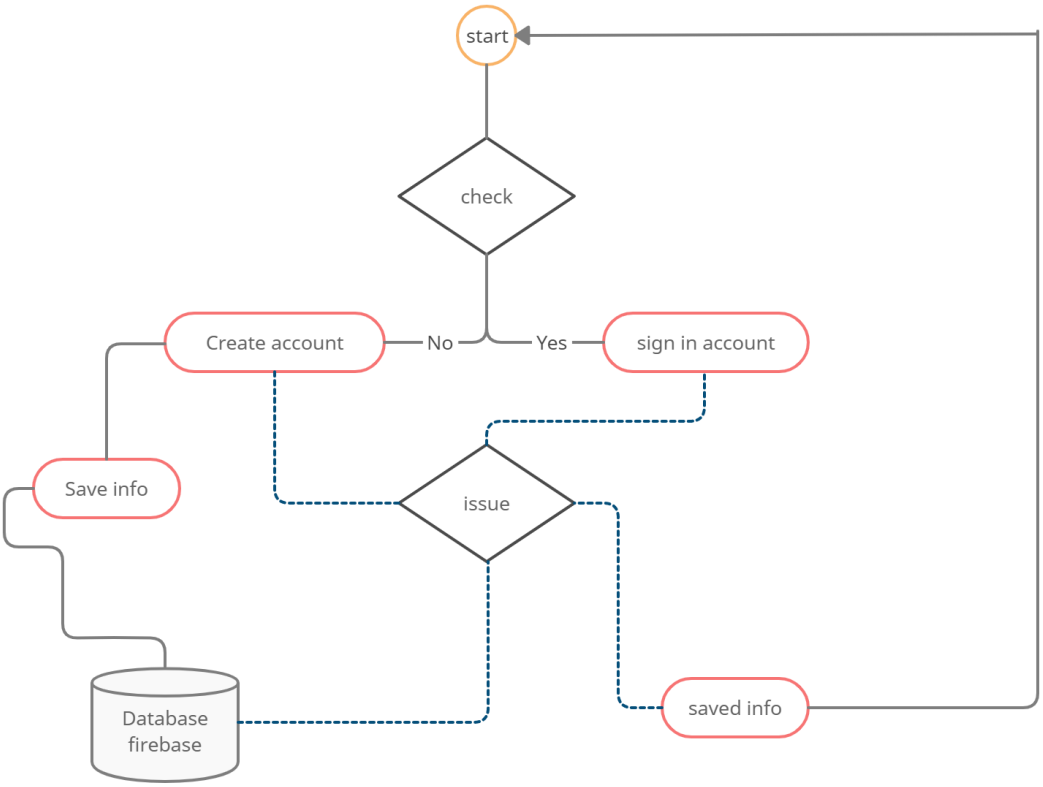


Figure 3.1 : Business Process Model

Here is my applications Business Process model that represent my applications basic structure.

3.2 Requirement Collection and Analysis

Requirement collection and analysis is the early of the procedure for documenting, resolving and requirements to meet the project goal.This is the hard and critical part of this development application project.Always in this part we have to think and analysis project for that application performance get better satisfaction for user.

3.3 Requirement for Application

In this part Requirement for application is important cause when I developed this application I need API to get data.when user login there own account or create new account then API called and particular API link provide us the realtime data.Also UX/UI needed for this part.Every developer should design first then developer coding followed by design.

3.4 Use Case Modeling and Description

User case Diagram are use to gather requirements of this Covid-19 Tracker application.To see this use case diagram we can easily understand of this project.

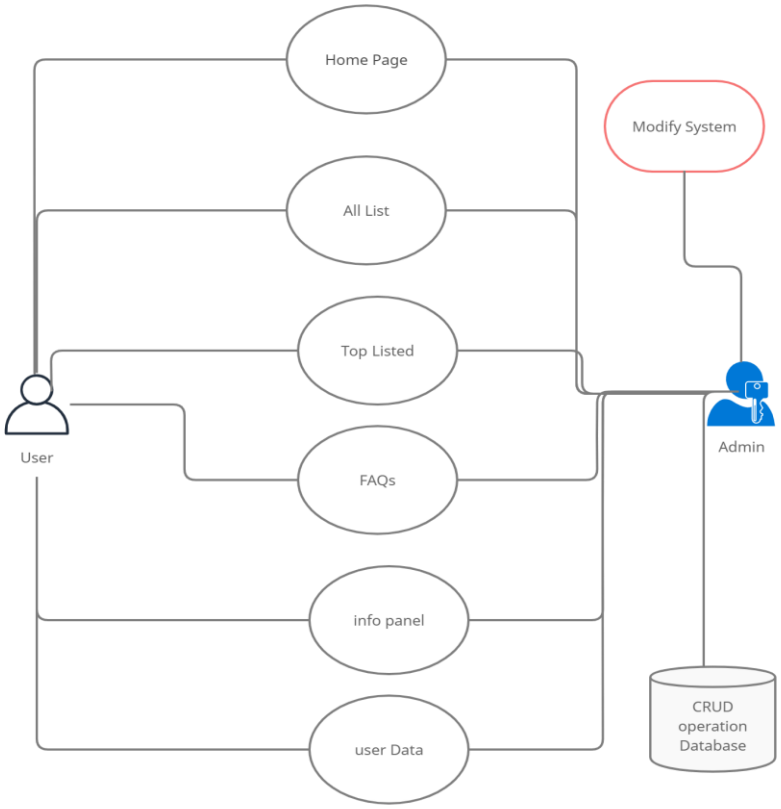


Figure 3.4 : Use case Modeling

3.5 Design Requirements

Design requirements is very important for developing any kind of application.Most of the cases for mobile app development.Every task maintain on a rules software development is one of them.A design part is very important for performance application.In this project design is user friendly modern and advance design tools figma is used for this application.
Covid-19 Tracker is maintain MVC pattern.Which full form is Model View Controller. It is very popular software design pattern.In this world big big software company are use this MVC pattern and followed this MVC pattern rules.

CHAPTER 4
DESIGN SPECIFICATION

4.1 Front-end Design

Front-end design is very common,essential and very important for a software.Front-end design keeps user's attention after entering application.In this Covid-19 Tracker it is the best part of creating my whole project interface.I always maintain to keep my project simple, unique and user friendly.

Splash Screen : when any user enter this application then user see this Splash screen.Then user navigate to account page. If user already have account then direct navigate to home page otherwise user must create an account or user can skip this account page.

Figure 4.1(i) Splash screen

Account page :

In this project **most of the interesting part is Internet connectivity checking**.If user forget to turn on Internet connection then user not able to go next page.see here

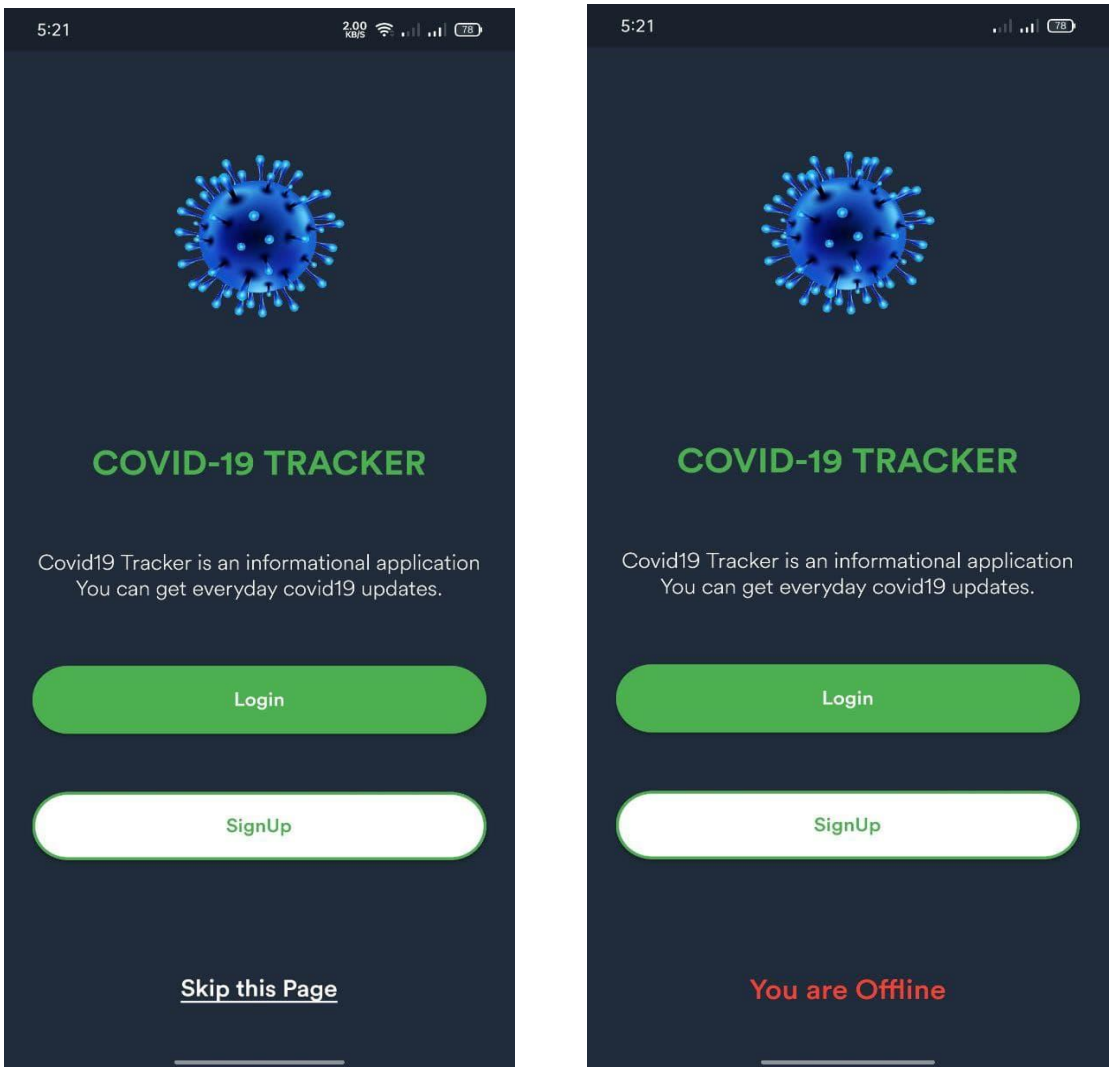


Figure 4.1(ii) account checking page

In this two screen shot there is difference between Internet connectivity checking.On the first image there is internet is turn on. If user want to create an account then user can do that otherwise user can skip this page to click **Skip this page** button. If user don't turn on Internet connection then user not able to go next page and also show You are Offline message.

Login and Registration Page :

I awlays try to design and developed my best.This is my login and registration page design.

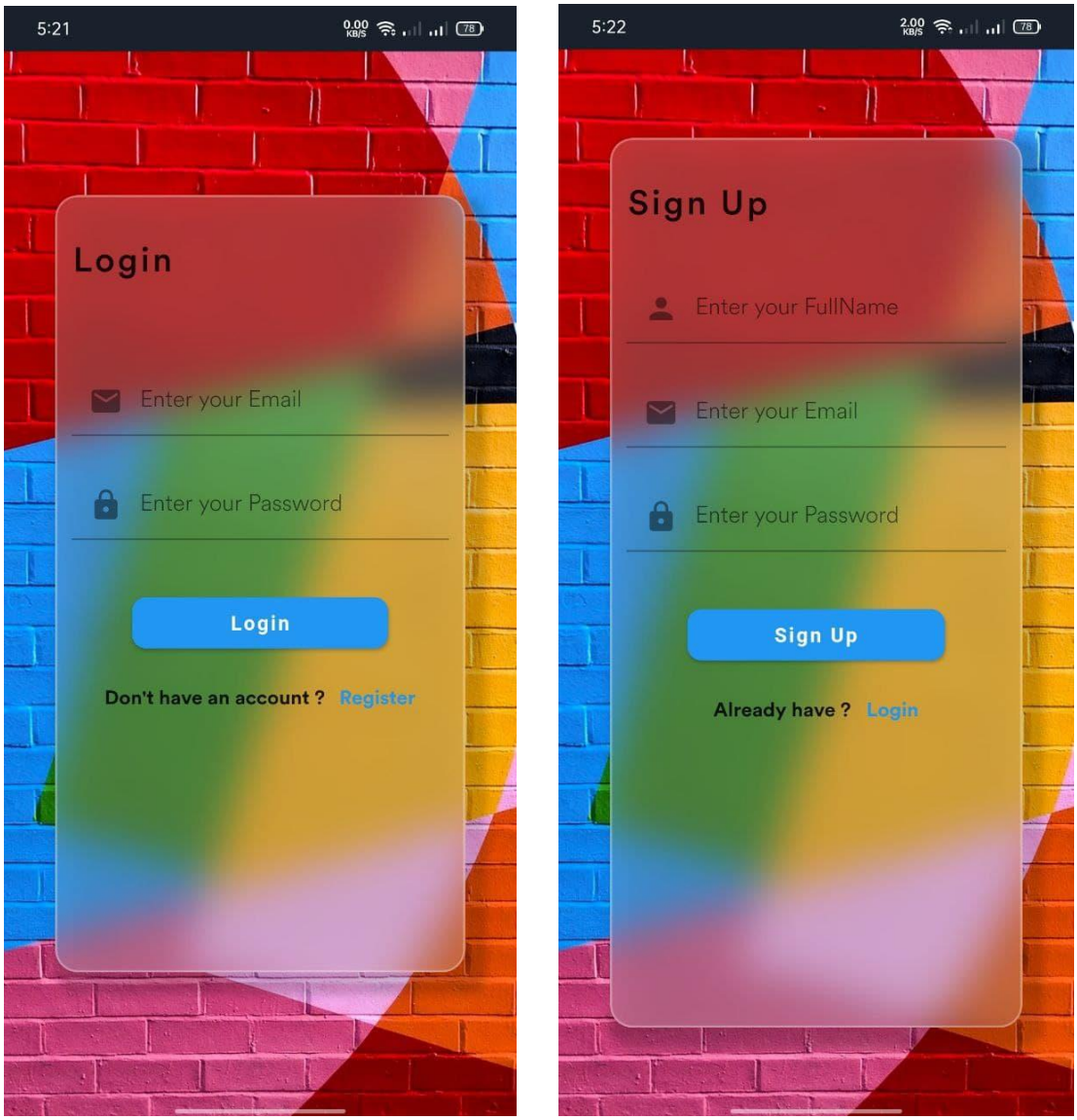


Figure 4.1(iii) Login and Registration page

Home Page :

When user login or registration any kind of software or mobile application then first attractive should be Home page. If home page design is best then user don't feel boring.

Figure 4.1(iv) Home Page

Here,I keep Bangladesh's information in front cause most of the user of this application are Bangladeshi.In this Home Page if user **pull** then refresh indicator will active and this application try to update with new data if available.In this home page section there has multiple named button to understand user and for user friendly.

4.2 Back-end Design

In this back-end design part is very very important. If you are a master of designer,if you have innovative mobile application business idea but in the end if you not implement those back-end properly you will be failure.
So that back-end is a heart of an application or software. Always a realtime data application is depend on back-end or API.In this case my application is depend on the API.If API not worked then my application will open but not getting any kind of data.

4.3 Interaction Design and UX

As a Covid-19 Tracker application is build with Dart and Flutter framework,I have always maintain and application was a lot of error for design part.Because of this is Cross-platform framework and this framework has different functionality called system for different platform based software.
For design this application I user Figma to UX/UI design and for coding part I used VS Code.The best way to developed Flutter apps,we should use VS Code cause VS Code suggest us for fast development.

4.4 Implementation Requirements

Implementation is the root for developing applications.In this part we will fulfill implementation requirements to build/make this application.
For complete this application we needed to use this implementation tools for developed application.Tools are given below.

VS Code editor : VS Code editor is light weight and very powerful IDE for development applications.Though Google suggest 1st use Android Studio but Android Studio is havy and most widely IDE.So I always prefer to use VS Code editor.

Flutter Framework : Flutter very popular and it's free open source UI toolkit for development any kind of applications.Flutter framework is Cross-platform so that we can make any kind of application for Android,IOS,desktop,mac and linux software.

Dart Language : Dart is a programming language that's very similar with JavaScript and Flutter is the framework of Dart.Dart is very powerful programming language and provide us first app development.

Emulator : For mobile app development we need a real android device or an android emulator to run our application.We can use emulator after installing Android Studio.Android Studio provide us android emulator for development.

4.5 System Requirements for run the Application

- Android device
- Operating system version : Min version 5.0
- Ram(random access memory) : 512mb

4.6 Hardware Requirements

- Microsoft Windows 7/8/10/11 (64 bit)
- Minimum 8GB RAM recommended
- Minimum space on disk 4GB ,8GB is recommended
- Minimum Screen resolution 1280*720

CHAPTER 5
IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In my project I use Firebase as a Database.Firebase provide us to store data,push notification,user analytics,realtime changes data etc.Firebase store data as a JSON (JavaScript object Notation) format.When we called data then firebase provide us user data as a JSON.
Here,In this Screenshot how we called checking connectivity and get user in the .dart file.

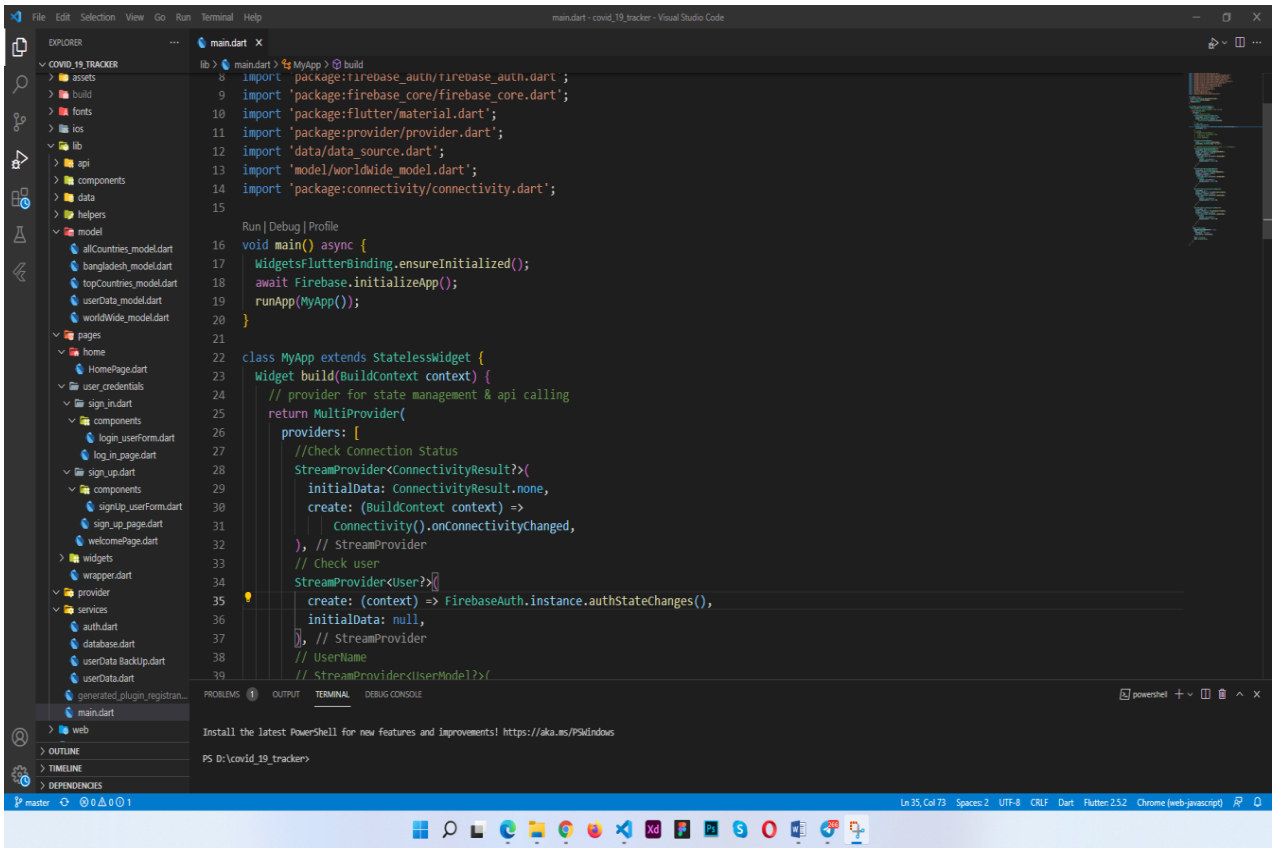


Figure 5.1 : Screenshot of my Coding of this project

5.2 Implementation of Interactions

Interaction is a way of utilizing a physical input/output to check how my project is performing.In this part basically I check every devices my application install as well I aspected.Always developer should know a complete application need to ensure user friendly because of a smooth application can be satisfy users.

5.3 Testing Implementation

In this part Testing is important of our application cause In this stage how this project is perform,how fast working, error testing, bug fixing happend this stage.When I connect my Application to firebase my application worked fine.Some tested factor are given below :

- Is application firebase database work properly?
- Is application login/registration work properly?
- When user enter application we have to check internet connection turn on/off ?

5.4 Test Results and Reports

After succefully complete my application I have to check my application properly worked or not.So that In this part I test this application properly worked and get data currectly.Then I check this application with different android phone to check it's responsive,properly worked or not ? But Finally this project worked fine and application performance was smooth.

Some screenshot are given below is my application worked or not but in case my application worked fine and I check my application one more day.Is my application really worked?Yes my application worked as well as I aspected .

Figure 5.4 Testing result

When I take this screen shot and I check All Countries List then I saw Afghanistan, Armenia, Austria got Todays deaths update.See 1st screen shot.Then I check Top Listed Countries List then I saw Russia TODAY DEATHS was 1221 in my checking day.So, Finally I seems my application is working.

CHAPTER 6
CONCLUTION AND FUTURE SCOPE

6.1 Discussion and Conclusion

All praise due to Allah.After all I have successfully build my application after a long time hard work, planning and implementation.For this project I face a lot of coding problems that was challenges for me but in case my hard work make it easy.Main purpose of my application is to develop and properly working for people.Finally I do that.

For complete this project my programming learning and skill is improving that I feel and I seems I can work with any kind of Flutter applications.To complete this project I learn a lot of thing that I observed.

6.2 Conclusion

To complete this project I face a lot of programming challenges but this challenges does not make me weak.when I solve this challenges my confidence level was increasing I seems that.When I was beginning of this project I have only some basic programming knowledge about Dart.After completer this project I learn a lot of programming skills, devices working process and applications life cycle.

6.3 Scope of further Developments

By developing this project, I learn the pre-plan for development.To keep this project better improvement here is my future planning for this project :

- I can add push notification.
- Develop for other OS like IOS,desktop,linux
- Make it this more user friendly and faster.
- I'll try to compress app size and quality improve.
- We will push survey to user collect any kind of information.

APPENDIX

First and formost I love to write code.Thanks Allah I successfully complete my task and I was enjoy it a lot.Whenever a crucial point came,I solve this alone.I was confidence my self for any kind of problems that I face.

Dart & Flutter Code :

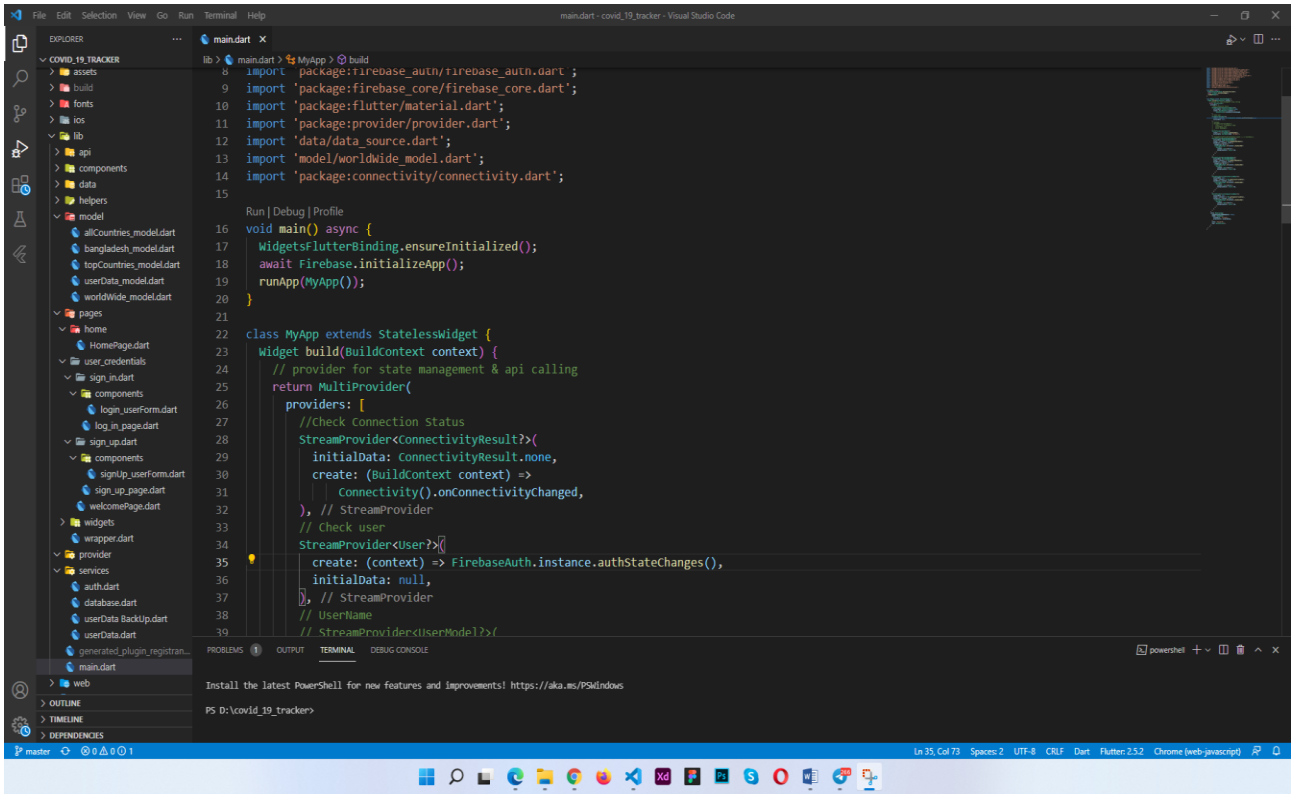


Figure : Dart & Flutter code

REFERENCES

[1] Most popular smartphone os ? Available at : << https://gs.statcounter.com/os-market-share/mobile/worldwide >> last access December 1, 2021

[2]What is business process model ? Available at : << https://www.bpmn.org >> last access December 1, 2021

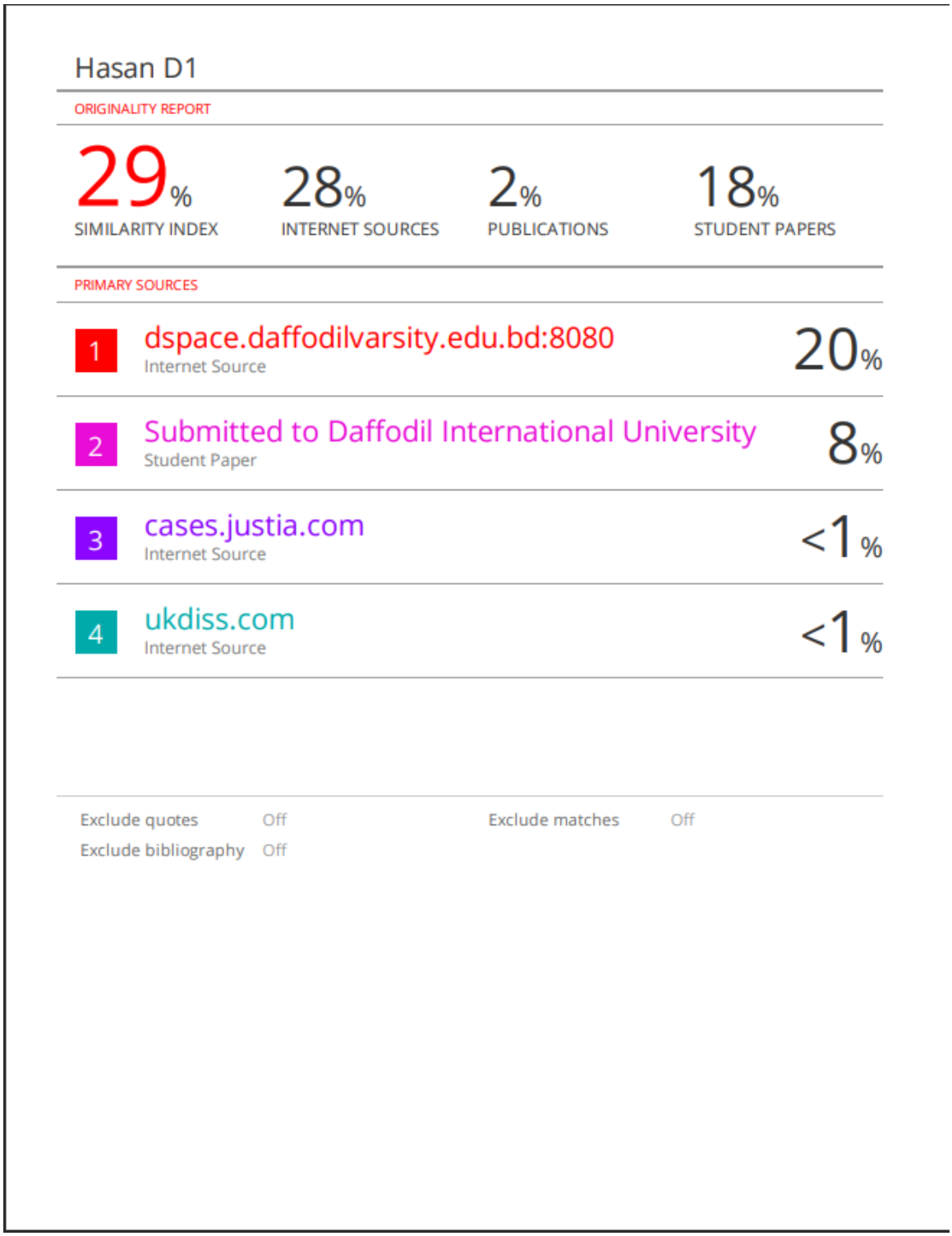
[3]What is Design Implementation ? Available : << Design Implementation - an overview | ScienceDirect Topics >> last access December 2, 2021

[4]What is User Experience (UX) Design ? Available : << https://www.interaction-design.org/literature/topics/ux-design >> last access December 4, 2021

[5] Android Studio. Available << https://developer.android.com/studio >> last access December 4, 2021

[6] VS Code Editor. Available << https://code.visualstudio.com/ >> last access December 4, 2021

PLAGIARISM REPORT



Hasan D1

ORIGINALITY REPORT

29%	28%	2%	18%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	dspace.daffodilvarsity.edu.bd:8080 Internet Source	20%
2	Submitted to Daffodil International University Student Paper	8%
3	cases.justia.com Internet Source	<1%
4	ukdiss.com Internet Source	<1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		