Implementation of Original Degree Application by Android.

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*Abstract: T*his paper providing an Android App, which makes easier for students to apply their Original Degree. In now days, the students after passed out from college there will settle in different places. The OD Application Software is developed by a student in JNTU Anantapur. It is a Web Based Software and it took for him about 2 years to complete the project . It is realtime database based and it contains the a login method , a full detail Fields of the Applicant , to fill the form and the payment gateway after that the application is successfully registered . The Admin will check all the details that the applicant entered and then the verification is carriedout after that the ordered is processed forward.

This application will helpful for them to get certificates from college to their currently living places. Here introduced more secuirty purposes in this, like OTP verification, Image uploading. It is based on cloud Architecture using Firebase . Firebase is an Google Server . Introcuded in 2012 April 12. It contains some more extra features then the Pre Existence Software . The main features are it is otp verification, uploading image of the applicant. While in the process of the applying the OD, the back button will not work, if the application is closed the content entered is removed then the application is not considered. If the Application is applied successfully then the application status is updated, and check it in the status fragment.

Keywords: **Android, Java, Application, Original Degree, Cloud, Firebase, Certificates.**

- ## 1. INTRODUCTION

The goal of this paper is to give developed a Application that needs to help the students who are passed out from the college and want to get there certificates from college, but there so far and there didn't even have time to go to college and get their certificates . All will be in busy in there daily life . So our Application called OD Application or Original Degree Application helps them to get their certificates in couirer safely to their living places . But , first there should have to fill there application and needed to complete all verification and then there can be furthur proceeded to get there certificates.

Requirement Analysis :

The project needs several requirements to be gathered before processing to develop the OD Application. One among them includes gathering images and source codes about the firebase functions like adding, deleting, replacing, image storing, authentication. The other codes are navigation view, tablayout, recycler view, menus, layout inflaters etc ..... The Application is gathered form JNTU web site and implemented our Applicaiton which is not present in the JNTU site and it makes our Applicaiton more secure .

It was noted more than 50% of the Android devices are using the version of kitkat or more . The functionality requirements of the application is simple and straightforward where as the technial details involved research on the available android technologies.

User interface is most important for any android application and android has multiple facilites for drawing user interface for applications. Few study materials in android to code with the concepts like libaries view and animations were also gathered so as to smooth the application development process. These gathered information helped to provide a clear direction of deciding the software requirements and hardware requirements.
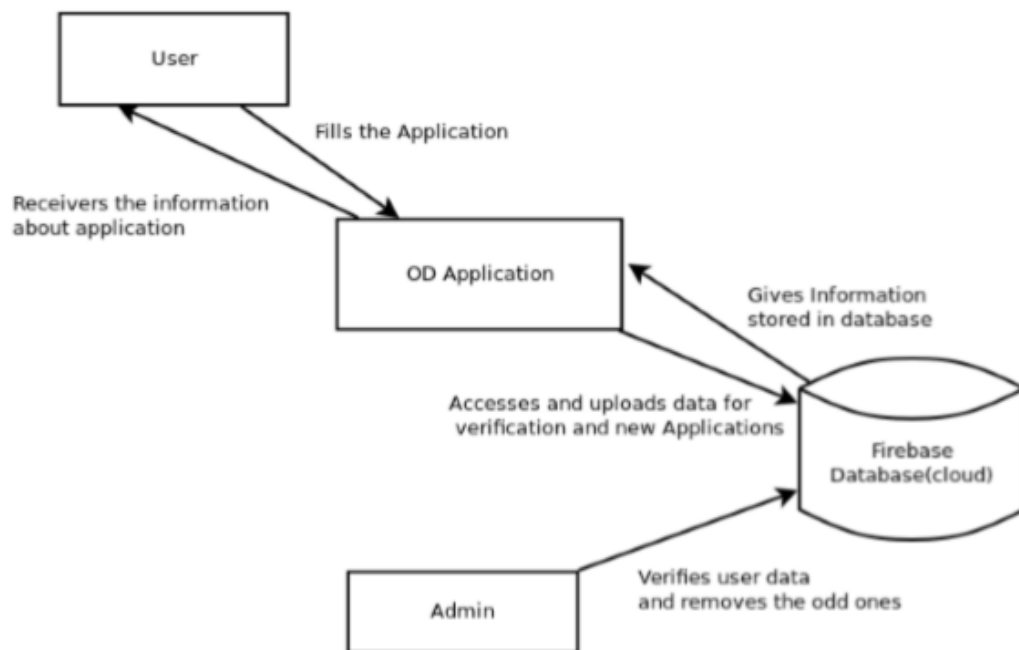
The rest of this paper is organized as follows. Section 2 describes the existing system, disadvantages. Proposed systems, advantages are given in section 3.conclusions are finally drawn in section 4 along with future reference.

- ## 2. EXISTING SYSTEM

In existing system there is no proper website or application to applying student certificates rather than applying certificates in their college. It is very long process after compilation of their courses. Everyone go to their college, waiting for the principal signs, pay the challan in nearer bank, and fill the application form.

The OD Application Software is developed by a student in JNTU Anantapur. It is a Web Based Software and it took for him about 2 years to complete the project . It is realtime database based and it contains the a login method , a full detail Fields of the Applicant , to fill the form and the payment gateway after that the application is successfully registered . The Admin will check all the details that the applicant entered and then the verification is carriedout after that the ordered is processed forward.

- ### Disadvantages:-
  - Time taking process, go to college and applying for their certificates.
  - Everyone is busy with their works, at that time it is risky.
  - Java is one of disadvantage in android development, technology changes day by day.
  - App get struck by using java language.
  - Not portable.
  - Everyone not using a website frequently, it is not portable now a days.

- ## PROPOSED SYSTEM

In proposed system, Here done a Mobile Application. Now a days everyone using the smart phones , it makes easier for the applicants to apply there certificates from there mobile itself. We introduced more secuirty purposes in this, like OTP verification, Image uploading. It is based on cloud Architecture using Firebase . Firebase is an Google Server . Introcuded in 2012 April 12 . It contains some more extra features then the Pre Existence Software . The main features are it is otp verification, uploading image of the applicant. While in the process of the applying the OD, the back button will not work, if the application is

closed the content entered is removed then the application is not considered. If the Application is applied successfully then the application status is updated. We can check it in the status fragment .
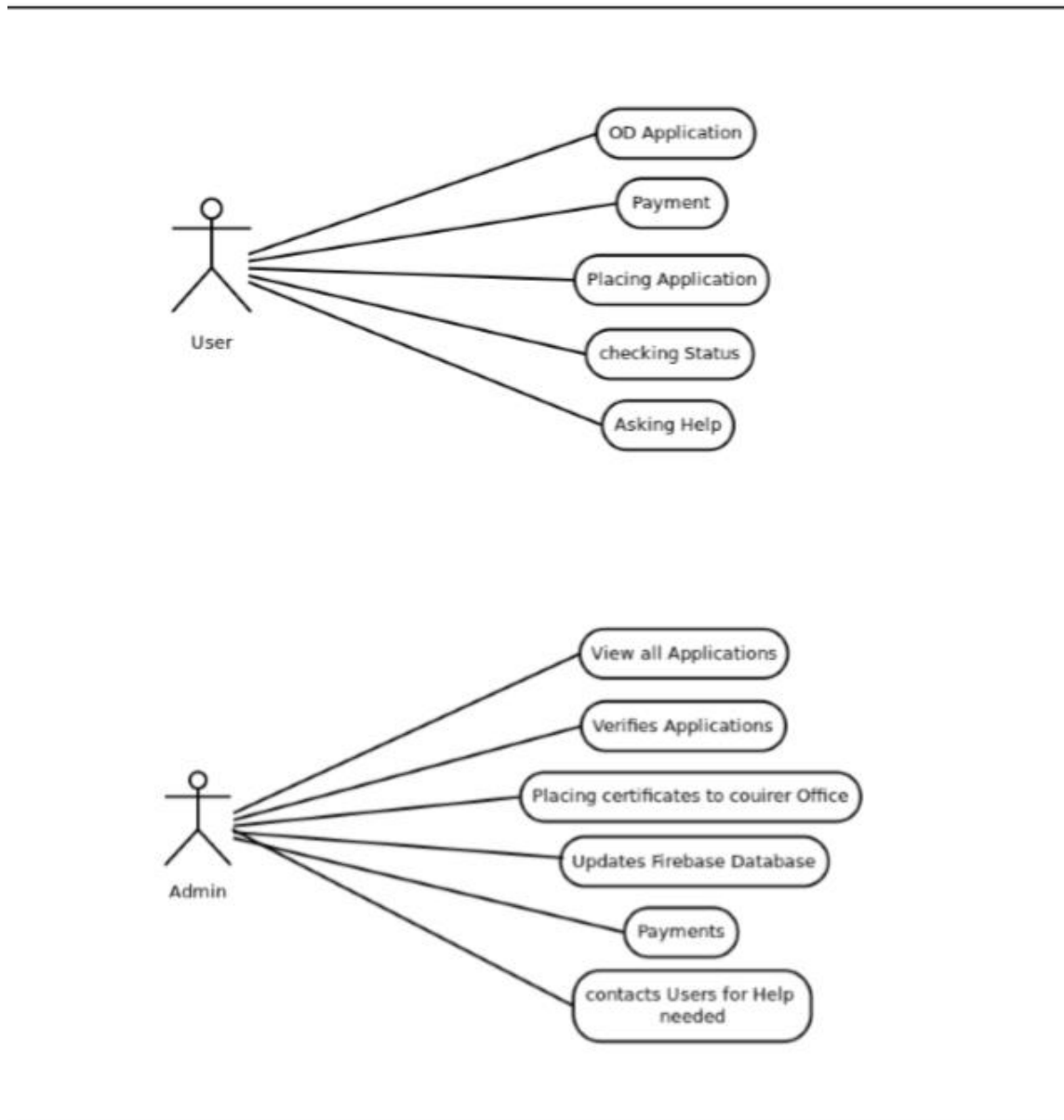

Android:

Android is a Linux based operating system designed especially for touch screen mobile devices and smart phones and tablet computers .This project is Initially developed by An- droid, Inc., which Google backed financially later . Android was unveiled in 2007 along with the open handset alliance: an association of hardware, software, and telecommunication companies devoted to

Advancing open standards for mobile devices. Android is a platform for software development kit (SDK) an application framework and key applications. Android is an open source. Most parts of the Android application code is released by the Google under apache license. This open source code and permissive license make users allow to modify the software and is distributed by the device manufactures, and also allows to build new versions of android. One of those modified versions called Cyanogen mod. The first commercially available phone to run android was HTC dream.
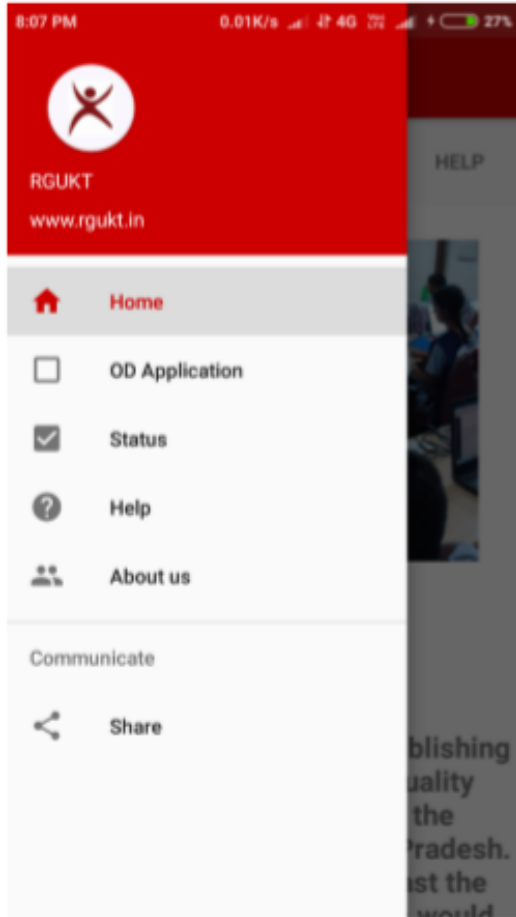
System Architecture :
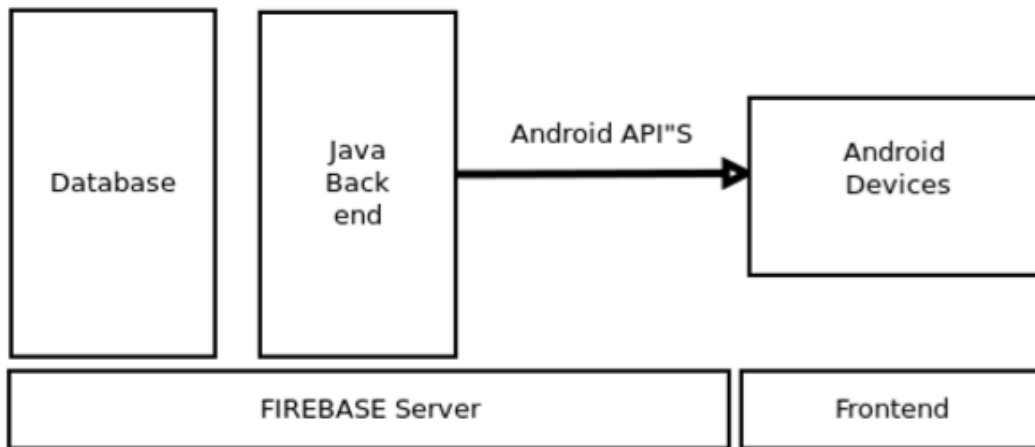
Activites :

The app is mainly consists of One Activity that is
1. Main Acitivty

MainActivity :

The Main Activity contains a Side Navigation Drawer with the 5 fragments. The Fragments are
1. Home Fragment
2. OD Application Fragment
3. Checking Status Fragment
4. Help Desk Fragment
5. Credits Fragment

ScreenShot:

Home Fragment :

The Home fragment contains again a tab layout with 5 fragments and the fragments are 4 from the main activity and one extra fragment is RGUKT Fragment .

1. RGUKT Fragment 2. OD Application Fragment 3. Checking Status Fragment 4. Help Desk Fragment 5. Credits Fragment
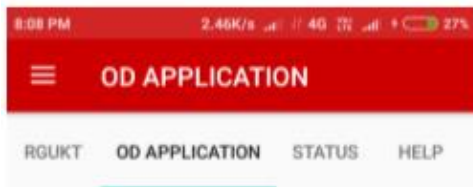
Screenshots :

TabLayout →
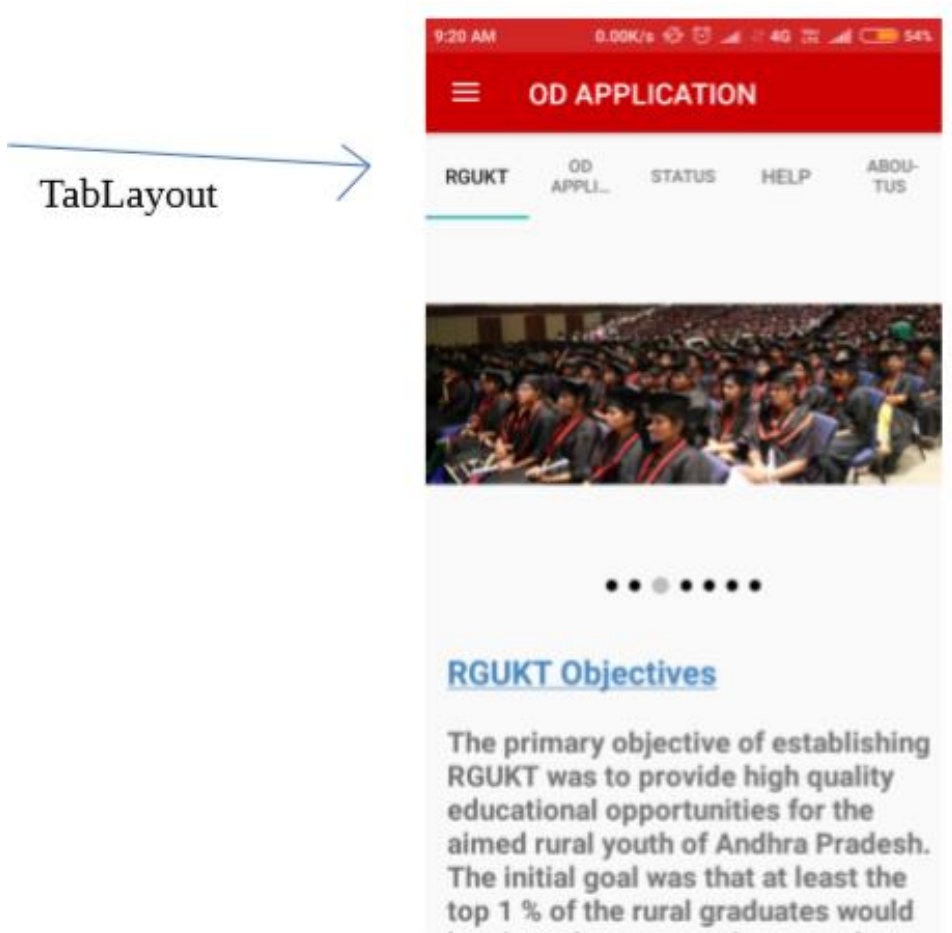
RGUKT Fragment :

On opening to the fragment it contains a Image Slide Show, dots to represent the each image and the Objectives of the RGUKT University and some information about the college . The Image Slide show consists of 6 images which are connected by layout inflater and view will be in viewpager. The Timer count is present which will automatically slide the images after the time limit exceed . The RGUKT Objectives and some information about RGUKT is placed in a scroll view . The image slide view and scrollview contents are combined in a linear layout of vertical orientation.
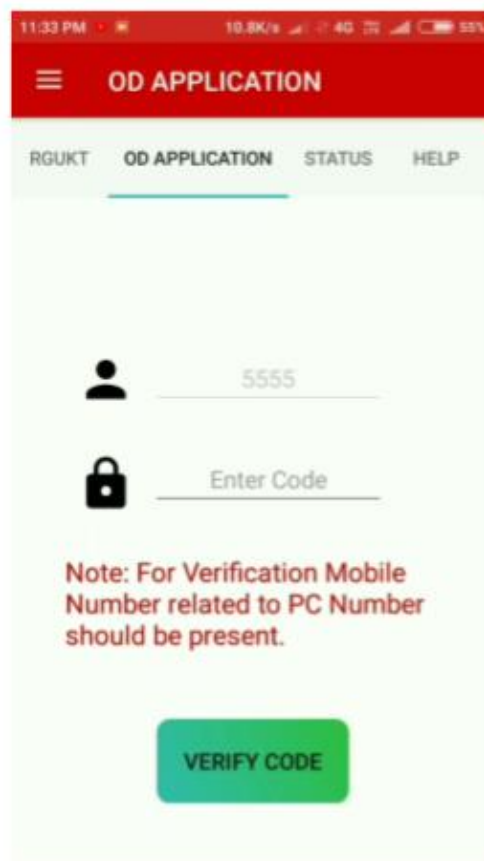
ScreenShots :
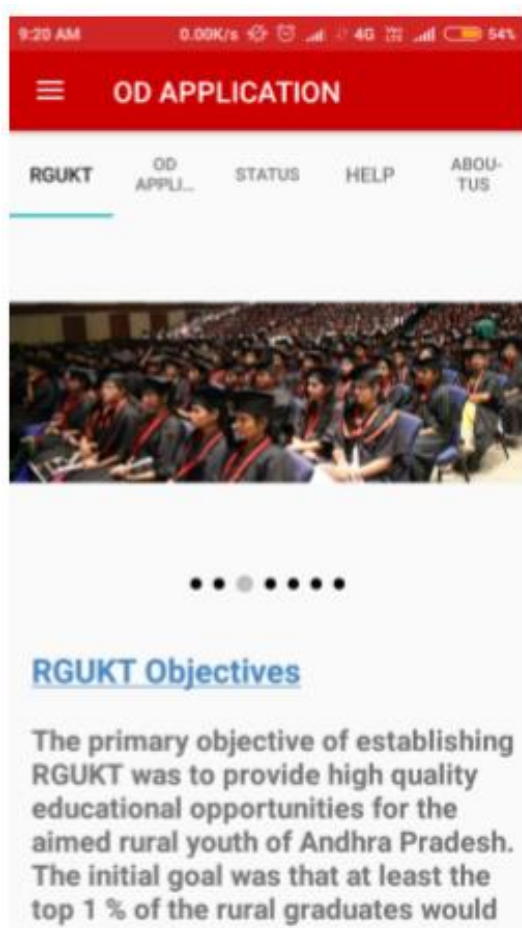
OD Application Fragment :

The OD Application Fragment is main concept of the project of the APP . The Editext field takes the PCNumber of the applicant and checks whelther is the college number or not (or) is he already applied or not . If not then it sends a OTP to the applicant mobile number which given in the college . Once the verification is done the app redirects to the Application form of the college . After filling all the fields of the Application the applicant redirects to the selection of the payment type , where he have to choose mode to get the certificates after the convaction or the before the convaction or in the convaction . After that the Applicant have to pay the money according to the selection of the mode . At last the Applicant gets a copy of the application that he applied , order number and shows the application success . Then it redirects to the home page.

Screenshots :

OD APPLICATION

Payment

Transfer Money to this Number 9494719480 through any online payment app.

In Payment write a Message of Your PC Number to Identify You Quickly

DONE

Checking Status Fragment :

In the Checking Status Fragment , the User has to enter the order number of him and the password that given in the OD Application form to check the status of the Application . If the details entered by the user is invalid it shows a error message . The details of OD Application form is invalid the admin will reject that Application and shows the message "Your Application has been Rejected." in Checking Status Fragment . If the verification by admin is successfully done, then the Application is forward for the certificates section to pack the certificates of particular person and to Courier Office .

Screenshots :

8:08 PM   0.00K/s   4G   27%

≡ OD APPLICATION

OD APPLICATION   STATUS   HELP   ABOUTUS

STATUS

Order Number _____

Password _____

SUBMIT
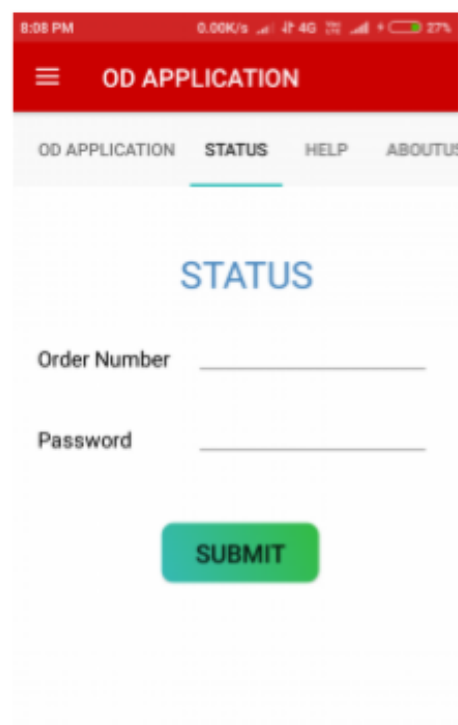
Help Desk Fragment :

It contains the basic doubts that a Applicant gets during appling for the certificates . The doubts and the answers are given in this fragment and a additional field is present that enables the applicant to contact us. That field is Contact Us Field , the applicant can send this mobile number to the clarify there doubts . The helping team will call them for there doubts clarification .

Screenshots :
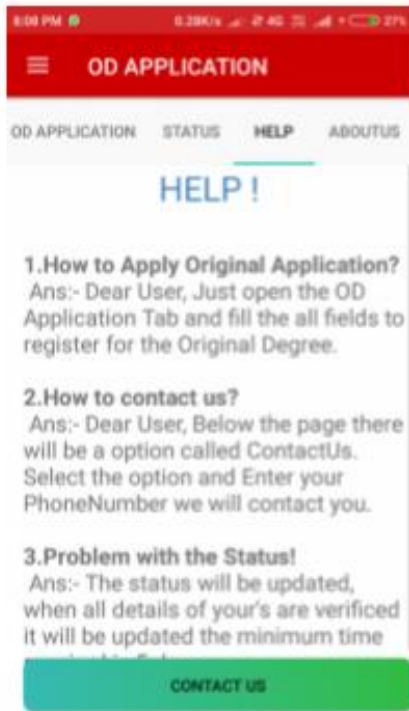
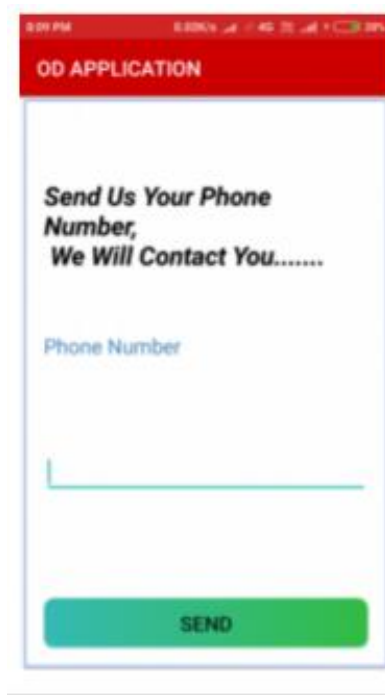-> The Help Desk Fragment contains a Contact us Activity.

Contact Us Activity :

The ContactUs Activity contains a phonenumber field that enables the user to send this phonenumber to the helping team of the OD Application. The helping team calls the user, for the clarification of the user doubts.

Screenshots :

code

```
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Context;
import android.content.Intent;
import android.media.RingtoneManager;
import android.net.Uri;
import android.support.v4.app.NotificationCompat;
import android.util.Log;

public class   MainActivity extends AppCompatActivity implements
NavigationView.OnNavigationItemSelectedListener{

    private DrawerLayout drawer;
    Boolean doubleBackToExitPressedOnce = false;
    private long Backpressed;
    private static final int REQUEST_CODE_ASK_PERMISSIONS = 111;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        writeStoragePermission();
        connection();

        Toolbar toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);

        drawer = findViewById(R.id.drawer_layout);
        NavigationView navigationView = findViewById(R.id.nav_view);
        navigationView.setNavigationItemSelectedListener(this);
```

```java
    ActionBarDrawerToggle toggle = new ActionBarDrawerToggle(this,drawer,toolbar,
        R.string.navigation_drawer_open,R.string.navigation_drawer_close);
    drawer.addDrawerListener(toggle);
    toggle.syncState();
    if(savedInstanceState == null)
    {
        getSupportFragmentManager().beginTransaction().replace(R.id.frame_container,
            new HomeActivity()).commit();
        navigationView.setCheckedItem(R.id.home);
    }
}

@RequiresApi(api = Build.VERSION_CODES.M)
private void writeStoragePermission() {

    int hasWriteStoragePermission = ActivityCompat.checkSelfPermission(this,
Manifest.permission.WRITE_EXTERNAL_STORAGE);
    if (hasWriteStoragePermission != PackageManager.PERMISSION_GRANTED) {

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
            if (!shouldShowRequestPermissionRationale(Manifest.permission.WRITE_CONTACTS)) {
                    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
                        requestPermissions(new
String[]{Manifest.permission.WRITE_EXTERNAL_STORAGE},
                            REQUEST_CODE_ASK_PERMISSIONS);
                    }
                return;
            }


            requestPermissions(new String[]{Manifest.permission.WRITE_EXTERNAL_STORAGE},
                REQUEST_CODE_ASK_PERMISSIONS);
        }
        return;
    }else {
        return;
    }

}
@Override
public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
@NonNull int[] grantResults) {
    switch (requestCode){
        case REQUEST_CODE_ASK_PERMISSIONS:
            if(grantResults[0] == PackageManager.PERMISSION_GRANTED){
                return;
            }
            else {
                Toast.makeText(this,"Permissions Denied",Toast.LENGTH_SHORT).show();
            }
            break;
        default:
            super.onRequestPermissionsResult(requestCode, permissions, grantResults);

    }
```

```java
    }


    @Override
    public boolean onNavigationItemSelected(@NonNull MenuItem item) {
        switch (item.getItemId())
        {
            case R.id.home:
                getSupportFragmentManager().beginTransaction().replace(R.id.frame_container,
                        new HomeActivity()).commit();
                //doubleBackToExitPressedOnce = false;
                break;
            case R.id.document:
                getSupportFragmentManager().beginTransaction().replace(R.id.frame_container,
                        new DocumentActivity()).commit();
                //doubleBackToExitPressedOnce = true;
                break;
            case R.id.help:
                getSupportFragmentManager().beginTransaction().replace(R.id.frame_container,
                        new HelpActivity()).commit();
                //doubleBackToExitPressedOnce = true;
                break;
            case R.id.aboutus:
                getSupportFragmentManager().beginTransaction().replace(R.id.frame_container,
                        new AboutusActivity()).commit();
                //doubleBackToExitPressedOnce = true;
                break;
            case R.id.status:
                getSupportFragmentManager().beginTransaction().replace(R.id.frame_container,
                        new StatusActivity()).commit();
                //doubleBackToExitPressedOnce = true;
                break;
            case R.id.share:
                //doubleBackToExitPressedOnce = true;
                String url = "https://www.google.com";
                Uri Webpage = Uri.parse(url);
                Intent intent = new Intent(Intent.ACTION_VIEW, Webpage);
                if(intent.resolveActivity(getPackageManager()) != null) {
                    startActivity(intent);
                }else {
                    Log.d("ImplicitIntents", "Can't handle this intent");
                }
                break;
        }
        drawer.closeDrawer(GravityCompat.START);
        return true;
    }
    @Override
    public void onBackPressed() {
        if (drawer.isDrawerOpen(GravityCompat.START)) {
            drawer.closeDrawer(GravityCompat.START);
        }else {
            finish();
        }
    }
}
```

```
    @Override
    protected void onStart() {
        super.onStart();
    }

    @Override
    public void onDestroy() {
        super.onDestroy();
        FirebaseAuth.getInstance().signOut();
    }


    public void connection() {
        ConnectivityManager manager = (ConnectivityManager)
getSystemService(CONNECTIVITY_SERVICE);

        //For 3G check
        boolean is3g = manager.getNetworkInfo(ConnectivityManager.TYPE_MOBILE)
            .isConnectedOrConnecting();
        //For WiFi Check
        boolean isWifi = manager.getNetworkInfo(ConnectivityManager.TYPE_WIFI)
            .isConnectedOrConnecting();


        if (!is3g && !isWifi) {
            AlertDialog.Builder alertDialogBuilder = new AlertDialog.Builder(this);
            alertDialogBuilder.setMessage("No Internet Access\nTurn on the Mobile Data or Connect to
a wifi");
            alertDialogBuilder.setPositiveButton("OK", new DialogInterface.OnClickListener() {
                @Override
                public void onClick(DialogInterface dialog, int which) {

                    finish();
                }
            });
            AlertDialog alertDialog = alertDialogBuilder.create();
            alertDialog.show();
        }
        return;
    }
```

UniTesting :

In Unit Testing each independent unit is tested separately, by isolating it from the remainder of the code to ensure paprts of the code are working properly, Unit is the smallest testable part of the code, as in here the classes are treated as base unit. Since the base application in was threading concept , it is possible to leverage the j Unit for testing the individual components.

Unit Testing (OD Application) Test Modules Test Case Result 1.Activites: Check all the clickables & textviews: Pass.
2.API Calls Check whether API is called or not: Pass
3. JSON test Check the JSON data to represent: Pass
4. GET method Check get method is working or not: Pass
5. Firebase Connection Checks whether firebase connection is working or not: Pass
6. Upload Image Check quality of image: Pass
7. Tabs MainActivity tabs are in correct order: Pass

8. Order Status Check order status: Pass

9. Processing Bar Checks whether the processing is correcting properly or not: Pass

10. Payment Check payment is perfectly assigned or not: Pass

11. Phone Number Check the Phonenumber of the user: Pass

12. PC Number Check the pc Number of the user: Pass

13. File Manager Checks permission to save the Application Form to the internal storage: Pass

14. Authentication OTP verification for the applying of the OD Form: Pass

15. Navigation Drawer Checks whether the navigation drawer is working properly or not: Pass

•   4. CONCLUSION AND FUTURE WORK

The application has been designed, implemented and tested with real devices with users successfully. The project helped in understanding the challenges involved in developing an android application for android mobiles and different type revoulation mobiles, the ways to overcome the and in better understanding the value of designing the components of overall applications before implementing them. The project has also taught me android application development programming skills and refining design and implementation the logic of software and every phase and improve the performance of overall application.

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