

COVID19 DATA APP USING JAVA

Project report submitted in partial fulfilment of the requirement
for the degree of Bachelor of Technology

In

Computer Science and Engineering

By

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Under the supervision of

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To



Department of Computer Science & Engineering and
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Candidate's Declaration

I hereby declare that the work presented in this report entitled “**COVID19 DATA APP USING JAVA**” in partial fulfilment of the requirements for the award of the degree of **Bachelor of Technology in Computer Science and Engineering/Information Technology** submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology Waknaghat is an authentic record of my own work carried out over a period from January 2020 to July 2020 under the supervision of **Dr. Pradeep Kumar Singh** (Associate Professor, Computer Science).

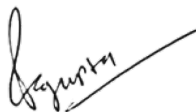
The matter embodied in the report has not been submitted for the award of any other degree or diploma.



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This is to certify that the above statement made by the candidate is true to the best of my knowledge.



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ACKNOWLEDGMENT

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ABSTRACT

Covid 2019 (COVID-19) is partner degree transferable sickness brought about by serious intense digestion disorder Covid. It completely was beginning known in December 2019 in metropolitan focus, China partner degreed has brought about an in progress pandemic. The essential affirmed case has been replicated back to Revolutionary Organization 17 November 2019. Starting at 18 June 2020, over 8.32 million cases are reputed across 188 nations and regions, prompting more than 447,000 passings. Over 4.03 million people have recuperated. The infection is fundamentally unfurl between people all through shut contact, most as often as possible by means of little beads made by hacking, sniffing, and talking. directed measures to stop disease grasp regular hand clothing , clothing Maintaining physical good ways from others (particularly from those with manifestations), isolate (particularly for those with indications), covering hacks, and keeping unwashed hands eliminated from the face. In accordance with the World Health Organization (WHO), there are no immunizations nor explicit no antibodies nor explicit antiviral medicines for COVID-19. Management includes the treatment of manifestations, auxiliary consideration, detachment, and test measures. The World Health Organization (WHO) announced the COVID nineteen characteristic occasion a general wellbeing crisis of global concern (PHEIC) on 30 Jan 2020 and an endemic on 11 March 2020.

1. Introduction

1.1 Introduction

We all are aware about the current world situation ,The whole world is suffering from COVID19 or we can say the coronavirus pandemic. Corona Virus Pandemic has worse the situation in whole world. As we know each and every country's government are continuously trying to make the situation better so that We(The People) can lead a normal life as we are having before this Corona Pandemic .Many NGO's, WHO and other Medical teams are working together to make the vaccine for this virus. Today, itself I heard about that Patanjali Group has released the tables called "CORONILL" which they claim that the results of this vaccine/medicines are 100% successful when they test it on patients in it's testing phase.

As a curious student I want to know the statistics related to the coronavirus statistics include total active patients, total deaths and total recovered patients as globally and on the basis of country so with the help of knowledge of API, Android Studio, Java. I have create an application related to this.

It has two route window 1.Home 2.Country. In nation Navigation, it will show the Result According to nation wise.it will likewise show what number of nations it will check so as to ascertain the outcome world insightful. Different applications were made or proposed, with bona fide government support in specific areas and districts. A couple of frameworks for building contact following applications have been made.

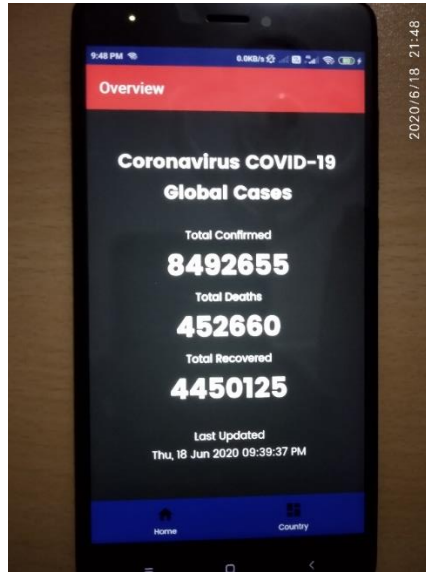


Figure1.1 :shows the application

Different Nation around the world such as India, U.S. , Australia and all others have created the corona app to their citizens so that they can update themselves about the corona information and make themselves aware about the statistics of it and in relation to this they have quite provide other information about the corona pandemic and there is one slogan common in all apps “STAY HOME STAY SAFE”.

India have also developed their own app called “AAROGYA SETU” which has distinct features, Indian Government has made it mandatory for government and private sector employees to download it. some of them are mentioned here:

- Client Status (tells the danger of getting COVID-19 for the client)
- Self Assess (enables the clients to distinguish COVID-19 side effects and their hazard profile)
- COVID-19 Updates (gives reports on neighborhood and national COVID-19 cases)
- E-pass reconciliation (If applied for E-pass, it will be accessible)
- It tells what number of COVID-19 positive cases are likely in a sweep of 500 m, 1 km, 2 km, 5 km and 10 km from the client



Figure 1.2: India covid19 App “Aarogya Setu”



Figure 1.3:”Aarogya Setu” app Setting

1.2 Problem Statement

How about we take a guide to clarify the difficult proclamation. Expect that you need the data like Total Corona understanding, Total Deaths and Total Recovered Patients,so so as to bring the information you are glancing through various Country explicit CORONA or COVID19 application to get the outcomes and in the event that you need

to realize more data like Total case which are enlisted today or Total passings happen today then you need to dive increasingly more into the application. It is likewise conceivable that this kind of data isn't accessible in their application. Imagine a scenario in which as opposed to looking through the data through various applications isn't smarter to get all these data and numerous other data in a solitary application. Sounds simpler!



Figure 1.4: shows different application build using android

1.3 Objective

The main objective of this app is to show statistics of the coronavirus patients in a user friendly manner, so that it is easy to be viewed by majority of the people. The scope of this app will not be too broad. On the contrary, it will be narrowed down to few functions which are mainly needed. The main functions involve world wide data and country wise data.

Statistics plays an important role when we want gather, review and draw conclusion from data. It also helps in order to make things clear and further we can represent the data in different formats such as histogram and pie chart to analyze the situation better.

Mailman is a Google Chrome application for collaborating with HTTP APIs. It presents you with an amicable GUI for developing solicitations and understanding reactions. The individuals behind Postman likewise offer an extra bundle called Jetpacks, which incorporates some mechanization devices and, most significantly, a Javascript testing library.

Another purpose is to generate data and view it on the screen of the mobile phones. The app will be developed in Android Studio in Java language, and the data will be collected from an postman API.

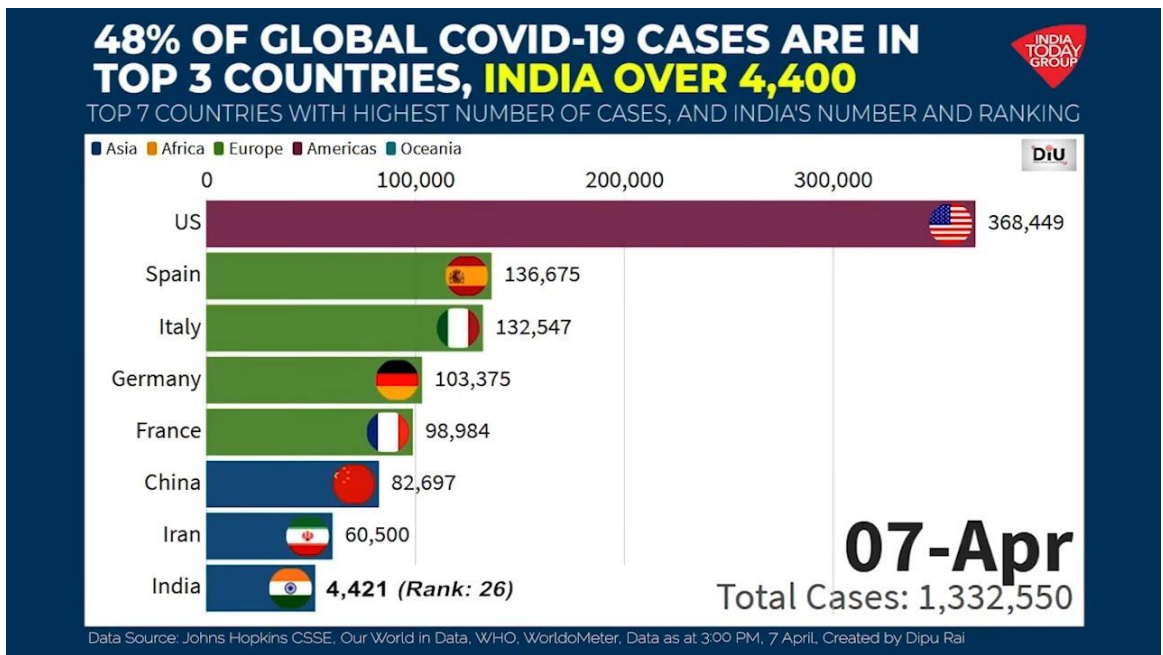


Figure 1.5: COVID19 Data Comparison

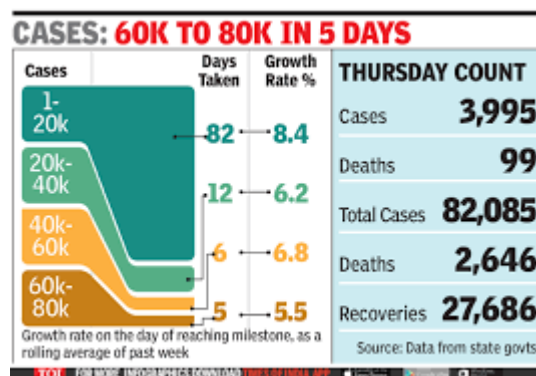


Figure 1.6: Shows the Difference to Double the COVID19 Cases

1.4 Methodology

I have used android studio to build this application so anyone who have android phone and Internet working can access this app.

Step 1: Since the app will be made in Android Studio, we will first need to make a java project and add the dependencies like volley, Recycler view. In order to add these libraries we have to add it in the gradle build tool.

Step 2: The data for the current cases is fetched from third party package or API. So, we need to create a java class so that we could connect the application to the API. The url for the API is as follows: <https://corona.lmao.ninja/v2/>, Hence, to fetch the current data we require a stable internet connection.

Step 3: The data that we get from API is in json format so in order to conceived it into our application we have to used .toString() method to change it so we can send the end result to the frontend

Step 4: The final app has two navigation features home and country.we can navigate through in it to get the result that we want.

Step 5: In the final step we have to make changes in the display of the app that will be reflected when we run it.

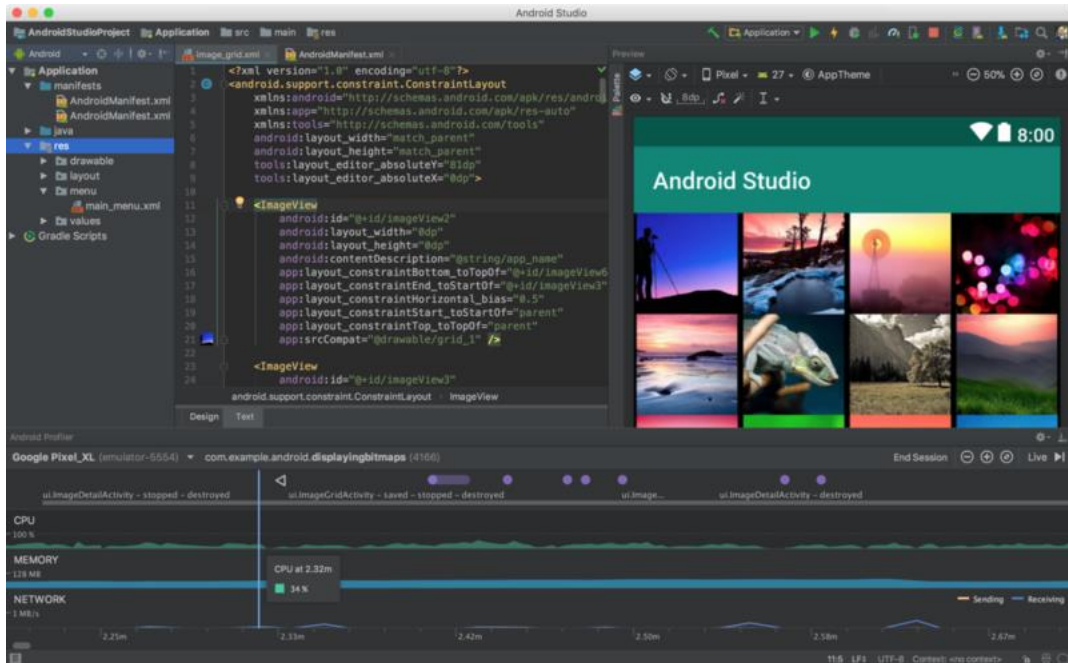


Figure 1.7:Android Studio

1.5 Organization

In Chapter 2, we have discussed the literature survey. We have looked upon the various existing approaches and Technology that have been used for developing an APP. Each one of them has its own unique features which distinguishes it from the rest.

In Chapter 3, we have developed the system design and explain the working of APP.

In Chapter 4, we have discussed the Performance Analysis and display the output of our app.

In Chapter 5, we have thereby concluded our report and discussed the future scope of our project.

CHAPTER – 2 LITERATURE SURVEY

Background:-

The writing reviewed gives an information into the different strategies that can be gotten and executed to achieve hand movement affirmation. Moreover helps in understanding the focal points and disadvantages related with the various methodology

Research Paper 1: Application of personal-oriented digital technology in preventing transmission of COVID-19

Data innovation has been generally utilized by clinical experts in the emergency clinics and the focuses of ailment control for the counteraction and control of irresistible sickness, which incorporates ideal announcing, scourge observation, and checking of customized vaccination. Also, electronic reconnaissance instruments and pestilence insight techniques, utilized by general wellbeing foundations, are expected to encourage hazard evaluation and convenient episode identification. Be that as it may, data innovation is inadequately created for use by general individuals, in spite of the fact that they are really the powerless subjects of disease and the irresistible source too.

The utilization of wellbeing status code previously propelled on eleventh Feb in Hangzhou city, Zhejiang, China. In view of huge information and portable web innovations, inhabitants and those entering the city need to apply on the web and get either a green, red, or yellow code. The hues depend on the data announced by the candidates, including their condition of wellbeing, travel history, and whether they reached individuals from plague territories. Individuals with green code may go around the city. Those with red or yellow codes should initially experience 7 to 14 days of isolate. As indicated by the order, the administration limits the movement of individuals with likely disease however permit solid individuals to travel uninhibitedly and continue work. In light of a synopsis of nearby experience, the Chinese government advanced a brought together wellbeing code framework all through the nation.

Albeit further improvement would be required, we suggested that individual situated computerized innovation may help chop down the spread of COVID-19 in the regions

with pandemic and keep up the nearby social request in current crisis. What's more, we proposed that the individual arranged advanced stage may be incorporated as a part of counteraction and control framework against irresistible illnesses later on.

Research Paper 2:-

Real-time tracking of self-reported symptoms to predict potential COVID-19

A sum of 2,618,862 members announced their likely side effects of COVID-19 on a cell phone based application. Among the 18,401 who had experienced a SARS-CoV-2 test, the extent of members who revealed loss of smell and taste was higher in those with a positive test outcome (4,668 of 7,178 people; 65.03%) than in those with an antagonistic test outcome (2,436 of 11,223 members; 21.71%) (chances ratio = 6.74; 95% certainty interval = 6.31–7.21). A model consolidating side effects to anticipate plausible disease was applied to the information from all application clients who announced manifestations (805,753) and anticipated that 140,312 (17.42%) members are probably going to have COVID-19. We re-ran calculated relapses changing for age, sex and BMI to recognize different side effects other than anosmia that may be related with being contaminated by SARS-CoV-2. Each of the ten manifestations questioned (fever, persevering hack, weariness, brevity of breath, looseness of the bowels, daze, skipped suppers, stomach torment, chest torment and dry voice) were related with testing positive for COVID-19 in the UK partner, in the wake of altering for different testing .In the US companion, just loss of smell and taste, exhaustion and skipped dinners were related with a positive test outcome. We report that loss of smell and taste is an expected indicator of COVID-19 notwithstanding other, progressively settled, manifestations including high temperature and another, constant hack. COVID-19 seems to cause issues of smell receptors in accordance with numerous other respiratory infections, including past coronaviruses thought to represent 10–15% of instances of anosmia.

Article :-

Covid-19: Researchers launch app to track spread of symptoms in the UK

Almost 700 000 individuals joined in the initial 24 hours of the dispatch of an application to help track the spread of coronavirus over the UK continuously and gather data on the scope of self-announced indications and the attributes of those most in danger.

The Covid Symptom Tracker application (covid.joinzoe.com) empowers clients to make an every day report of any side effects. It is accessible for nothing out of pocket to individuals from people in general in the UK. The application has additionally been given to 5000 twins and their families selected from the continuous TwinsUK accomplice study.

Individuals utilizing the application are approached to give individual data, including age, sex, tallness, weight, and postcode and rundown any incessant wellbeing conditions, including heart, lung, or kidney infection, diabetes, and standard utilization of immunosuppressants or non-steroidal mitigating drugs.

They are then gotten some information about covid-19—regardless of whether they have been tried and any indications they are encountering at that point, including fever, determined hack, unordinary weakness, brevity of breath, the runs, disarray, confusion or tiredness, and loss of craving. They are likewise asked whether they have gone to an emergency clinic due to covid-19 indications.

Individuals participating in the twin examination announcing side effects will be sent a home testing pack for covid-19 to all the more likely comprehend what manifestations really relate to the coronavirus disease. Testing will assist with recognizing mellow covid-19 indications from irrelevant diseases with comparative side effects by corresponding their side effect reports with test results.

Specialists will likewise contrast hereditarily indistinguishable twins and non-indistinguishable twins to investigate how hereditary and natural factors recently recorded in the TwinsUK associate impact the indications and movement of covid-19

in various individuals. The analysts would like to have the option to all the more likely comprehend why a few people create serious or deadly ailment while others have just gentle indications.

Research Paper 4:-

Research and implementation of Web Services in Android network communication framework Volley

Exploration and execution of Web Services in Android organize correspondence system Volley .The mix of Web Services and cell phones will advance the improvement of portable applications. Volley system Google 2013 proposed has the benefits of helpful use and system demand quicker, yet it doesn't bolster Web Services. Augmentation of Volley, to help the Web Services, which can encourage the Web Services application advancement, yet in addition can improve the entrance execution of Web Services. Based on examination and exploration of the Volley, through the usage of the HttpStack interface and the extension of Json Object Request to acknowledge support for Web Services. The plan utilizes JSON configuration to move information, support SSL/TLS convention demands, custom boundary, sets or gets the solicitation header. This plan is acceptable similarity, simple to utilize, appropriate for application on Android stage.

Volley embodies Http application API, chiefly by the re mission line intermediary class, the solicitation line class, organize interf pro, arrange usage class, Http demand interface and Http solicitations and two execution class[3]. As appeared in Fig.1.

The foundation of a solicitation line RequestQueue through Volley.

A Http demand has encountered multiple times parsing: The fir st parsing is to get an occasion of Apache HttpResponse, the res ult is acquired by playing out the performRequest() strategy for a usage class of HttpStack. The Second parsing is to get

a case of NetworkResponse, the outcome is gotten by playing out the performRequest() strategy for a usage class of Network.

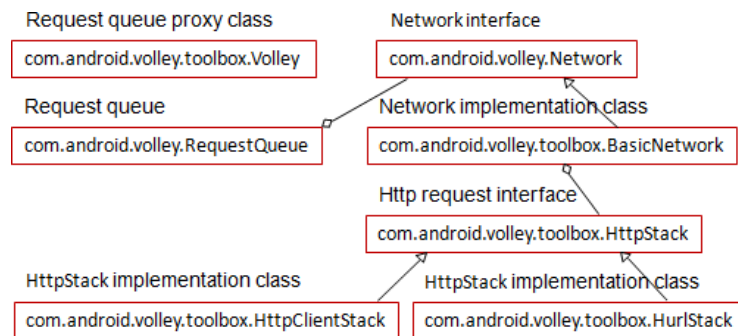


Figure 2.1: shows Different network interfaces

Research Paper 5:-

Evaluation and Identification of Android Networking Libraries

Everyone in our populace has portable and the majority of the work doing through cell phone. Presently extension of web, portable innovation turns out to be progressively famous. For this android advancement has truly engage for us. This examination is investigation of various systems administration libraries utilized in versatile for arrange correspondence. In this manner, there are heaps of open source organize libraries that application engineers use regularly for improvement. In Old days, creating an android app is typically to hard. Right now the issue is discover which arrangement fits for better android application. Along these lines, android designers face the bias of choosing a proper system library for their particular versatile application. To diminish the test, this paper proposes an exact strategy for benchmarking, which incorporates an exhaustive investigation of chose libraries and a choice of delegate measurements. This paper has four android organizing libraries Http Client, Volley, Retrofit and Fast Android Networking are chosen for study examination. This exploration inspects these libraries and discover which library is reasonable for designers as their necessities with the goal that they give better understanding to portable application clients.

Reaction of the system administration or other outsider library is common to parse in bygone eras. Presently there are diverse accessible system library which can without much of a stretch parse information. For these usefulness designers additionally need to include other reliance library, and furthermore its effect on APK size.

In Addition to these I have also used different Dependencies to make application better and in order to work in smooth manner:-

Recycler View:

RecyclerView utilizes a ViewHolder for putting away the reference of the view for one passage in the RecyclerView. At the point when we use ListView or GridView for showing custom things then we make a custom xml record and afterward use it inside our Adapter. For this we make a CustomAdapter class and afterward broadens our Base or some other Adapter in it. In getView() technique for our Adapter we expand the thing format xml document and afterward give the reference of each view by utilizing the remarkable id's we give in our xml record . When completed we pass that view to the ListView, fit to be drawn, however in all actuality ListView and GridView do just a large portion of the activity of accomplishing genuine memory productivity.

ListView/GridView reuse the thing format however don't hold the reference to the design youngsters, compelling us to call findViewById() for each offspring of our thing design for each time we call getView(). This issue causes the looking over or non responsive issue as it wildly attempts to snatch references to the view's we required.

With the appearance of RecyclerView everything is changed. RecyclerView still uses Adapter to go about as Data source yet in this we need to make a ViewHolder to keep the reference of View in memory, so when we need another view it either makes another ViewHolder item to blow up the design and hold those references or it reuses one from existing stack.

Execution: To actualize a fundamental RecyclerView three sub-parts are should have been developed which offer the clients the level of control they require in settling on fluctuating structures of their decision.

1. **The Card Layout:** The card format is a XML design which will be treated as a thing for the rundown made by the RecyclerView.
2. **The ViewHolder:** The ViewHolder is a java class that stores the reference to the card format sees that must be powerfully adjusted during the execution of the program by a rundown of information acquired either by online databases or included some other way.
3. **The Data Class:** The Data class is a custom java class that goes about as a structure for holding the data for each thing of the RecyclerView.

The Adapter: The connector is the fundamental code liable for RecyclerView. It holds all the significant techniques managing the usage of RecyclerView.

Design Manager:

Direct Layout Manager – It is utilized for showing the information things in an even or vertical looking over List

GridLayoutManager – It is utilized to show the things in lattice design

StaggeredGridLayoutManager – It is utilized to show the things in stunned Grid.

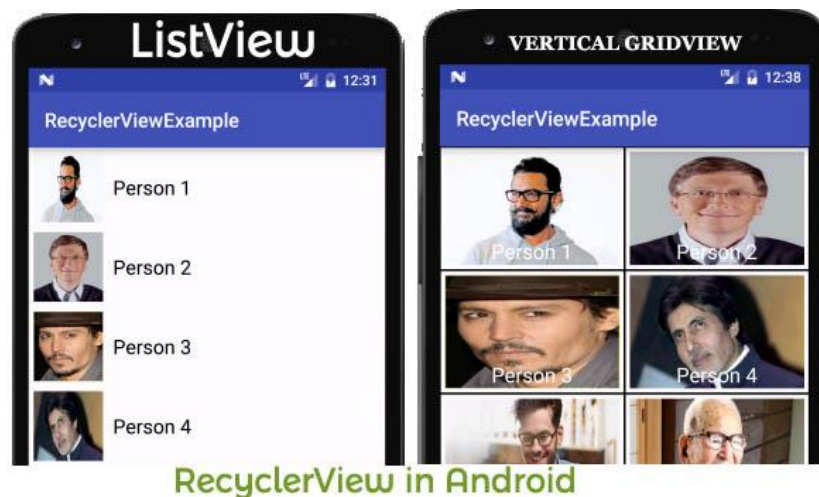


Figure 2.2: RecyclerView in Android

The following is the case of RecyclerView in which we show the rundown of Person Names with the assistance of RecyclerView. In this model we are utilizing LinearLayoutManager with vertical direction to show the things. Right off the bat we announce a RecyclerView in our XML record and afterward get the reference of it in our Activity. After that we makes an ArrayList for Person Names and set a LinearLayoutManager lastly we set the Adapter to show the things in RecyclerView. At whatever point a client taps on a thing the name of the Person is shown on the screen with the assistance of Toast.

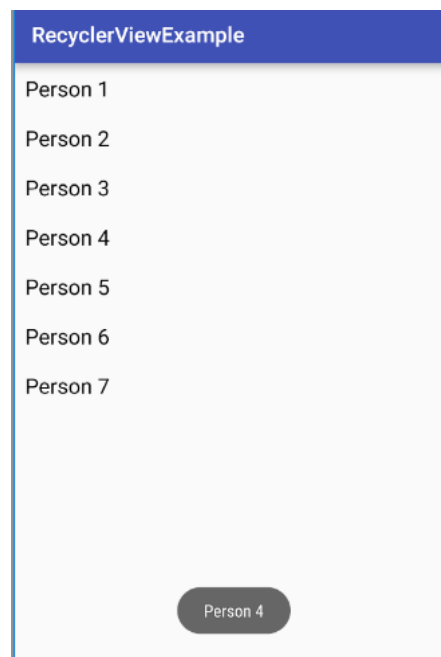


Figure 2.3: RecyclerView Example

Glide:

This Dependency is a quick and effective open source media the executives and picture stacking structure for Android that include media and interpreting it , memory and plate storing, and asset pooling into a straightforward and simple to utilize interface.



Figure 2.4: Glide Library

Glide bolsters bringing, deciphering, and showing video stills, pictures, and vivified GIFs. As a matter of course Glide utilizes a custom HttpURLConnection based stack.

It is an essential spotlight is on making looking over any sort of a rundown of pictures as smooth and quick as could be expected under the circumstances, however like ever other dependency it is likewise viable for practically any situation where you have to get, resize, and show a remote picture.

Glide considers two key parts of picture stacking execution on Android:

- The speed at which pictures can be decoded.
- The amount of jank caused while translating pictures.

For clients to have an extraordinary involvement in an application, pictures must show up rapidly, yet they should likewise do as such without causing heaps of jank and faltering from primary string I/O or over the top trash assortments.

Glide finds a way to guarantee picture stacking is both as quick and as smooth as conceivable on Android:

- Smart and programmed downsampling and reserving limit stockpiling overhead and translate times.

- Aggressive re-utilization of assets like byte arrays exhibits and Bitmaps limit stockpiling overhead and translate times.
- Deep lifecycle coordination guarantees that only solicitations for dynamic Fragments and Activities are organized and that Applications discharge assets when necessary to abstain from being murdered when backgrounded.

Glide chiefly accepts these three as boundary i.e setting/part/Activity, imageUrl/drawable picture and imageView. So as to take care of the OutOfMemoryError issue, it takes imageView. Suppose your server is sending a picture of (2000×2000) however in your android application, you are going to show a picture of (200×200). At the point when you unravel server picture in memory it will take around 40mb.

Glide has accepted the imageView as a boundary so it knows the real tallness and width of the imageView wherein you need to show the picture. It realizes that it is (200×200). So Glide as opposed to stacking the full-size image(2000×2000) from the given URL into the circle reserve it will initially resize it to the size of the imageView(200×200) and afterward store it into the plate store after that it will disentangle the resized image(200×200) into bitmap and burden it into the memory so its size will get 4mb. Along these lines, it assists with forestalling your application from tossing well known OutOfMemoryError.

API:-

Glide utilizes a straightforward familiar API that permits clients to make most demands in a solitary line:

Glide.with(fragment)

`.load(url)`

`.into(imageView);`

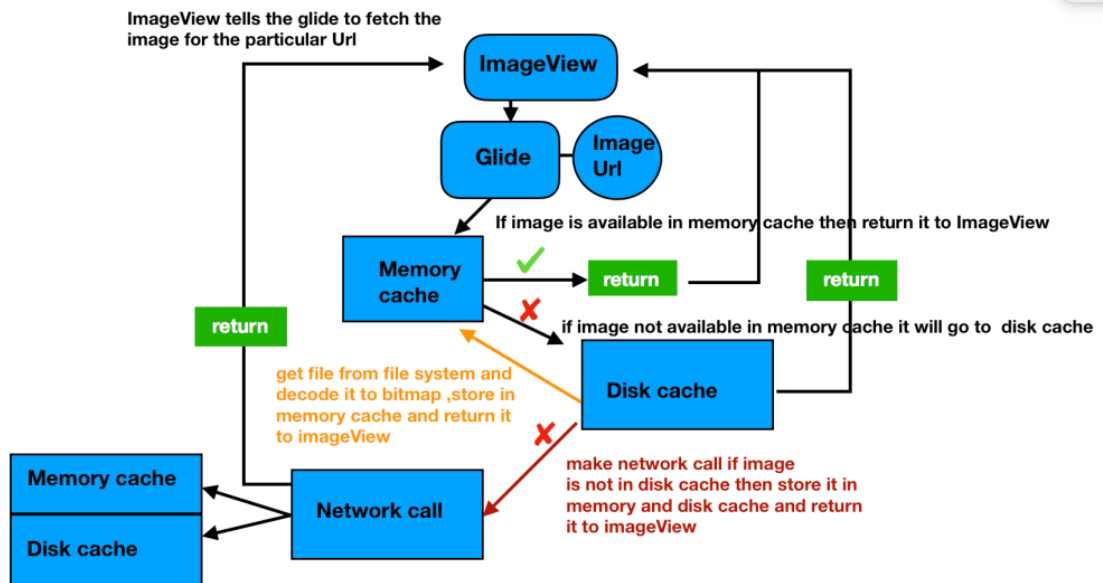


Figure 2.5: Working Of Glide Library

Advantages:-

- Supports bringing, disentangling, and showing video stills, pictures, and energized GIFs.
- It is intended to work with Activity and Fragment's life cycle as well. You can pass the action or part setting with `Glide.with()` and it will splendidly coordinate with action lifecycle callbacks, for example, `onPause()` or `onResume()`.
- Glide underpins energized GIF pictures and in light of Glide incorporates with your movement life-cycle, vivified GIFs are additionally stopped in `onStop()` to abstain from depleting the battery out of sight.
- Loads thumbnail (obscured) first and afterward stacks the high-goals picture like in WhatsApp or Facebook
- Glide has its own usage of `HttpURLConnection` which burdens pictures from remote URLs over the system.
- One beneficial thing about Glide is, it gives different setup and customization alternatives. Along these lines, you can change Glide library according to your necessity. You can peruse increasingly about this at setup page.

- You can likewise add placeholder picture to show while stacking the picture or while the picture stacking comes up short.
- Supports Crossfading impacts between the media
- Supports picture self-assertive changes like stacking picture fit as a fiddle or some other shape.
- Provides better Memory and plate reserving instruments.



Figure 2.6: Comparison between Picasso and Glide Library

REST API:



It is an abbreviation for Representational State Transfer. It is building style for appropriated hypermedia frameworks.

Like some other building style, REST likewise has it's own 6 controlling imperatives which must be fulfilled if an interface should be alluded as RESTful. These standards are recorded beneath.

Core values of REST:-

1. Client–server – By isolating the UI worries from the information stockpiling concerns, we improve the conveyability of the UI over various stages and improve adaptability by streamlining the server segments.
2. Cacheable – It require that the data inside a response to a sales be unquestionably or unequivocally set apart as cacheable or non-cacheable. In case a response is cacheable, by then a client store is given the alternative to reuse that response data for later, proportionate sales
3. Uniform interface – By applying the product designing guideline of all inclusive statement to the part interface, the general framework engineering is rearranged and the perceivability of communications is improved. So as to acquire a uniform interface, various design imperatives are expected to manage the conduct of segments. REST is characterized by four interface imperatives: ID of assets; control of assets through portrayals; self-clear messages; and, hypermedia as the motor of use state.

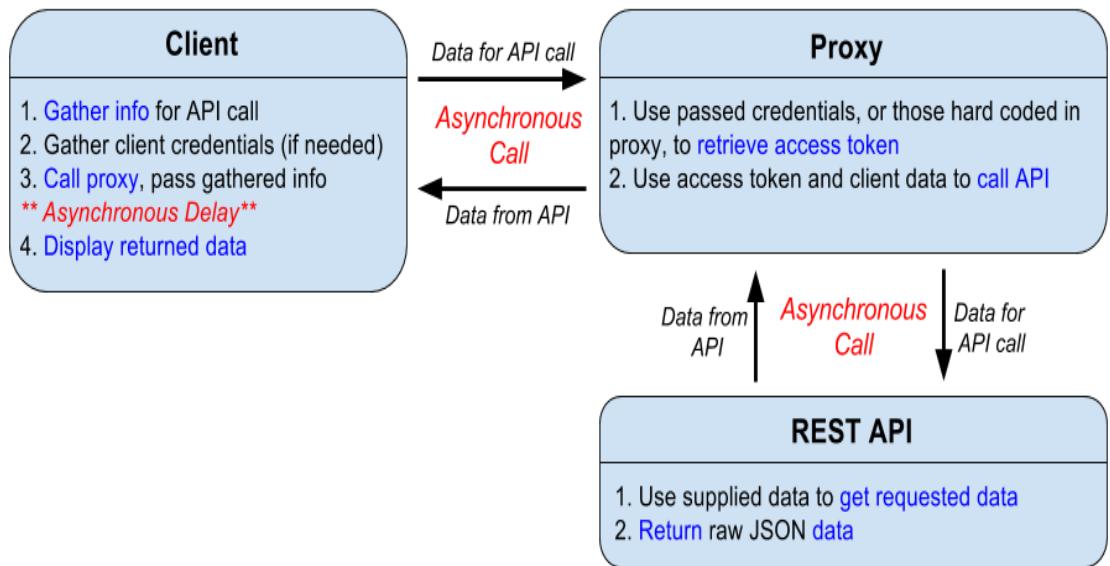


Figure 2.7: Function of REST API

Resource:-

The key deliberation of data in REST is an asset. Any data that can be named can be an asset: an archive or picture, a transient help, an assortment of different assets, a non-virtual article (for example an individual, etc. REST utilizes an asset identifier to recognize the specific asset associated with a collaboration between segments.

The condition of the asset at a specific timestamp is known as asset portrayal. A portrayal comprises of information, metadata depicting the information and hypermedia joins which can help the customers on the move to the following wanted state.

The information configuration of a portrayal is known as a media type. The media type distinguishes a detail that characterizes how a portrayal is to be prepared. A genuinely RESTful API looks like hypertext. Each addressable unit of data conveys a location, either unequivocally (e.g., connection and id qualities) or certainly (e.g., got from the media type definition and portrayal structure).

Another significant thing related with REST is asset techniques to be utilized to play out the ideal progress. An enormous number of individuals wrongly relate asset techniques to HTTP GET/PUT/POST/DELETE strategies.

Roy Fielding has never referenced any proposal around which technique to be utilized in which condition. All he underscores is that it ought to be uniform interface. On the off chance that you choose HTTP POST will be utilized for refreshing an asset – instead of a great many people suggest HTTP PUT – it's okay and application interface will be RESTful.

In a perfect world, everything that is expected to change the asset state will be a piece of API reaction for that asset – incorporating techniques and in what state they will leave the portrayal.

Many individuals want to contrast HTTP and REST. REST and HTTP are not same.

REST != HTTP

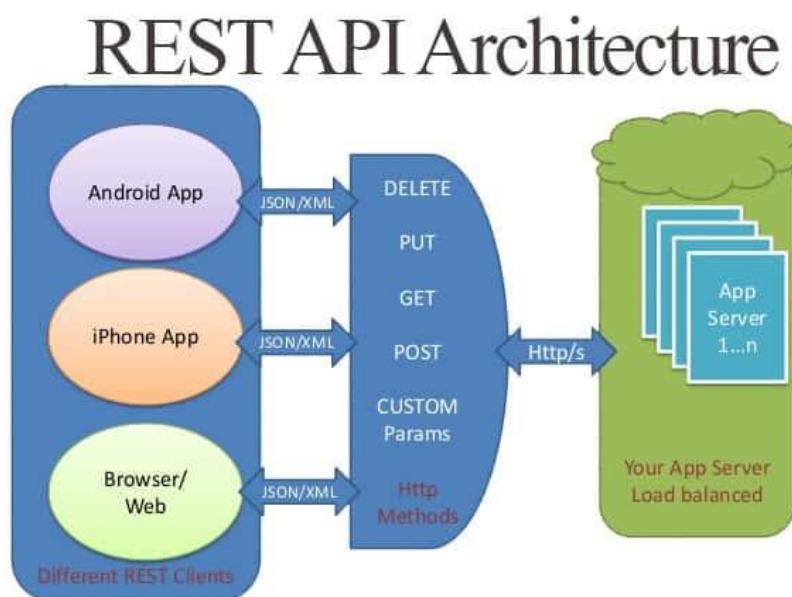


Figure 2.8 REST API Architecture

However, in light of the fact that REST likewise plans to make the (web) more smooth out and standard, he advocates utilizing REST standards all the more carefully. Furthermore, that is from where individuals attempt to begin contrasting REST and web (HTTP). Roy handling, in his paper, no place referenced any usage mandate – including any convention inclination and HTTP. Till the time, you are respecting the 6 core values of REST, you can call your interface RESTful.

In least difficult words, in this, the compositional style, information and usefulness are viewed as assets and are gotten to URIs. The assets are followed up on by utilizing a lot of straightforward, very much characterized activities. The customers and servers trade portrayals of assets by utilizing a normalized interface and convention – regularly HTTP.

Every one of these standards help RESTful applications to be basic, lightweight, and quick.

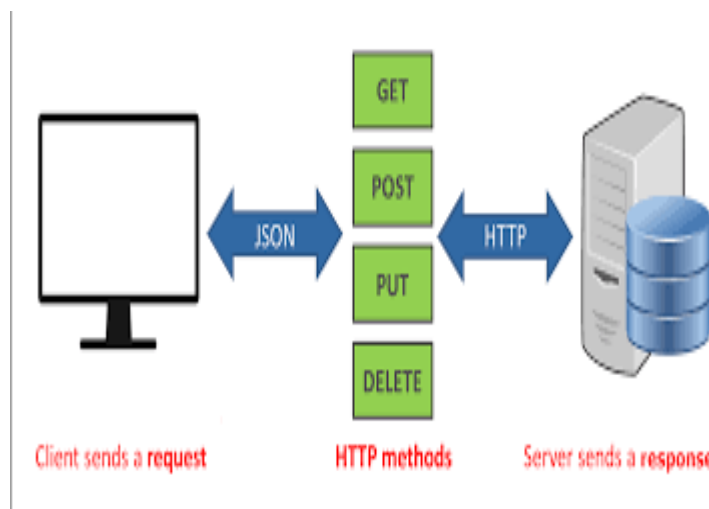


Figure 2.9:working Of REST

CHAPTER – 3 SYSTEM DEVELOPMENT

3.1 Analysis

The COVID19 app is created using Android Studio, where we use certain libraries and java language to create an app which takes data from an open source website using internet and displays the record of a particular region as well as worldwide

Hardware Details:-

The experiment is performed on Dell Laptop having specifications:-

- RAM-4 GB
- Processor- intel-i5 -3230M CPU
- Operating System-Windows

Preprocessing State:-

- Input State
- Processing State
- Output State

Input State:-

- It basically involves the proper opening of the app and the internet is working fine and it will throws an error if the internet is not working properly and the minimum time it takes to fetch the data.

Processing State:-

- The app make a request to the REST API to provide the data.
- The Return JSON format data is processed into String type.
- The Calculations are done into this String Data.

Output State:-

- The output is displayed into the screen.

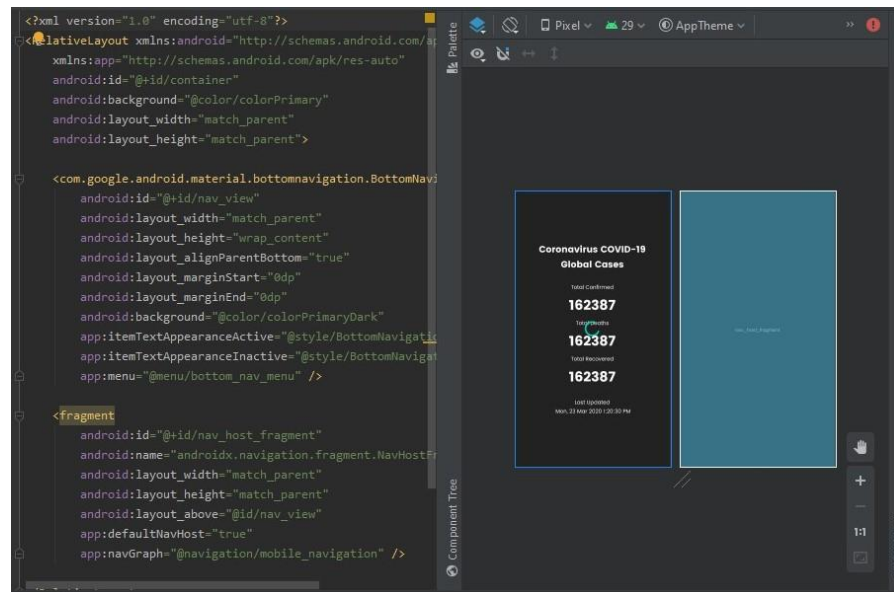


Figure 3.1 Shows Main Activity File

The following parameters are used to predict the Data:

- World wise Active Cases
- World wise Total Recovered
- World wise Total Deaths
- Country wise Active Cases
- Country wise Total Recovered
- Country wise Total Deaths
- Country Flag

The basic features of the app will be downloading and representation of information regarding the current data. The data is taken from <https://corona.lmao.ninja/v2/>, which provides information through an API. It is possible to use 60 different API calls per minute free of charge and we can get information correctly.

The information is provided as JSON or XML data files. The provided app uses JSON format. We have fetched this JSON data into the app and use `.toString()` to convert it into readable form. The JSON Data is in the form of Javascript object. Javascript object basically has key-value pairs, the key is basically a String type.

The idea of presenting the information related to covid19 in real time scenario is a little bit tricky, but it seems to be very simple. Firstly, there is a problem of calculating the data of different countries and data is not just a single one there are total active cases, total deaths, total recovered patients and then we have to process this data into three different function to calculate the following data for the world wise and then display it to the user.

3.2 Design of the application

The app was designed in Android studio using HTML and CSS. Initially, if the app is not able to start, it will show an error message indicating that there is some sort of error.

Steps of using the app:

- Open the application.
- Make sure that the Internet is in working mode otherwise it will display an error.
- The data will be fetched directly and directly available to the user .
- Different countries data are also provided.
- Data is fetched through real time API.

3.3 Proposed Architecture

COVID19 App is created on android stage using android studio and Java builtin feature to develop an application like this one,Java has applets which is used to create the user attracted front view, for text view or to write something forcibly/recursively.I have used relative layout function. Android RelativeLayout empowers you to determine how kid sees are situated comparative with one another. The situation of each view can be indicated as comparative with kin components or comparative with the parent. This application depends on Service Oriented Architecture (SOA) where we have dainty customer like Android Phones. Administrations are independent and convey utilizing JSON and XML messages. Administrations are cross stage, offbeat, dependable, and made sure about. When we have a web administration in remote server with concentrated database then we can utilize a similar web administration for various customers, for example, Android, iPhone, Blackberry, Windows telephone, and

Symbian telephones. Various customers can utilize the normal web administration to spare or recover the information.

Andorid Users

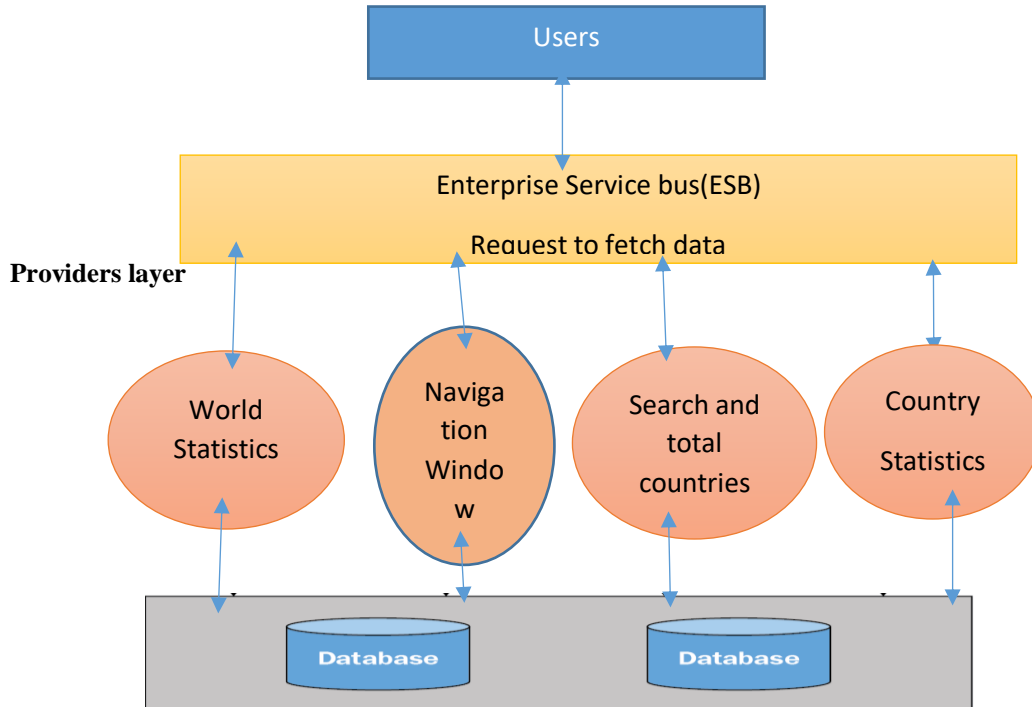


Figure 3.2:Shows SOS architecture

The engineering utilized for building up the Android application is appeared in Figure Components of Architecture While building up a customer server application, the correspondence among customer and database server gets basic. Accordingly, it is essential to choose proper web administration, information trade convention, information trade organization, and Mobile situating advancements while creating customer server application.

3.4 Flow of Data:-

Android has its own language for creating area and web based application. Be that as it may, in this undertaking we will utilize Java language to make a portable web application.

The flow of data is shown with the help of Class Diagram as it will help to understand the process easily. Firstly it will work on android 4.2+ and make sure that you have proper working internet connection when we launch the app it will make request to the backend and on the user screen it will display the progress bar which is used to trick user that something is running in the background if it succeeds it will display the result otherwise it will throws an error.

By default home interface is active and if we want to know the know other data you have to go to country navigation and it will again show the progress bar and if it succeeds it will display the result otherwise it will throws an error.

The Result itself contain Total number of countries and search option so that it is easily available to move to the particular country to which we want to fetch the data ,I have used recycler view to show the result in the list manner ,The list include the country name and country flag also to add the image in the list I have used Glide library of Android.

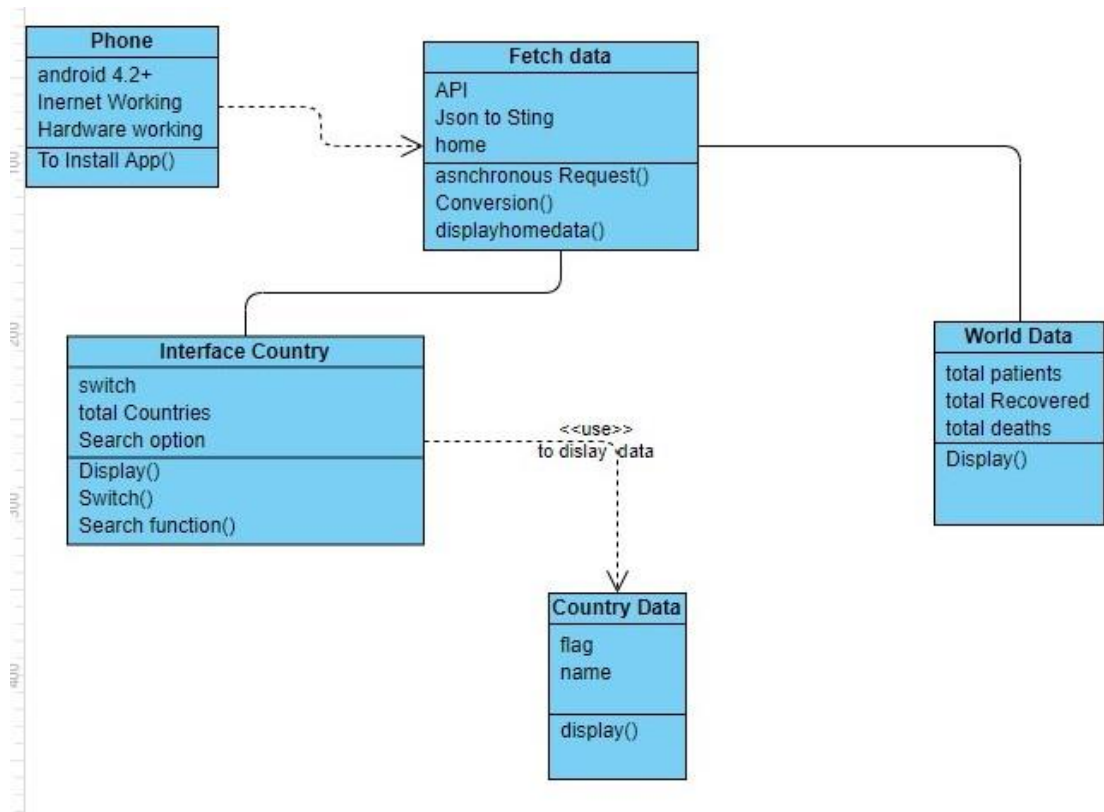


Figure 3.3: Class Diagram

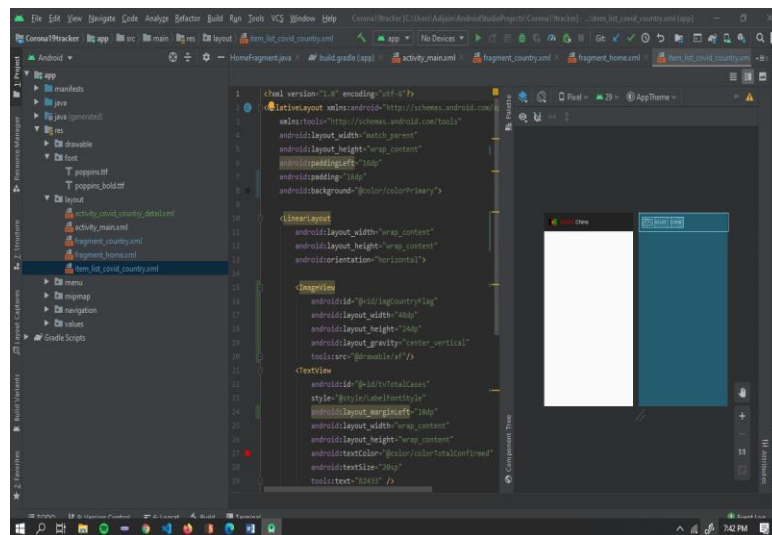


Figure 3.4 shows Relative Layout,Linear Layout

Android Studio:-Android Studio is Android's official IDE. It is purpose built for Android to accelerate your development and help you build the highest-quality apps for every Android device. It offer tools custom-tailored for Android developers, including rich code editing, debugging, testing, and profiling tools. It has many Rich Features like:- Apply Changes,Insightful code manager,Quick and highlight rich emulator,Code formats and test application,Testing apparatuses and systems,Advanced for all Android gadgets.

Java:- It is an object oriented programming language, it is platform independent,simple,secure,Portable,Robus,Multithreaded,Interpreted,High Performane programming language.

Text see: A TextView shows text to the client and alternatively permits them to alter it. A TextView is a finished word processor, anyway the essential class is designed to not permit altering.

Straight Layout:- LinearLayout is a view bunch that adjusts all kids a solitary way, vertically or evenly. You can determine the format bearing with the android:orientation characteristic. Note: For better execution and tooling support, you ought to rather construct your format with ConstraintLayout.

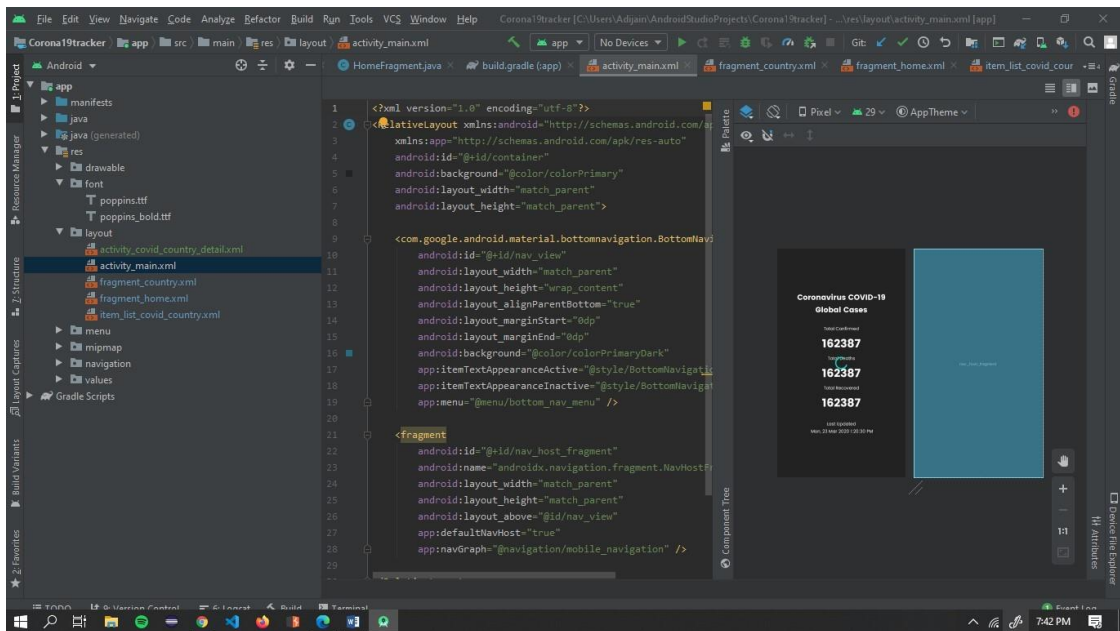


Figure 3.5 Shows Fragement

ImageView:- An ImageView controlis used to show pictures in Android applications. A picture can be shown by allotting it to the ImageView control and incorporating the android:src quality in the XML meaning of the control .

Progress bar:- Progress bars are utilized to show progress of an assignment. For instance, when you are transferring or downloading something from the web, it is smarter to show the advancement of download/transfer to the client. In android there is a class called ProgressDialog that permits you to make progress bar.

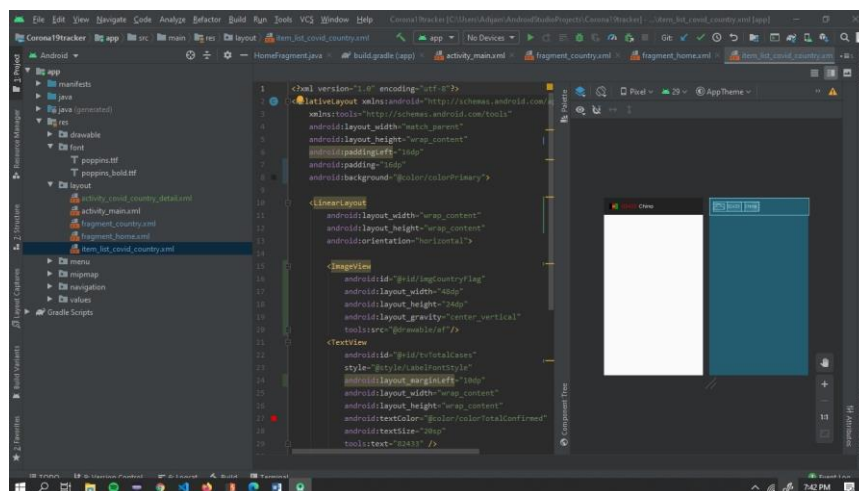


Figure 3.6 Shows Image View, Text View

3.6 Stream of Architecture :

Here, we clarify the information stream of the design, introduced in Figure. When we start the COVID19 tracker application on our Android device, it will make the solicitation to the API to give the data. Device utilizes HTTP to open the URL and anticipates reaction. Soothing web administration is liable for questioning database, recovering outcomes, changing over them into JSON configuration and sending JSON reaction by utilizing HTTP convention and subsequent to getting the information it will present to the client in the wake of handling on it.

3.7 Algorithm used:-

COVID19 Tracker APP uses the data from <https://corona.lmao.ninja/v2/>, which provides information through an API. This API provides a big range of detailed information about COVID19 from global data overviews to city/region specific mobility data. The information is provided as JSON or XML data files. The provided app uses JSON format. We have fetched this JSON data into the app and use `.toString()` to convert it into readable form. The JSON Data is in the form of Javascript object. Javascript object basically has key-value pairs, the key is basically a String type then we do simple Arithmetic Calculation and present the information to the user.

CHAPTER – 4 PERFORMANCE ANALYSIS

Though COVID19 Tracker used REST API and it also uses various dependency of android studio in order to provide the correct data and it also uses Glide library to present the images of different flags in front of the country name and I also used recycler view dependency to present the data in the form of List view. The following screenshot is attached to confirm the given fact. I have uploaded the source code of this project in github. The url to the following source code is as follows:-

<https://corona.lmao.ninja/v2/>

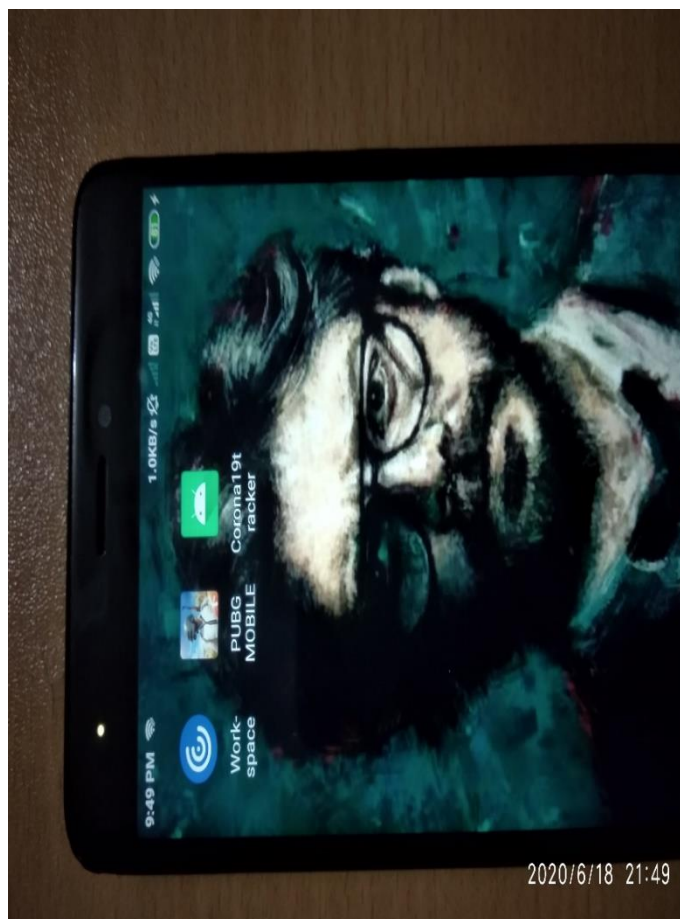


Fig 4.1: shows the Corona19tracker

- The progress bar is used as when the data gets fetch from the API as it will make it interactive and ti will notify the user that something is happening in the background .We used to call it asynchronous request ,It means that the program has made a request to the data or some third party function or package and it will de done in background without creating any trouble for the user.

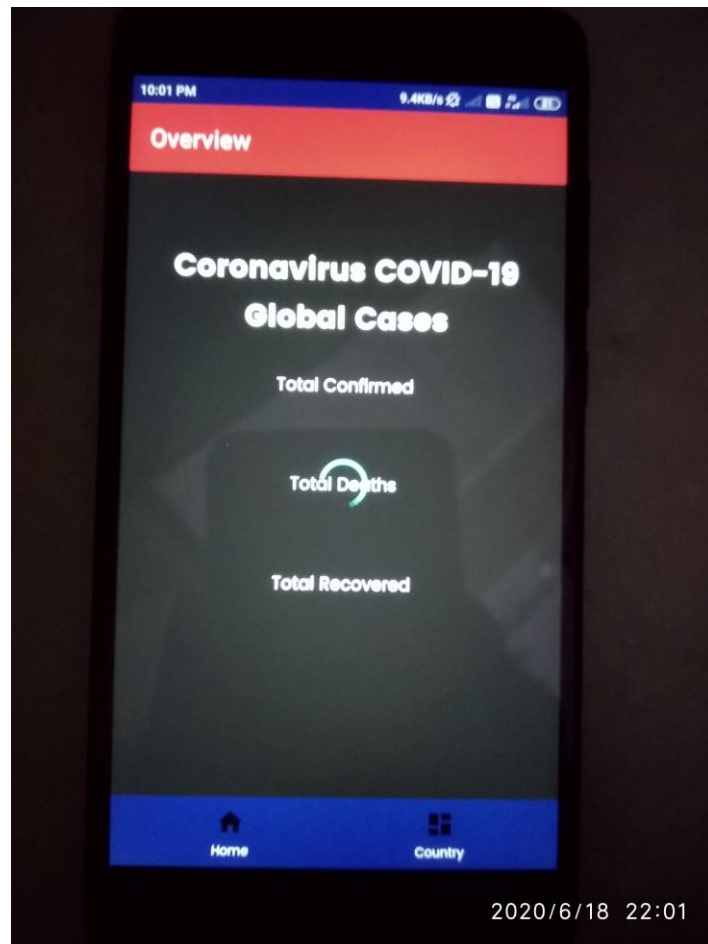


Figure 4.2 Shows the Loading of data

- Figure Shows the Current world Data and it will also display the Last updated Time and by default it will show the home Navigation

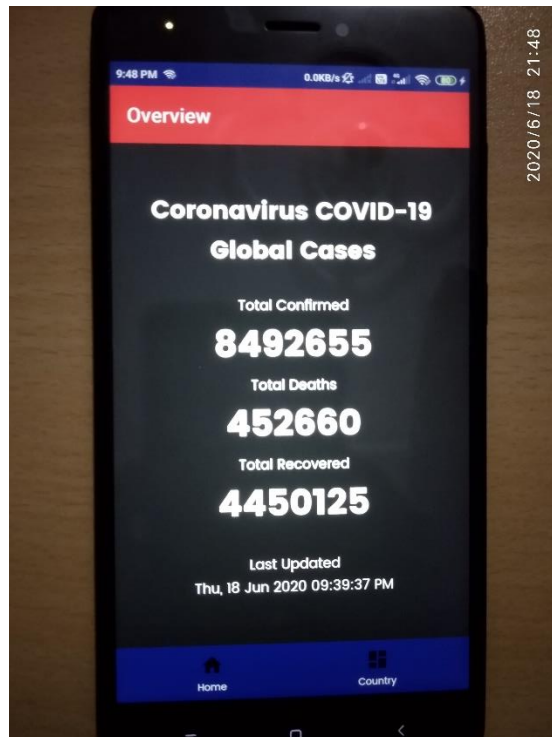


Figure 4.3 when the data loading gets completed
Notice the Last updated time

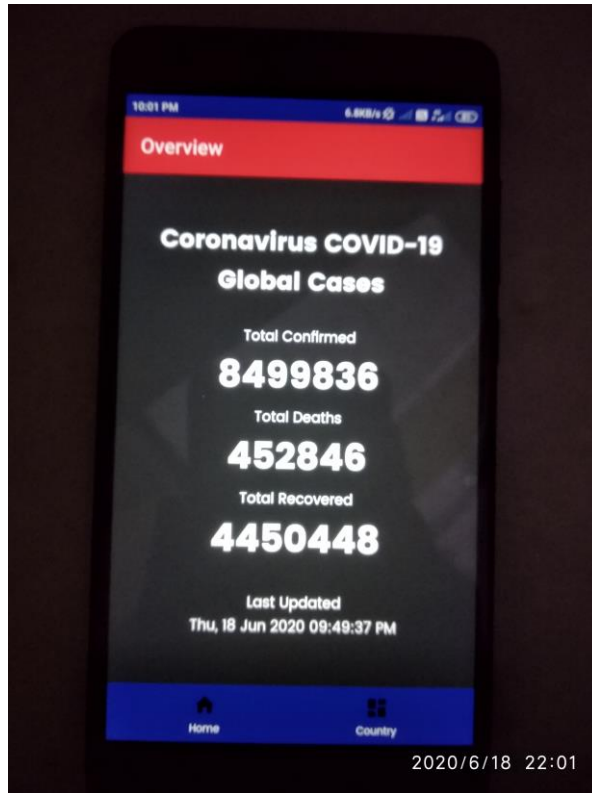


Figure 4.4 when the data loading gets completed (Notice the Last updated time)

- The following app also features the search bar and it will also display the total number of countries data it will fetch at a time and along with the country name it will also display the country's flag

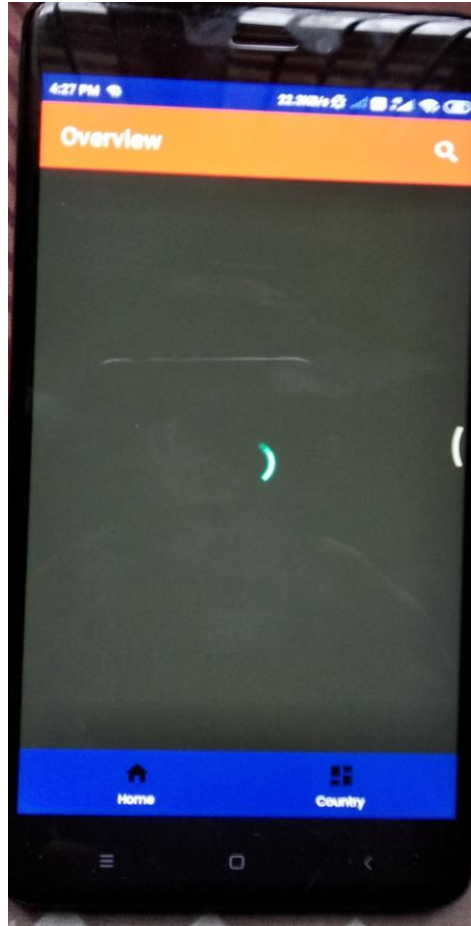


Figure 4.5 Shows loading of data

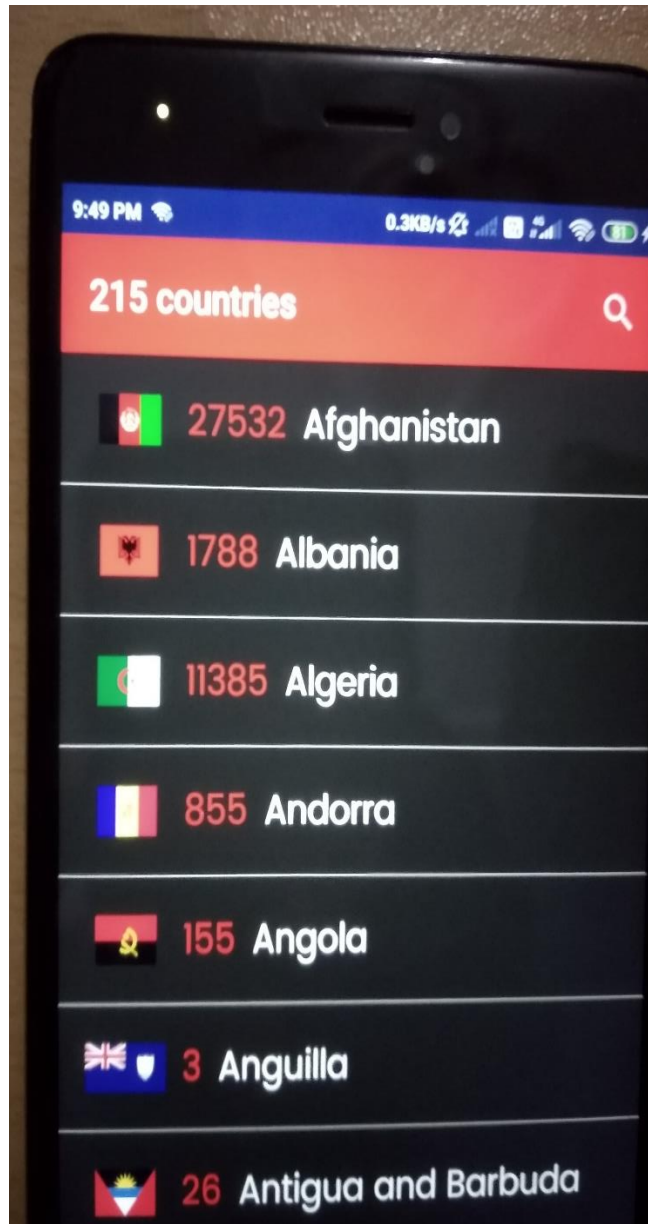


Figure 4.6 When You click on the country Button

- The following figure shows the search option and we can directly navigate to the country to which we want to know the data.

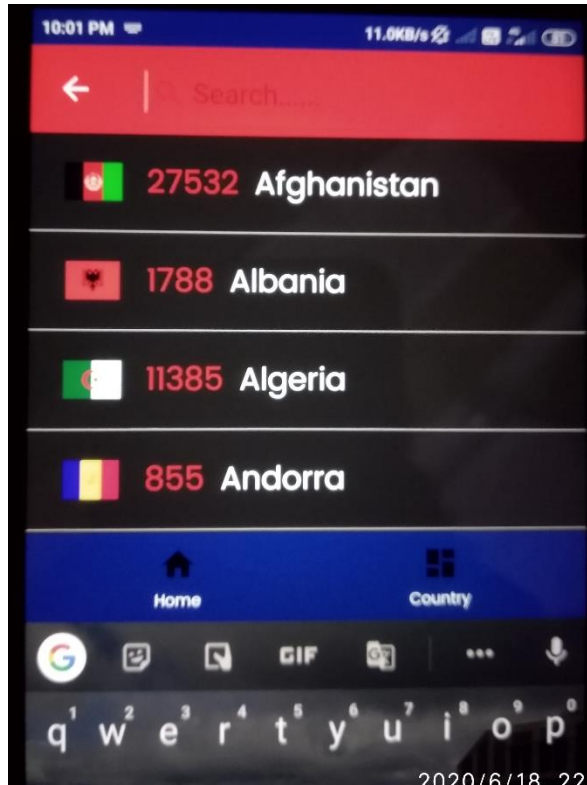


Figure 4.7 When You Click on the Search Option

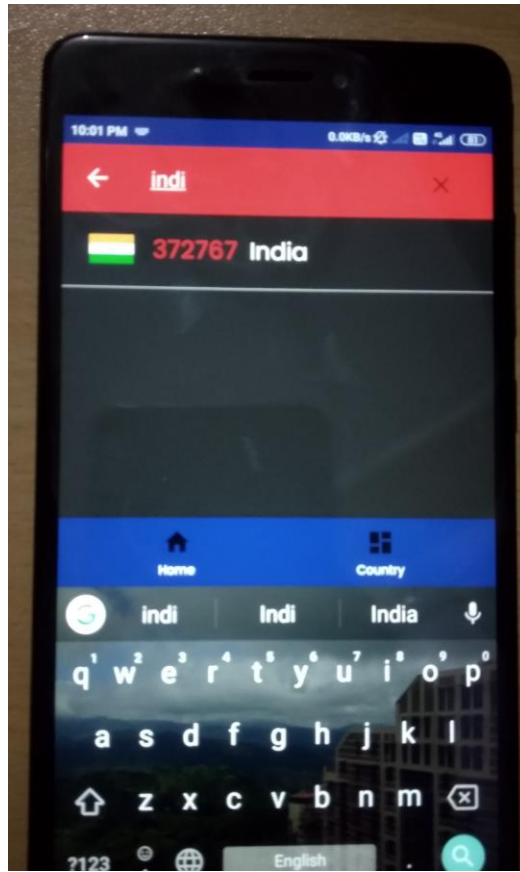


Figure 4.8 When you type the country Name

- The following figure Shows the data of India.

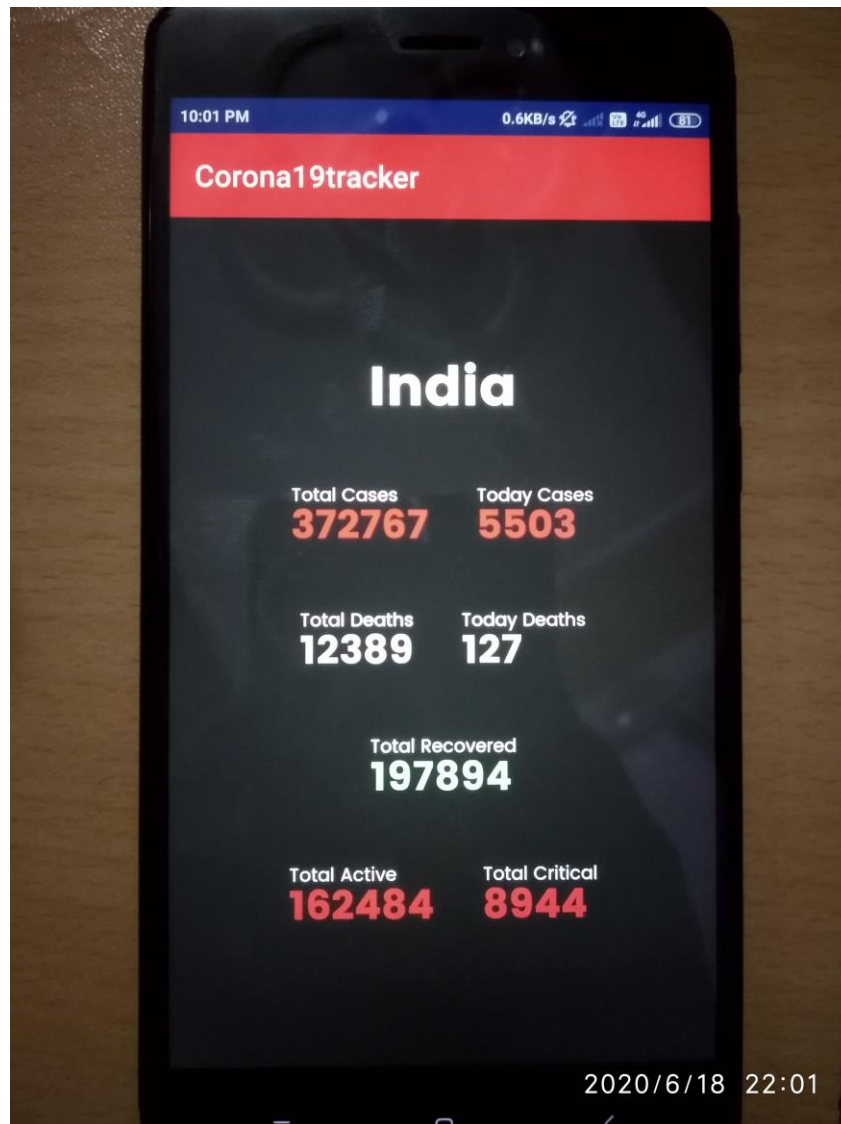


Figure 4.9 Output for the following country

CHAPTER – 5 CONCLUSIONS:

1.5 Conclusions:

The project COVID19 Tracker App, works for the user who wish to update himself in regarding the condition of COVID19 and wants to know the figure like total active patients and total deaths etc.

5.2 Future Scope:

- In future, I want to display the data in the form of pie-chart and graphs.
- More and More Country data I want to feed as it will lead to more correctness
- The REST API can be improved for a better outputs.
- Studies can be done on different API's so that less time will be taken to display the output.
- Database creation manually is to be done.
- A user can update the result manually and can add his/her country if it is not provided into the database.
- Different state data is to be provided into the app.
- Change the UI of the app.

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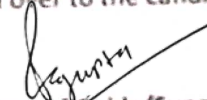
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