MAHARAJA GANGA SINGH UNIVERSITY BIKANER, RAJASTHAN

PROJECT REPORT

Your Gadget (Android Application)

Submitted for Major Project of

MASTER OF SCIENCE

BY

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Name of Supervisor -FAUJA SINGH

DECLARATION

I, **KAJAL SONI** , student of MASTER OF SCIENCE (MSC)2021-2022, Maharaja Ganga Singh university Rajasthan humbly declare that this report is based on the work, carried by me and no part of ithas been presented previously for any higher degree. There port was conducted under the guidance of Fauja Singh , Assistant Professor, Maharaja Ganga Singh University Rajasthan. It is also declared that, this report has been prepared for academic purpose alone and has not been/ will be submitted else where for any other purpose.

DATE: 10. 02. 2022

PLACE: BIKANER, RAJASTHAN

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KAJAL SONI

ABSTRACT

What is Android? Android is an open source and Linux-based Operating System for mobile devices such as smartphones and tablet computers.

Android was developed by the Open Handset Alliance, led by Google, and other companies. Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices powered by Android.

The first beta version of the Android Software Development Kit (SDK) was released by Google in 2007 where as the first commercial version, Android 1.0, was released in September 2008. On June 27, 2012, at the Google I/O conference, Google announced the next Android version, 4.1 Jelly Bean. Jelly Bean is an incremental update, with the primary aim of improving the user interface, both in terms of functionality and performance.

The source code for Android is available under free and open source software licenses. Google publishes most of the code under the Apache License version 2.0 and the rest, Linux kernel changes, under the GNU General Public License version 2.

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CHAPTER1-INTRODUCTION

The term "Electronic commerce" (or e-Commerce) refers to the use of an electronic medium to carry out commercial transactions. Most of the time, it refers to the sale of products via Internet, but the term eCommerce also covers purchasing mechanisms via Internet (for B-To-B).

A client who purchases on the Internet is called a cyberconsumer. E-Commerce is not only limited to online sales, but also covers:

Preparation of estimates online
Consulting of users
Provision of an electronic catalog
Access plan to point of sales
Real-time management of product availability (stock)
Online payment
Delivery tracking
After-sales service
In certain cases, electronic commerce makes it possible to highly customize products, in particular when the electronic commerce site is linked with the production system of the enterprise (e. g. business cards, customized items such as T-shirts, cups, caps, etc.)

Finally, insofar as electronic services and products are concerned (MP3 files, software programs, e-books, etc.), electronic commerce makes it possible to receive the purchase in a very short time, if not immediately.

Most electronic commerce sites are online stores which have at least the following elements at the front-office level:

An online electronic catalog listing all products for sale, their price and sometimes their availability (product in stock or number of days before delivery);

A search engine which makes it possible to easily locate a product via search criteria (brand, price range, key word, etc.) ;

A virtual caddy system (sometimes called virtual cart): This is the heart of

the e-commerce system. The virtual caddy makes it possible to trace the purchases of the client along the way and modify the quantities for each reference;

Secure online payment (accounting) is often ensured by a trusted third party (a bank) via a secure transaction;

CHAPTER2-ABOUTAPPLICATION (Your Gadget)

My project is on android Application name "YOUR GADGET"

The objective of this Your Gadget android application is to provide a user facility to shop the iot devices and other hardware component used in small technical projects while sitting on a chair at home without visiting local market.

This app will have 3 important activity

1. Shows the list of all component or parts which can be used to make a project ex. Remote control car or voice command iot devices and many more. Your imagination is the only limit.

2. You can watch tutorials of the project you want to do by step-by-step method and can order all components in pack and then order.

3. If you have something in mind then you can also search for the component according to your need and a information box will teach you about the functionality of that component and how to use.

CHAPTER 3-TECHNOLOGY USED

1. Java v- 16. 0. 1
2. Android Software Development kit
3. Java development kit
4. Android Studio
5. Eclipse W/ADT
6. The SDK and AVD Manager
7. Android Debug Bridge
8. Firebase

CHAPTER4-OVERALL DESCRIPTION OF THE PROPOSED SYSTEM

In the life of the software development, problem analysis provides a base for design and development phase. The problem is analyzed so that sufficient matter is provided to design a new system. Large problems are sub-divided into smaller once to make them understandable and easy for finding solutions. Same in this project all the task are sub-divided and categorized.

System Modules:

Merchant

- Register and login
- View Product
- Add to cart
- My order
- Place order

User

- Register and login
- Upload Product details

Module Description:

Register Login Module:-

In login module the customer and merchants can login to the application if they already created their account and signed in.

View Product:

User enters this system view the product via direct and search option.

Add to cart:

Users select their product and book the product

My Order:

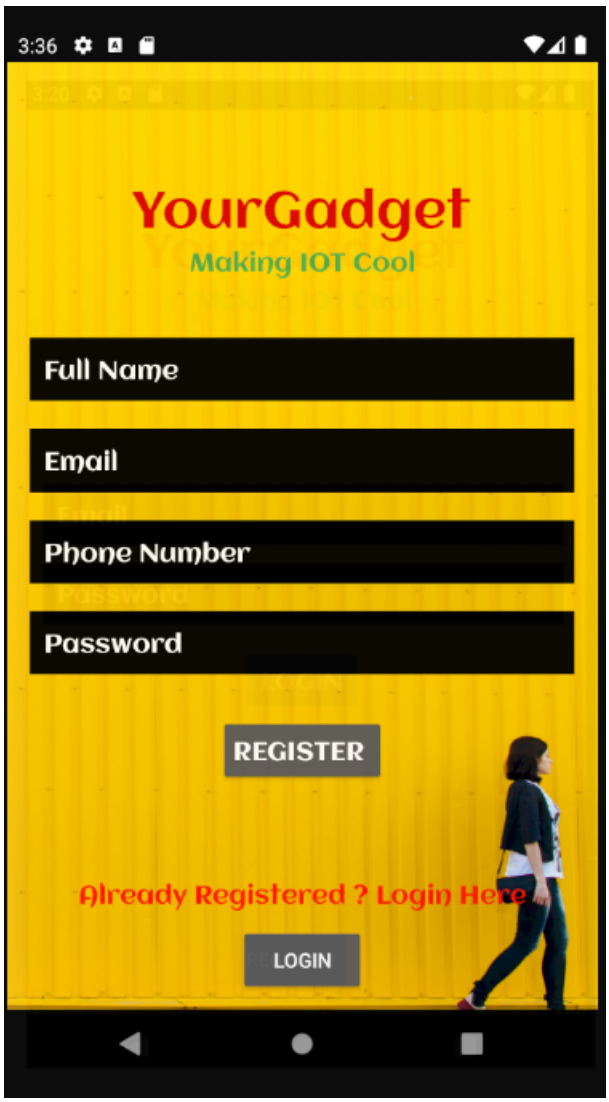
User can see their own order details.

Upload product details:

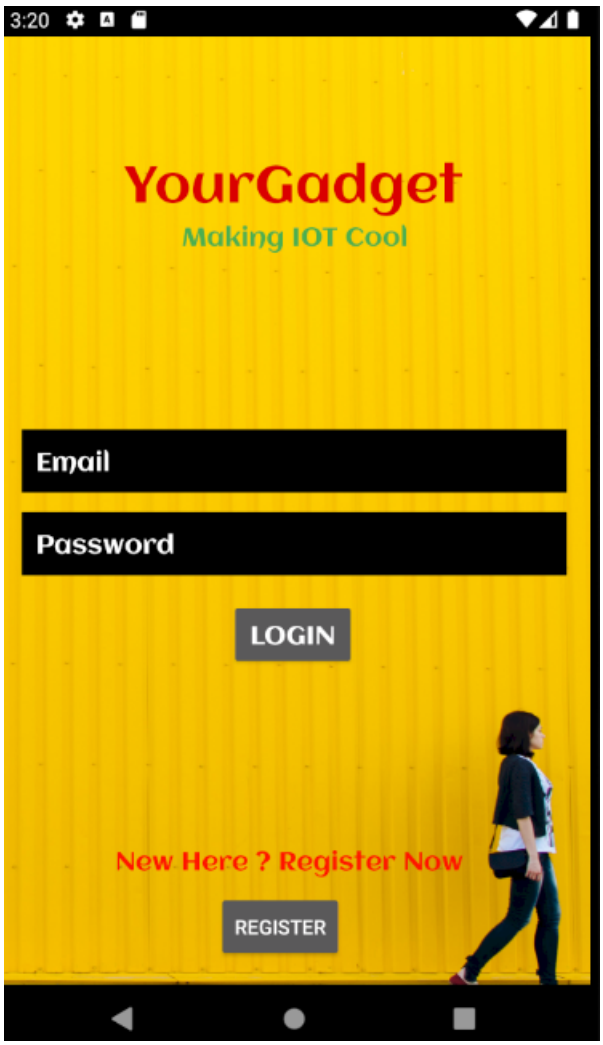
Merchants can upload their product details like Name, Description, Image, Quantity, Quality

CHAPTER5-SCREENSHOTS

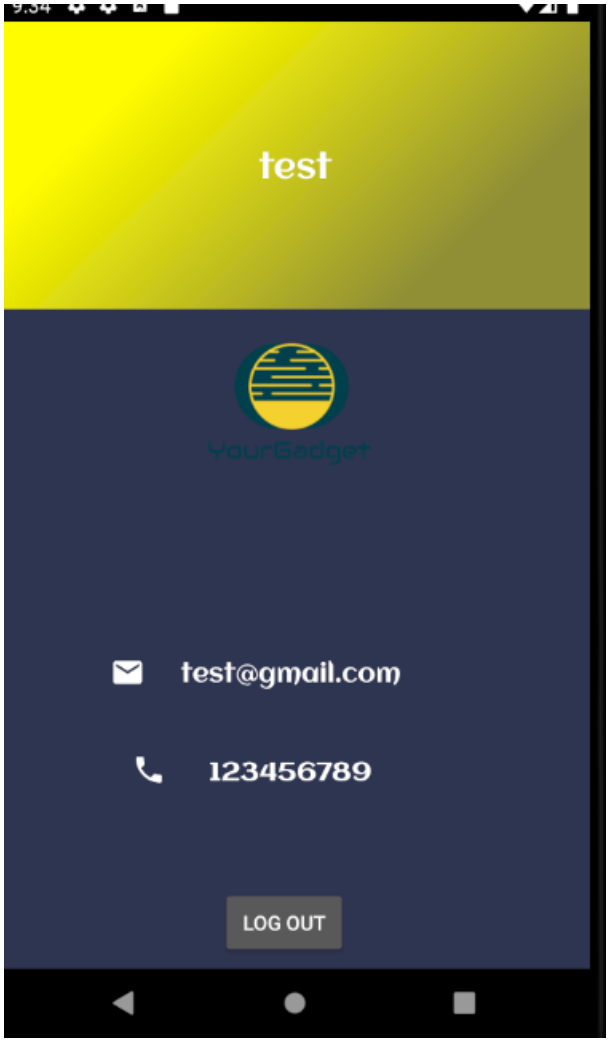
Register Screen:



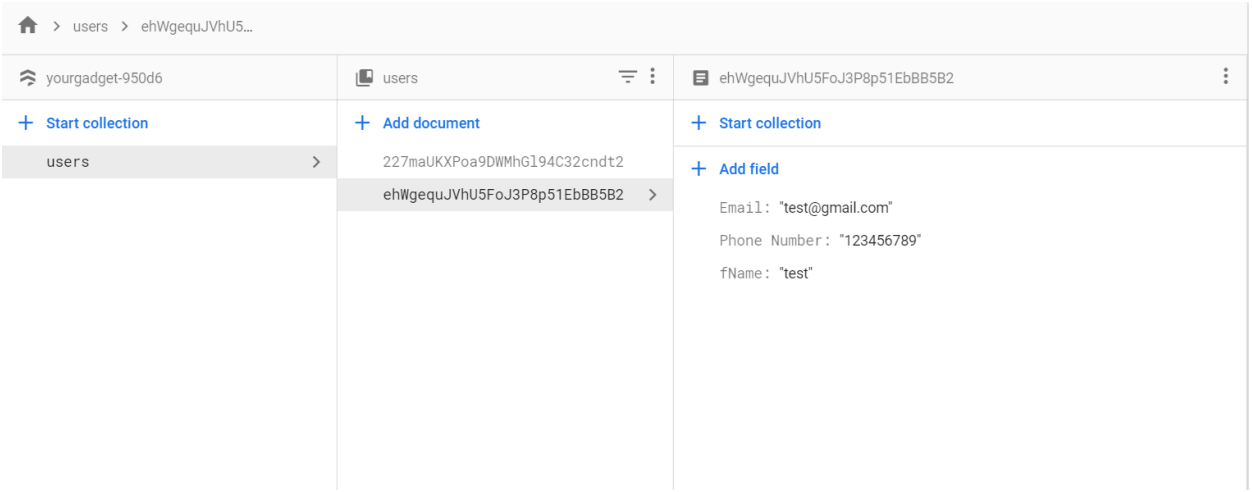
2. Login screen:



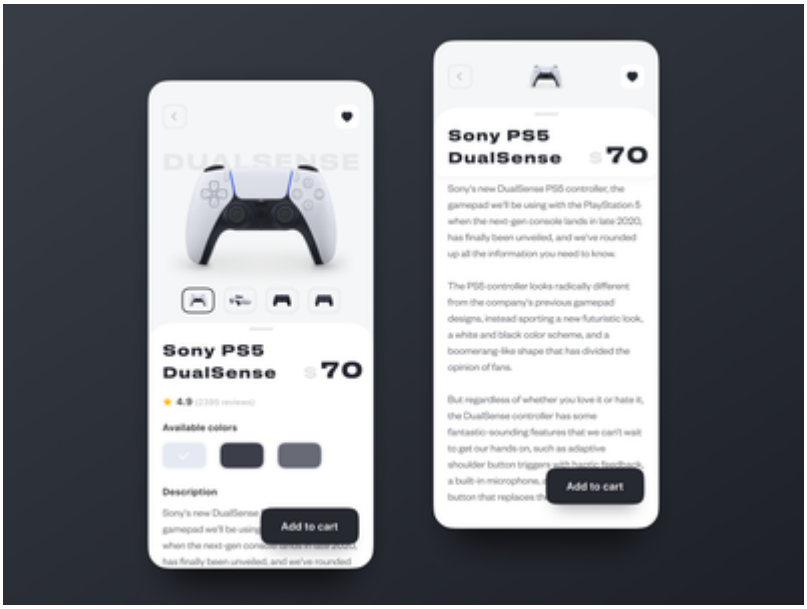
4. User Profile screen



5. Database (Firebase Firestore)



6. Product screen



CHAPTER6- REQUIREMENTS ANALYSIS AND SYSTEM SPECIFICATIONS

Data Requirements

The set of data that is involved in any project is defined using data requirements. For this project, the main data required is the login information to register the application and the item's information. Without this information the application cannot process the transaction.

Functional Requirements

Functional requirements are properties that must exist in the final system. For any mobile application, we need to download the application from the play store. The application could be either free or paid depending upon the store or merchant. To use the application, the user needs to register and login to the application after installing by providing login information. Once, he or she logins into the application, they can use all the features.

Performance Requirements

Response time, scalability, platform dependencies, tolerance are the performance requirements that should be considered when developing any system. The application or system should be able to respond quickly when the user interacts with the application. The application should be developed in such a way that it should be scalable enough to accept new features when we want to expand the application complexity.

The applicationshould run in all the specified software and hardware requirements from the design phase of the project. Also, the tolerance rate (fault tolerance) of the application should be at a higher level in case of network issues, connectivity issues, and when the application crashes or stops. It should be able to deliver the information about any of those issues to the user when the system is no longer able to provide results when the user wants.

System Requirements

The application should be installed into a device, system or any machine in such a way that it should have basic requirements like supporting software and hardware of the device, accessing in-built software, say camera for mobile device, internet permissions, and potential security issues such as virus or any malware detection.

Testing and Maintainability Requirements

The application should be able to meet all the possible good and bad test cases under a test environment. Application should be developed in such a way that it does not have any issues or crashes when the user is using the application. It should be able to extend itself when we expand the code or implement any new functions to the existing application.

Validation

Validating any application is an important criterion before releasing the application to the users. If there is no validation, the information entered by users may be redundant, formatted inappropriately and cannot be maintained. For example, we can validate mobile number in a way that it should use only digits and letters. Suppose, if the validation is not done, there are chances for the user to enter a wrong phone number and save it. In case of any emergency issues, the authorized person cannot contact the respective person. Similarly, validations for all the fields that are used to save information in any application are highly necessary. In this application, I have done several validations in the Login Page and Home Page.

In the Login Page, I have validated all the login information that is required for the user to sign up for the first time. Fields like username, email, password, mobile number are validated appropriately by displaying error messages. The username should not contain any digits, password should be minimum of six letters, the email should be a valid address and if the email id is already registered, an error message is shown saying that email id exists. The mobile number should contain only digits, when scanning the item, scan operation should be done properly to fetch the barcode number, if not a message is shown. When searching the item using any name, it should not contain any digits in the search field.

CHAPTER7- DESIGN

Design Approach

This project is based on the functional design approach, which helps in understanding the design of the project in a simpler way by explaining its flow, use cases, and implementation more like a modular approach. For example, there are different modules in this project which have separate functionality and, other sub functionalities/modules. All the modules are designed, implemented and integrated together to make a flawless working application.

Detailed Design

The detailed design including modules and sub modules of the application is as follows:

1. User Registration:

If the user wants to use the YourGadget, they must download the application from the play store, install and register it by providing login information. Once, they registers the registered information is stored on the server and can be validated, checking the valid credentials for the next time he logins with the application.

2. Instant Search:

The instant search helps in finding whether the item is available in the store or not. This could help the users save time by searching for the item which is out of stock.

3. Scan the Item:

This feature helps people by allowing them to scan the barcode that is available on the item. Once the user scans the item, they can see all the information about the item like barcode number, name, quantity, price, net price, and serial number. Users can scan any number of items they wish and keep adding to their physical

shopping cart. Later, they can purchase any item they want by checking the items in the cart. Suppose if the stock is not available for any items, "stock not available" message is also shown.

4. Checkout and Payment:

Checkout is made in an easy step to avoid hassle in this application. The user can just check in with the checkbox from the cart. Depending upon the quantity of the items, the payment is calculated along with the tax rate (Ex: 8%). If the user wishes to purchase, they can proceed by clicking the "PayNow" button or they can cancel the purchase at this stage and proceed and with shopping for other items or they can exit the application.

5. Invoice Generation and Uploading:

Once, the user confirms the purchase and pays the amount, the invoice is generated at the same time and we can share it instantly to cloud (share to drive, send email)

6. Tracking Purchase:

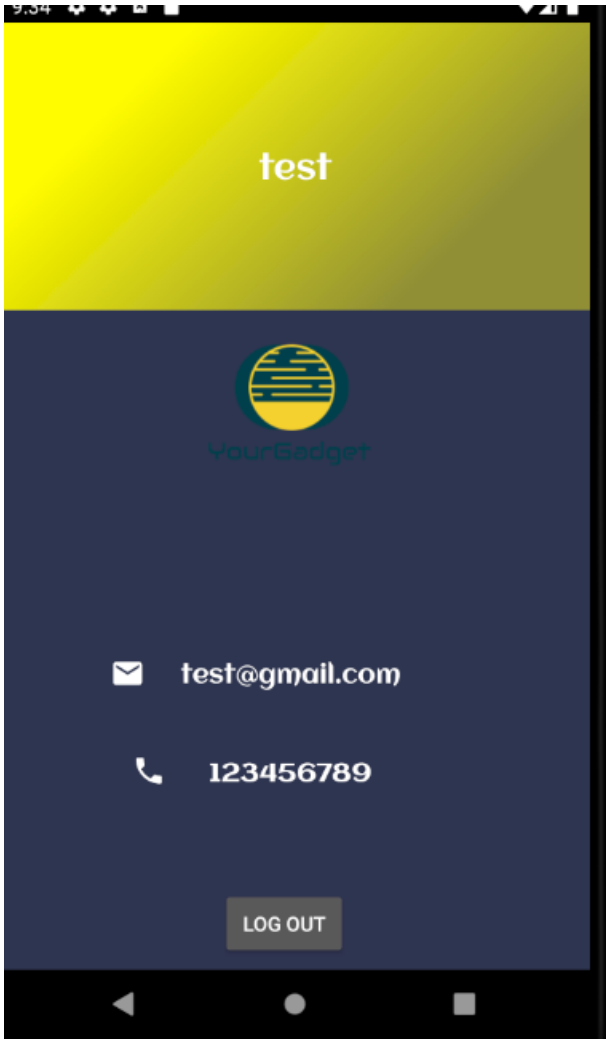
The application allows us to track purchases by adding the various expenses we spent and view them in the form of charts (pie chart) as for other charts like line graphs, bar graphswe need a large dataset. Viewing expenses is interactive with different options like view by category, by and between dates, or view all.

Application Design

The main aim of the system design is to explain the scenario using use case diagrams. Use case diagrams clarify the flow of the application by deriving the use cases for all the functionalities in form of diagrams for the users.

USER

Figure 1: Use Case Diagram for User



User Interface Design

User Interface Design for any application should be very simple. We should have only a few clicks or navigation among the features when using the application to avoid hassle. In this application, there are two main screens, the Login and Home screens.

The login page is the first page which appears when the user uses the application. In that page, if he is a new user, he can sign up or if he is an existing user, he can login with the credentials.

The next screen is the homepage where the users can select features and use the app. The following image is the home screen. As seen from the image, this screen has all the key features.

Database Design:

1. Firebase database

Firebase is a real time data base which allows to store tree of lists of objects. It allows to synchronize data between different devices. It is a NoSQL JSON database.

You can find it under: https://console.firebase.google.com/

2. Configure firebase

Logon to https://console.firebase.google.com/ and press Add Firebase to your Android app.

3. Integrating into your application

Add the following gradle dependencies to your general gradle file

```
// Top-level build file where you can add configuration options common to all sub-projects/modules.

buildscript{
// more stuff
dependencies{
// classpathcom. android. tools. build:gradle entry as before
classpath'com. google. gms:google-services:3. 0. 0'

// NOTE: Do not place your application dependencies here; they belong
// in the individual module build. gradle files
}
}

// more stuff
```

Add the following gradle dependencies to your app gradle file

```
dependencies{
// . . . more stuff
compile'com. google. firebase:firebase-database:10. 2. 1'
compile'com. google. firebase:firebase-auth:10. 2. 1'
}

applyplugin:'com. google. gms. google-services'
```

4. Access

Access to your Firebase Database is configured by a set of rules written in a JSON configuration language. == Exercise: Building an Android application using the firebase database

5. Create a new project

Create a new project with the *com. vogella. android. firebaseexample* top level package.

6. Configure firebase

Logon to [https://console. firebase. google. com/](https://console.firebase.google.com/) Create a new project and call it *vogellachat*.

In your new project, select *Add Firebase to your Android app.*

For this you need to get the SHA-1 for your debug keystore:

```
keytool -exportcert -alias androiddebugkey -keystore ~/. android/debug. keystore -list -v -storepass android
```

Enter the package and your SHA-1 into the webmask and press *Register app.*

Download the google-services-json file and copy it into the root of your Android app model.

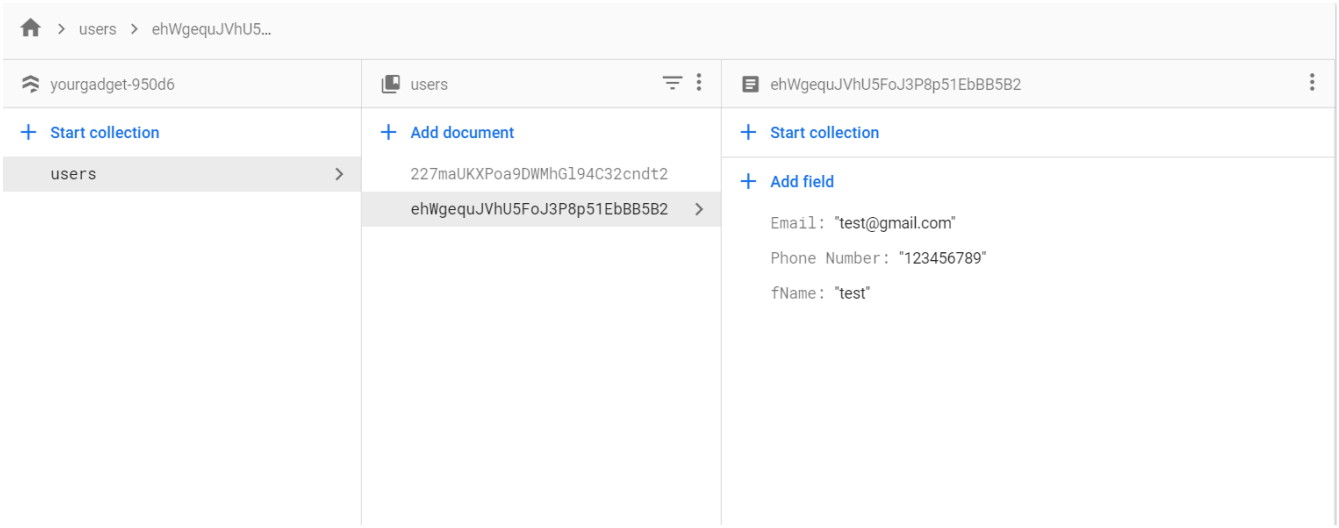
7. Integrating into your application

Add the following gradle dependencies to your general gradle file

```
// Top-level build file where you can add configuration options common to all sub-projects/modules.

buildscript{
// more stuff
dependencies{
// classpathcom. android. tools. build:gradle entry as before
classpath'com. google. gms:google-services:3. 0. 0'

// NOTE: Do not place your application dependencies here; they belong
// in the individual module build. gradle files
}
}

// more stuff
```

Add the following gradle dependencies to your app gradle file

```
dependencies{
// . . . more stuff
compile'com. google. firebase:firebase-database:10. 2. 1'
compile'com. google. firebase:firebase-auth:10. 2. 1'
}



applyplugin:'com. google. gms. google-services'
```



CHAPTER8- DEMONSTRATION

UserInterfaceRepresentation

To make the application interactive, different controls have been used and designed usingthe layout file. Following are the important controls that are designed and used in thisapplication:

- Text View: The text view component belongs to the view group as a part of GUI. It displays the text or content view of any activity to the user and allows them toedit.
- EditText: This allowsitself to beeditablein the text box.
- Button: One of the important components in which the application needs. It ismainly associated with action when the user clicks it. We can represent the buttonusinganytext which holds theaction class on it.
- Image Button:Suppose, if we wanttohave an image for the button which wehave designed, we can include using this control by adding the source or path oftheimagefilewithin thetags in thelayout file.

- *ListView: This is a key component under the view group which helps in displaying the information about anything when we click the action button. It also allows us to scroll through the screen and have a look about the information displayed. Using the list adapter, the content is pulled from the database.*

- *Checkbox: Itis thecontrol componentwhich allowsus touse ormakeuseofthefunction by just clicking on the check box button. When we include check boxwidget in the application, we can see a small box in the screen on which we cancheckit and it will beselected.*

CHAPTER 9-SUMMARY

The Android SDK ships with numerous other tools. Many of which are used for special development cases. However, the tools listed above will be used with just about every project, regardless of the type of app being developed. For more information on these and other tools available, check out the Android Tools section of the Android website. Also, new tools and improved tools are released on a fairly regular basis, so make sure you keep all of the packages updated with the AVD and SDK Manager. Finally, above and beyond the Android tools we've discussed, your best resource is the Android Developer website. Complete with up-to-date SDK downloads, source documentation, tutorials, technical articles, and the Android blog with the latest news, this website provides critical knowledge and support for Android developers.

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