1. **Cell Reuse(JAVA Code)**

i=int(input("Enter i: "))

j=int(input("Enter j: "))

print("Cluster Size:", i\*\*2+i\*j+j\*\*2)

mesh=[['.' for z in range(10\*j)]for k in range(10\*i)]

mesh[5+i][5+j]='o'

mesh[5+i-j][5+j+i+j]='z'

mesh[5+i+j][5+j-i-j]='z'

mesh[5+i-i-j][5+j-j]='y'

mesh[5+i+i+j][5+j+j]='y'

mesh[5+i-i-j][5+j+i]='x'

mesh[5+i+i+j][5+j-i]='x'

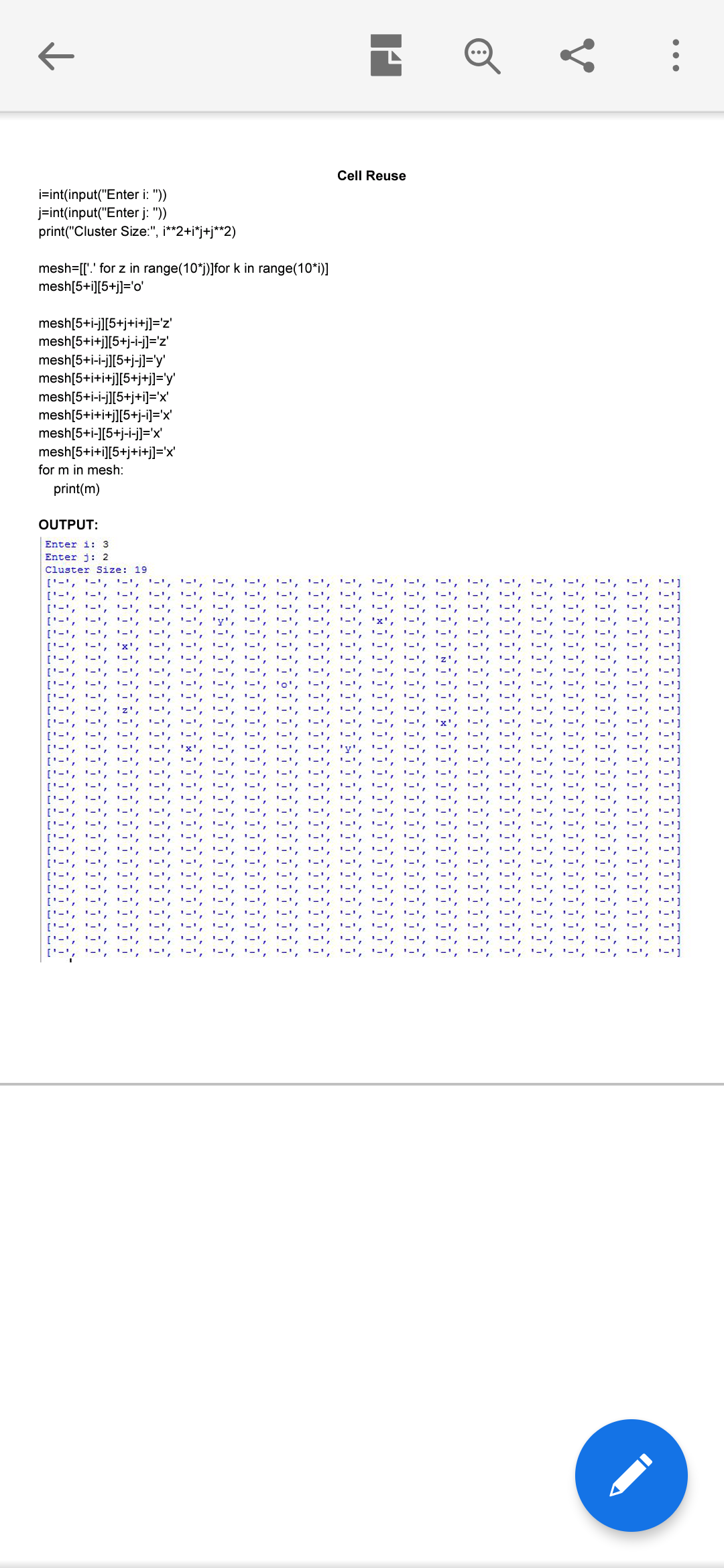
mesh[5+i-i][5+j-i-j]='x'

mesh[5+i+i][5+j+i+j]='x'

for m in mesh:

print(m)

**OUTPUT:**

****

1. **CDMA**

def mult(c,d):

return list(map(lambda x : x \* d, c))

c1=[1,1,1,1]

c2=[1,-1,1,-1]

c3=[1,1,-1,-1]

c4=[1,-1,-1,1]

C=[c1,c2,c3,c4]

d=[int(x) for x in input("Enter data bits for 4 channels:").split()]

result=[]

for i in range(4):

result.append(mult(C[i],d[i]))

print(result)

channel=[]

for i in range(4):

res=0

for j in range(4):

res+=result[j][i]

channel.append(res)

station=int(input("Enter station you want to listen:"))

res2=0

for i in range(4):

res2+=channel[i]\*C[station-1][i]

print("Data bit transmitted:",res2//4)

Output:

Enter data bits for 4 channels:-1 -1 0 1

Enter station you want to listen:2

Data bit transmitted: -1

1. **SD Card**

**Activity\_main.xml**

***<?*xml version="1.0" encoding="utf-8"*?>***

**<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"**

**xmlns:app="http://schemas.android.com/apk/res-auto"**

**xmlns:tools="http://schemas.android.com/tools"**

**android:layout\_height="match\_parent"**

**android:layout\_width="match\_parent"**

**android:id="@+id/activity\_main">**

**<EditText**

**android:id="@+id/edit"**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:singleLine="true"**

**android:textSize="20dp" />**

**<Button**

**android:id="@+id/write"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="wrap\_content"**

**android:layout\_below="@+id/edit"**

**android:layout\_centerInParent="true"**

**android:text="Write" />**

**<Button**

**android:id="@+id/cancel"**

**android:layout\_width="wrap\_content"**

**android:layout\_height="wrap\_content"**

**android:layout\_below="@+id/write"**

**android:layout\_centerInParent="true"**

**android:text="Cancel" />**

**</RelativeLayout>**

**Mainactivity.java**

**package com.example.sd\_card;**

**import androidx.appcompat.app.AppCompatActivity;**

**import android.app.Activity;**

**import android.os.Bundle;**

**import android.os.Message;**

**import android.view.View;**

**import android.widget.Button;**

**import android.widget.EditText;**

**import android.widget.Toast;**

**import java.io.File;**

**import java.io.FileOutputStream;**

**import java.io.IOException;**

**public class MainActivity extends Activity {**

**EditText e1;**

**Button b1,b2;**

**protected void onCreate(Bundle savedInstanceState) {**

**super.onCreate(savedInstanceState);**

**setContentView(R.layout.*activity\_main*);**

**e1=(EditText) findViewById(R.id.*edit*);**

**b1=(Button) findViewById(R.id.*write*);**

**b2=(Button) findViewById(R.id.*cancel*);**

**b1.setOnClickListener(new View.OnClickListener() {**

**@Override**

**public void onClick(View v) {**

**String msg=e1.getText().toString();**

**try**

**{**

**File f=new File("/sdcard/myfile.txt");**

**f.createNewFile();**

**FileOutputStream fout = new FileOutputStream(f);**

**fout.write(msg.getBytes());**

**fout.close();**

**Toast.*makeText*(getBaseContext(),"Data Written",Toast.*LENGTH\_LONG*).show();**

**} catch (IOException e) {**

**}**

**}**

**});**

**b2.setOnClickListener(new View.OnClickListener() {**

**@Override**

**public void onClick(View v) {**

**e1.setText("");**

**}**

**});**

**}**

**}**

**Manifest**

**<uses-permission android:name = "android.permission.WRITE\_EXTERNAL\_STORAGE"></uses-permission>**

**<uses-permission android:name="android.permission.READ\_EXTERNAL\_STORAGE"></uses-permission>**

**Myfile.txt kidr create hogi ??jidr uska mann hoga**

**File Explorer mei search kar… milega**

1. **Basic Primitives**

**Java**

**package com.example.basic;**

**import androidx.appcompat.app.AppCompatActivity;**

**import android.app.Activity;**

**import android.graphics.Bitmap;**

**import android.graphics.Canvas;**

**import android.graphics.Color;**

**import android.graphics.Paint;**

**import android.graphics.drawable.BitmapDrawable;**

**import android.os.Bundle;**

**import android.widget.ImageView;**

**public class MainActivity extends Activity {**

**@Override**

**protected void onCreate(Bundle savedInstanceState) {**

**super.onCreate(savedInstanceState);**

**setContentView(R.layout.*activity\_main*);**

**Bitmap bm = Bitmap.*createBitmap*(720,1280,Bitmap.Config.*ARGB\_8888*);**

**ImageView i = (ImageView)findViewById(R.id.*image*);**

**i.setBackgroundDrawable(new BitmapDrawable(bm));**

**Canvas canvas=new Canvas(bm);**

**Paint paint=new Paint();**

**paint.setColor(Color.*RED*);**

**paint.setTextSize(50);**

**canvas.drawRect(400,200,600,700,paint);**

**canvas.drawCircle(200,200,100,paint);**

**canvas.drawRect(50,800,300,1100,paint);**

**canvas.drawLine(500,800,500,1100,paint);**

**}**

**}**

**Xml**

*<?***xml version="1.0" encoding="utf-8"***?>*

<**RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"**

**android:layout\_width="match\_parent"**

**android:layout\_height="match\_parent"**

**android:id="@+id/img"**>

<**ImageView**

**android:layout\_width="match\_parent"**

**android:layout\_height="match\_parent"**

**android:id="@+id/image"**>

</**ImageView**>

</**RelativeLayout**>

1. **Notification - Alarm**

**MainActivity.java**

**import android.app.Notification;**

**import android.app.NotificationManager;**

**import android.app.PendingIntent;**

**import android.content.Intent;**

**import android.os.Bundle;**

**import android.view.View;**

**import android.widget.EditText;**

**public class MainActivity extends AppCompatActivity {**

**@Override**

**protected void onCreate(Bundle savedInstanceState) {**

**super.onCreate(savedInstanceState);**

**setContentView(R.layout.activity\_main);**

**}**

**public void notify(View view) {**

**EditText e1=(EditText) findViewById(R.id.editText);**

**Intent intent=new Intent(this,ResultActivity.class);**

**PendingIntent pending=PendingIntent.getActivity(this,0,intent,0);**

**Notification noti=new Notification.Builder(this)**

**.setContentTitle("New Message")**

**.setContentText(e1.getText().toString()).setSmallIcon(R.mipmap.ic\_launcher)**

**.setContentIntent(pending).build();**

**NotificationManager manager=(NotificationManager)getSystemService(NOTIFICATION\_SERVICE);**

**noti.flags |= Notification.FLAG\_AUTO\_CANCEL;**

**manager.notify(0,noti);**

**}**

**}**

**activity\_main.xml**

**<?xml version="1.0" encoding="utf-8"?>**

**<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"**

**xmlns:app="http://schemas.android.com/apk/res-auto"**

**xmlns:tools="http://schemas.android.com/tools"**

**android:layout\_width="match\_parent"**

**android:layout\_height="match\_parent"**

**tools:context=".MainActivity">**

**<LinearLayout**

**android:layout\_width="368dp"**

**android:layout\_height="495dp"**

**android:orientation="vertical"**

**tools:layout\_editor\_absoluteX="8dp"**

**tools:layout\_editor\_absoluteY="8dp">**

**<TextView**

**android:id="@+id/textView"**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:text="Message" />**

**<EditText**

**android:id="@+id/editText"**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:ems="10"**

**android:inputType="textPersonName"**

**android:text="Name" />**

**<Button**

**android:id="@+id/button"**

**android:layout\_width="160dp"**

**android:layout\_height="wrap\_content"**

**android:text="Notify"**

**android:onClick="notify"/>**

**</LinearLayout>**

**</RelativeLayout>**

**androidManifest.xml**

**Copy only Highlighted part**

**<?xml version="1.0" encoding="utf-8"?>**

**<manifest xmlns:android="http://schemas.android.com/apk/res/android"**

**package="com.example.anushree.alert">**

**<application**

**android:allowBackup="true"**

**android:icon="@mipmap/ic\_launcher"**

**android:label="@string/app\_name"**

**android:roundIcon="@mipmap/ic\_launcher\_round"**

**android:supportsRtl="true"**

**android:theme="@style/AppTheme">**

**<activity android:name=".MainActivity">**

**<intent-filter>**

**<action android:name="android.intent.action.MAIN" />**

**<category android:name="android.intent.category.LAUNCHER" />**

**</intent-filter>**

**</activity>**

**<activity android:name=".ResultActivity"></activity>**

**</application>**

**</manifest>**

**resultActivity.java**

**import android.os.Bundle;**

**public class ResultActivity extends AppCompatActivity {**

**@Override**

**protected void onCreate(Bundle savedInstanceState) {**

**super.onCreate(savedInstanceState);**

**setContentView(R.layout.activity\_result);**

**}**

**}**

**activityResult.xml**

**<?xml version="1.0" encoding="utf-8"?>**

**<android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"**

**xmlns:app="http://schemas.android.com/apk/res-auto"**

**xmlns:tools="http://schemas.android.com/tools"**

**android:layout\_width="match\_parent"**

**android:layout\_height="match\_parent"**

**tools:context=".ResultActivity">**

**</android.support.constraint.ConstraintLayout>**

**MainActivity.java**

**MainActivity.jav**

1. **GPS(simple location dikhe on button click)**

**Activity\_main.xml:**

***<?xml version="1.0" encoding="utf-8"?>***

***<RelativeLayout***

***xmlns:android="http://schemas.android.c***

***om/apk/res/android"***

***xmlns:app="http://schemas.android.com/a***

***pk/res-auto"***

***xmlns:tools="http://schemas.android.com***

***/tools"***

***android:id="@+id/activity\_main"***

***android:layout\_width="match\_parent"***

***android:layout\_height="match\_parent"***

***android:paddingBottom="@dimen/activity\_***

***vertical\_margin"***

***android:paddingLeft="@dimen/activity\_ho***

***rizontal\_margin"***

***android:paddingRight="@dimen/activity\_h***

***orizontal\_margin"***

***android:paddingTop="@dimen/activity\_ver***

***tical\_margin"***

***tools:context="com.example.reshamverlia***

***ni.sharemylocation.MainActivity">***

***<TextView***

***android:id="@+id/tvData"***

***android:layout\_width="match\_parent"***

***android:layout\_height="wrap\_content"***

***android:layout\_alignParentLeft="true"***

***android:layout\_alignParentStart="true"***

***android:layout\_alignParentTop="true"***

***android:layout\_marginLeft="135dp"***

***android:layout\_marginStart="135dp"***

***android:layout\_marginTop="57dp"***

***android:text="Fetching Location"***

***android:textSize="10sp" />***

***<Button***

***android:id="@+id/btnShare"***

***android:layout\_width="wrap\_content"***

***android:layout\_height="wrap\_content"***

***android:text="Share"***

***android:layout\_below="@+id/tvData"***

***android:layout\_toRightOf="@+id/btnTakeP***

***ic"***

***android:layout\_toEndOf="@+id/btnTakePic***

***"***

***android:layout\_marginTop="25dp"***

***/>***

***<Button***

***android:id="@+id/btnTakePic"***

***android:layout\_width="wrap\_content"***

***android:layout\_height="wrap\_content"***

***android:text="Take Picture"***

***android:layout\_centerVertical="true"***

***android:layout\_centerHorizontal="true"***

***/>***

***<ImageView***

***android:id="@+id/iv1"***

***android:layout\_width="100dp"***

***android:layout\_height="100dp"***

***app:srcCompat="@mipmap/ic\_launcher"***

***android:layout\_below="@+id/btnTakePic"***

***android:layout\_alignRight="@+id/btnTake***

***Pic"***

***android:layout\_alignEnd="@+id/btnTakePi***

***c"***

***android:layout\_marginTop="18dp"***

***/>***

***<Button***

***android:id="@+id/btnShare2"***

***android:layout\_width="wrap\_content"***

***android:layout\_height="wrap\_content"***

***android:text="Share"***

android:layout\_below="@+id/iv1"

android:layout\_alignLeft="@+id/iv1"

android:layout\_alignStart="@+id/iv1"

android:layout\_marginTop="21dp"

/>

</RelativeLayout>

**Java:**

**package**

**com.example.reshamverliani.sharemylocat**

**ion;**

**import android.content.Intent;**

**import android.graphics.Bitmap;**

**import android.location.Address;**

**import android.location.Geocoder;**

**import android.location.Location;**

**import android.net.Uri;**

**import android.provider.MediaStore;**

**Import android.support.v7.app.AppCompatActivity;**

**import android.os.Bundle;**

**import android.view.View;**

**import android.widget.Button;**

**import android.widget.ImageView;**

**import android.widget.TextView;**

**import android.widget.Toast;**

**import**

**com.google.android.gms.common.ConnectionResult;**

**import**

**com.google.android.gms.common.api.GoogleApiClient;**

**Import com.google.android.gms.location.LocationServices;**

**Import com.google.android.gms.vision.barcode.Barcode;**

**import java.io.File;**

**import java.io.FileNotFoundException;**

**import java.io.FileOutputStream;**

**import java.io.IOException;**

**import java.util.List;**

**import java.util.Locale;**

**public class MainActivity extends AppCompatActivity**

**implements**

**GoogleApiClient.OnConnectionFailedListener,GoogleApiClient.ConnectionCallbacks**

**{**

**TextView tvData;**

**Button btnShare,btnShare2,btnTakePic;**

**GoogleApiClient gac;**

**ImageView iv1;**

**Location loc;**

**Bitmap photo;**

**@Override**

**protected void onCreate(Bundle**

**savedInstanceState) {**

**super.onCreate(savedInstanceState);**

**setContentView(R.layout.activity\_main);**

**tvData = (TextView)findViewById(R.id.tvData);**

**btnShare = (Button)findViewById(R.id.btnShare);**

**btnShare2=(Button)findViewById(R.id.btnShare2);**

**btnTakePic=(Button)findViewById(R.id.btnTakePic);**

**iv1=(ImageView)findViewById(R.id.iv1);**

**GoogleApiClient.Builder builder = new GoogleApiClient.Builder(this);**

**builder.addApi(LocationServices.API);**

**builder.addOnConnectionFailedListener(this);**

**builder.addConnectionCallbacks(this);**

**gac = builder.build();**

**btnShare.setOnClickListener(new View.OnClickListener() {**

**@Override**

**public void onClick(View view) {**

**Intent i=new Intent(Intent.ACTION\_SEND);**

**i.setType("text/plain");**

**i.putExtra(Intent.EXTRA\_TEXT,tvData.getText().toString());**

**startActivity(i);**

**}**

**});**

**btnShare2.setOnClickListener(new View.OnClickListener() {**

**@Override**

**public void onClick(View**

**view) {**

**File f= new File(getExternalCacheDir(),"p1.png");**

**try {**

**FileOutputStream fos=new FileOutputStream(f);**

**photo.compress(Bitmap.CompressFormat.PN**

**G,100,fos);**

**fos.close();**

**} catch (Exception e) {**

**e.printStackTrace();**

**}**

**Intent i= new Intent(Intent.ACTION\_SEND);**

**i.setType("image/\*");**

**i.putExtra(Intent.EXTRA\_TEXT,tvData.getText().toString());**

**i.putExtra(Intent.EXTRA\_STREAM,**

**Uri.fromFile(f));**

**startActivity(i);**

**}**

**});**

**btnTakePic.setOnClickListener(newView.OnClickListener() {**

**@Override**

**public void onClick(View view) {**

**Intent i=new Intent(MediaStore.ACTION\_IMAGE\_CAPTURE)**

**;**

**startActivityForResult(i,123);**

**}**

**});**

**}//end of oncreate()**

**protected void onActivityResult(int requestCode, int resultCode, Intent data) {**

**super.onActivityResult(requestCode,resultCode, data);**

**if(requestCode==123 && resultCode==RESULT\_OK){**

**photo=(Bitmap)data.getExtras().get("data");**

**iv1.setImageBitmap(photo);**

**}**

**}**

**@Override**

**protected void onResume() {**

**super.onResume();**

**if(gac!=null) gac.connect();**

**}**

**@Override**

**protected void onPause() {**

**super.onPause();**

**if(gac!=null) gac.disconnect();**

**}**

**@Override**

**public void onConnected(Bundle bundle) {**

**loc=LocationServices.FusedLocationApi.getLastLocation(gac);**

**if(loc!=null) {**

**double lat=loc.getLatitude();**

**Double lon=loc.getLongitude();**

**tvData.setText(lat+" "+lon);**

**Geocoder g=new Geocoder(this, Locale.ENGLISH);**

**try {**

**List<Address>**

**la=g.getFromLocation(lat,lon,1);**

**Address add=la.get(0);**

**String**

**msg=add.getCountryName()**

**+"**

**"+add.getAdminArea()+"**

**"+add.getSubAdminArea()+"**

**"+add.getLocality()+" "**

**+add.getSubLocality()+"**

**"+add.getThoroughfare();**

**tvData.setText(msg);**

**} catch (IOException e) {}**

**}**

**else {**

**Toast.makeText(this, "Enable GPS",Toast.LENGTH\_SHORT).show();**

**}**

**}**

**@Override**

**public void onConnectionSuspended(int i) {}**

**@Override**

**public void onConnectionFailed(ConnectionResult**

**connectionResult) {}**

**}**

**Manifest:**

<**uses-permission android:name="android.permission.ACCESS\_COARSE\_LOCATION"**/>

<**uses-permission android:name="android.permission.ACCESS\_FINE\_LOCATION"**/>

<**uses-permission android:name="android.permission.INTERNET"**/>

1. **A3 (Python)**

-------------Method -1

import random

print("A3 algo")

m = random.getrandbits(128)

print("RAND number provided is: ", m)

c,d = input("Enter key Ki present in SIM: ").split()

# Any operation can be chosen below. Addition/Subtraction/Combination of them

n = int(c)\*\*int(d)

ans = m + n

y = 3 \*\* 100

z = m + y

if (z==ans):

print("Generated SRES has matched. User is authenticated.")

else:

print("Generated SRES does not match. Please retry.")

------------------Method -2

table0=[197, 235, 60, 151, 98, 96, 3, 100, 248, 118, 42, 117, 172, 211, 181, 203, 61,

126, 156, 87, 149, 224, 55, 132, 186, 63, 238, 255, 85, 83, 152, 33, 160,

184, 210, 219, 159, 11, 180, 194, 130, 212, 147, 5, 215, 92, 27, 46, 113,

187, 52, 25, 185, 79, 221, 48, 70, 31, 101, 15, 195, 201, 50, 222, 137,

233, 229, 106, 122, 183, 178, 177, 144, 207, 234, 182, 37, 254, 227, 231, 54,

209, 133, 65, 202, 69, 237, 220, 189, 146, 120, 68, 21, 125, 38, 30, 2,

155, 53, 196, 174, 176, 51, 246, 167, 76, 110, 20, 82, 121, 103, 112, 56,

173, 49, 217, 252, 0, 114, 228, 123, 12, 93, 161, 253, 232, 240, 175, 67,

128, 22, 158, 89, 18, 77, 109, 190, 17, 62, 4, 153, 163, 59, 145, 138,

7, 74, 205, 10, 162, 80, 45, 104, 111, 150, 214, 154, 28, 191, 169, 213,

88, 193, 198, 200, 245, 39, 164, 124, 84, 78, 1, 188, 170, 23, 86, 226,

141, 32, 6, 131, 127, 199, 40, 135, 16, 57, 71, 91, 225, 168, 242, 206,

97, 166, 44, 14, 90, 236, 239, 230, 244, 223, 108, 102, 119, 148, 251, 29,

216, 8, 9, 249, 208, 24, 105, 94, 34, 64, 95, 115, 72, 134, 204, 43,

247, 243, 218, 47, 58, 73, 107, 241, 179, 116, 66, 36, 143, 81, 250, 139,

19, 13, 142, 140, 129, 192, 99, 171, 157, 136, 41, 75, 35, 165, 26 ]

table1=[170, 42, 95, 141, 109, 30, 71, 89, 26, 147, 231, 205, 239, 212, 124, 129, 216,

79, 15, 185, 153, 14, 251, 162, 0, 241, 172, 197, 43, 10, 194, 235, 6,

20, 72, 45, 143, 104, 161, 119, 41, 136, 38, 189, 135, 25, 93, 18, 224,

171, 252, 195, 63, 19, 58, 165, 23, 55, 133, 254, 214, 144, 220, 178, 156,

52, 110, 225, 97, 183, 140, 39, 53, 88, 219, 167, 16, 198, 62, 222, 76,

139, 175, 94, 51, 134, 115, 22, 67, 1, 249, 217, 3, 5, 232, 138, 31,

56, 116, 163, 70, 128, 234, 132, 229, 184, 244, 13, 34, 73, 233, 154, 179,

131, 215, 236, 142, 223, 27, 57, 246, 108, 211, 8, 253, 85, 66, 245, 193,

78, 190, 4, 17, 7, 150, 127, 152, 213, 37, 186, 2, 243, 46, 169, 68,

101, 60, 174, 208, 158, 176, 69, 238, 191, 90, 83, 166, 125, 77, 59, 21,

92, 49, 151, 168, 99, 9, 50, 146, 113, 117, 228, 65, 230, 40, 82, 54,

237, 227, 102, 28, 36, 107, 24, 44, 126, 206, 201, 61, 114, 164, 207, 181,

29, 91, 64, 221, 255, 48, 155, 192, 111, 180, 210, 182, 247, 203, 148, 209,

98, 173, 11, 75, 123, 250, 118, 32, 47, 240, 202, 74, 177, 100, 80, 196,

33, 248, 86, 157, 137, 120, 130, 84, 204, 122, 81, 242, 188, 200, 149, 226,

218, 160, 187, 106, 35, 87, 105, 96, 145, 199, 159, 12, 121, 103, 112]

def comp128v23\_internal(KXOR,RAND):

"""Internal part of the COMP128v23 algo, should not be called manually"""

temp = [0] \* 16

KM\_RM = RAND + KXOR

for i in range(5):

for z in range(16):

temp[z] = table0[table1[KM\_RM[16+z]] ^ KM\_RM[z] ]

j = 0

while ( (1 << i) > j):

k = 0

while ( (1 << (4 - i)) > k ):

KM\_RM[((2 \* k + 1) << i )+j] = table0[table1[temp[(k << i) + j]] ^ (KM\_RM[(k << i) + 16 + j])]

KM\_RM[ (k << (i + 1)) + j] = temp[(k << i) + j]

k = k+1

j = j + 1

output = [0]\*16

for i in range(16):

for j in range(8):

output[i] = output[i] ^ (((KM\_RM[(19 \* (j + 8 \* i) + 19) % 256 / 8] >> (3 \* j + 3) % 8) & 1) << j)

return output

def comp128v23(K, RAND, version = 2):

"""The entry point for COMP128v2 and COMP128v3 algorithm

K = The secret Ki number (that should be inside of your SIM card) - Format: list of integers

RAND = The random number generated by the tower - Format: list of integers

version = Version selecting integer (can be 2 or 3) - Format: integer

"""

assert version in [2,3] , "This function only support COMP128 version 2 and 3!"

assert len(K) == 16 , "Ki incorrect (length must be 16)"

assert len(RAND) == 16 , "RAND incorrect (length must be 16)"

K\_MIX = [0]\*16

RAND\_MIX = [0]\*16

KATYVASZ = [0]\*16

output = [0]\*16

for i in range(8):

K\_MIX[i] = K[15 - i]

K\_MIX[15 - i] = K[i]

for i in range(8):

RAND\_MIX[i] = RAND[15 - i]

RAND\_MIX[15 - i] = RAND[i]

for i in range(16):

KATYVASZ[i] = K\_MIX[i] ^ RAND\_MIX[i]

for i in range(8):

RAND\_MIX = comp128v23\_internal(KATYVASZ,RAND\_MIX)

for i in range(16):

output[i] = RAND\_MIX[15-i]

if version == 2:

output[15] = 0

output[14] = 4 \* (output[14] >> 2)

s = 8

i = 0

while i < 4:

output[s+i-4] = output[s+i]

output[s+i] = output[s+i+4]

i = i+1

#the algorithm uses 16 bytes until this point, but only 12 bytes are effective

#also 12 bytes coming out from the SIM card

output\_final = output[:12]

return output\_final

def hex2intarr(input):

"""converts hex string to an array of integers

"""

return map(lambda a: int(a.encode('hex'),16), (a for a in input.decode('hex')))

def intarr2hex(input):

"""converts array of integers to hex strings

"""

return ''.join('{:02x}'.format(x) for x in input).upper()

if \_\_name\_\_ == '\_\_main\_\_':

import argparse

parser = argparse.ArgumentParser(description='Process some integers.')

parser.add\_argument('Ki', metavar='Ki', default = "AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA" ,nargs='?', help='The super secret Ki key')

parser.add\_argument('RAND', metavar='RAND', default = "6E6989BE6CEE7154543770AE80B1EF0D", nargs='?', help='The RANDom number you recieve from the tower')

parser.add\_argument('version', metavar='version', default = 2, nargs='?', help='The version of the COMP128 algo you wish to use (options: 2 or 3)')

args = parser.parse\_args()

Ki = hex2intarr(args.Ki)

RAND = hex2intarr(args.RAND)

version = args.version

print ('----------- INPUT -------------')

print ('COMP128 version ' + str(version))

print ('Ki: ' + intarr2hex(Ki))

print ('RAND: ' + intarr2hex(RAND))

OUTPUT = comp128v23(Ki, RAND, version)

SRES = OUTPUT[:4]

Kc = OUTPUT[4:]

print ('----------- OUTPUT -------------')

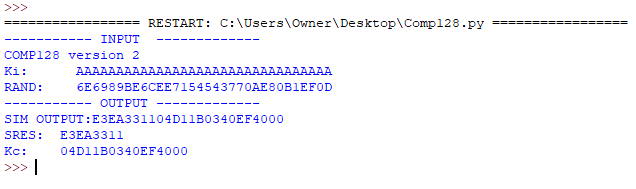
print ("SIM OUTPUT:" + intarr2hex(OUTPUT))

print ("SRES: " + intarr2hex(SRES))

print ("Kc: " + intarr2hex(Kc))

**OUTPUT:**

**.**

****

1. **React Native**

**First search react-native if installed then proceed**

**Open terminal-----> react-native start**

**react-native init <project Name>**

**Open <project Name> folder in VS CODE/SUBLIME**

**Go to app.js file and write the code**

**Open Android studio open folder<project name> inside folder there will be one android folder open that android folder**

**Now click run button**

[**https://shrib.com/#reactnative\_tutorial**](https://shrib.com/#reactnative_tutorial)

**https://www.stacktips.com/tutorials/react/creating-login-screen-in-react-native**

**REACT NATIVE WORST CASE SOLN -**

**paranoid tortilla :** [**https://snack.expo.io/**](https://snack.expo.io/)

**ANOTHER METHOD:**

**Terminal**

**Npm install -g expo-cli**

**expo init <projname>**

**cd <projname>**

**Npm start**

**(write code in app.js)**

**(Browser will open)**

**From Android studio, start emulator**

**(on browser, some options will be there, select “a”, app will start on emulator)**

**App.js**

import React from 'react';

import { StyleSheet, Text, View , TextInput, TouchableOpacity} from 'react-native';

export default function App() {

return (

<View style={styles.container}>

<Text style={styles.textLogin}>Login to My App</Text>

<TextInput

style={styles.input}

placeholder="Username"/>

<TextInput

style={styles.input}

placeholder="Password"

secureTextEntry/>

<View style={styles.btnContainer}>

<TouchableOpacity style={styles.usrBtn}

onPress={()=>alert("Login works")}>

<Text style={styles.btnText}>Login</Text>

</TouchableOpacity>

<TouchableOpacity style={styles.usrBtn}>

<Text style={styles.btnText}

onPress={()=>alert("SignUp works")}>SignUp</Text>

</TouchableOpacity>

</View>

</View>

);

}

const styles = StyleSheet.create({

container: {

flex: 1,

backgroundColor: '#bfe',

alignItems: 'center',

justifyContent: 'center',

marginBottom:20,

fontSize:20,

},

input:{

width:"90%",

backgroundColor:"#fff",

marginBottom:10,

padding:15,

},

textLogin:{

marginBottom:10,

fontSize:15,

},

usrBtn:{

backgroundColor:"#55D7",

justifyContent:"center",

width:"45%",

padding:15,

},

btnContainer:{

flexDirection:"row",

justifyContent:"space-between",

width:"90%"

},

btnText:{

textAlign:"center",

fontSize:15,

}

});

1. **NS2**

**Mac/Simple set bandwidth\_ 1Mb**

**set MESSAGE\_PORT 42**

**set BROADCAST\_ADDR -1**

**#set val(chan) Channel/WirelessChannel ;#Channel Type**

**set val(prop) Propagation/TwoRayGround ;# radio-propagation model**

**set val(netif) Phy/WirelessPhy ;# network interface type**

**set val(mac) Mac/802\_11 ;# MAC type**

**#set val(mac) Mac ;# MAC type**

**#set val(mac) Mac/Simple**

**set val(ifq) Queue/DropTail/PriQueue ;# interface queue type**

**set val(ll) LL ;# link layer type**

**set val(ant) Antenna/OmniAntenna ;# antenna model**

**set val(ifqlen) 32768 ;# max packet in ifq**

**set val(rp) DumbAgent**

**set ns [new Simulator]**

**set f [open rts-cts-data-ack.tr w]**

**$ns trace-all $f**

**$ns eventtrace-all**

**set nf [open rts-cts-data-ack-temp.nam w]**

**$ns namtrace-all-wireless $nf 700 200**

**# set up topography object**

**set topo [new Topography]**

**$topo load\_flatgrid 700 200**

**$ns color 3 green;**

**$ns color 8 red;**

**$ns color 1 black;**

**$ns color 7 purple;**

**$ns color 6 tan;**

**$ns color 2 orange;**

**#**

**# Create God**

**#**

**create-god 3**

**#set mac0 [new Mac/802\_11]**

**$ns node-config -adhocRouting $val(rp) \**

**-llType $val(ll) \**

**-macType $val(mac) \**

**-ifqType $val(ifq) \**

**-ifqLen $val(ifqlen) \**

**-antType $val(ant) \**

**-propType $val(prop) \**

**-phyType $val(netif) \**

**-channelType Channel/WirelessChannel \**

**-topoInstance $topo \**

**-agentTrace ON \**

**-routerTrace OFF \**

**-macTrace ON \**

**-movementTrace OFF**

**for {set i 0} {$i < 3} {incr i} {**

**set node\_($i) [$ns node]**

**$node\_($i) random-motion 0**

**}**

**$node\_(0) color black**

**$node\_(1) color black**

**$node\_(2) color black**

**$node\_(0) set X\_ 200.0**

**$node\_(0) set Y\_ 30.0**

**$node\_(0) set Z\_ 0.0**

**$node\_(1) set X\_ 330.0**

**$node\_(1) set Y\_ 150.0**

**$node\_(1) set Z\_ 0.0**

**$node\_(2) set X\_ 60.0**

**$node\_(2) set Y\_ 30.0**

**$node\_(2) set Z\_ 0.0**

**$ns at 0.6 "$node\_(2) setdest 330.0 30.0 10000.0"**

**$ns at 1.1 "$node\_(2) setdest 500.0 30.0 10000.0"**

**# subclass Agent/MessagePassing to make it do flooding**

**Class Agent/MessagePassing/Flooding -superclass Agent/MessagePassing**

**Agent/MessagePassing/Flooding instproc recv {source sport size data} {**

**$self instvar messages\_seen node\_**

**global ns 1**

**# extract message ID from message**

**set message\_id [lindex [split $data ":"] 0]**

**puts "\nNode [$node\_ node-addr] got message $message\_id\n"**

**if {[lsearch $messages\_seen $message\_id] == -1} {**

**lappend messages\_seen $message\_id**

**$ns trace-annotate "[$node\_ node-addr] received {$data} from $source"**

**$ns trace-annotate "[$node\_ node-addr] sending message $message\_id"**

**$self sendto $size $data 1 $sport**

**} else {**

**$ns trace-annotate "[$node\_ node-addr] received redundant message $message\_id from $source"**

**}**

**}**

**Agent/MessagePassing/Flooding instproc send\_message {size message\_id data port} {**

**$self instvar messages\_seen node\_**

**global ns MESSAGE\_PORT 1**

**lappend messages\_seen $message\_id**

**$ns trace-annotate "[$node\_ node-addr] sending message $message\_id"**

**$self sendto $size "$message\_id:$data" 1 $port**

**}**

**# attach a new Agent/MessagePassing/Flooding to each node on port $MESSAGE\_PORT**

**for {set i 0} {$i < 3} {incr i} {**

**set a($i) [new Agent/MessagePassing/Flooding]**

**$node\_($i) attach $a($i) $MESSAGE\_PORT**

**$a($i) set messages\_seen {}**

**}**

**$ns at 0.1 "$a(0) send\_message 500 1 {first\_message} $MESSAGE\_PORT"**

**$ns at 0.1 "$a(2) send\_message 500 2 {second\_message} $MESSAGE\_PORT"**

**$ns at 0.8 "$a(0) send\_message 500 5 {fifth\_message} $MESSAGE\_PORT"**

**$ns at 0.8 "$a(2) send\_message 500 6 {sixth\_message} $MESSAGE\_PORT"**

**$ns at 1.3 "$a(2) send\_message 500 15 {fifteenth\_message} $MESSAGE\_PORT"**

**$ns at 1.3 "$a(0) send\_message 500 16 {sixteenth\_message} $MESSAGE\_PORT"**

**for {set i 0} {$i < 3} {incr i} {**

**$ns initial\_node\_pos $node\_($i) 30**

**$ns at 20.0 "$node\_($i) reset";**

**}**

**$ns at 20.0 "finish"**

**$ns at 20.1 "puts \"NS EXITING...\"; $ns halt"**

**#INSERT ANNOTATIONS HERE**

**proc finish {} {**

**global ns f nf val**

**$ns flush-trace**

**close $f**

**close $nf**

**}**

**puts "Starting Simulation..."**

**$ns run**

lab310b-10@lab310b10-HP-Pro-3330-MT:~/Downloads$ ns rts-cts.tcl

num\_nodes is set 3

warning: Please use -channel as shown in tcl/ex/wireless-mitf.tcl

INITIALIZE THE LIST xListHead

Starting Simulation...

channel.cc:sendUp - Calc highestAntennaZ\_ and distCST\_

highestAntennaZ\_ = 1.5, distCST\_ = 550.0

SORTING LISTS ...DONE!

Node 1 got message 1

Node 1 got message 1

Node 1 got message 5

Node 1 got message 5

Node 1 got message 6

Node 1 got message 6

Node 1 got message 16

Node 1 got message 16

Node 1 got message 15

Node 1 got message 15

NS EXITING...

lab310b-10@lab310b10-HP-Pro-3330-MT:~/Downloads$

1. **GPS:**

**MainActivity.java**

**package** com.example.bhavesh.myapplication;

**import** android.content.Intent;

**import** android.content.pm.PackageManager;

**import** android.location.Geocoder;

**import** android.location.Location;

**import** android.support.annotation.NonNull;

**import** android.support.annotation.Nullable;

**import** android.support.v4.app.ActivityCompat;

**import** android.support.v7.app.AppCompatActivity;

**import** android.os.Bundle;

**import** android.view.View;

**import** android.widget.Button;

**import** android.widget.TextView;

**import** android.widget.Toast;

**import** com.google.android.gms.common.ConnectionResult;

**import** com.google.android.gms.common.api.GoogleApiClient;

**import** com.google.android.gms.identity.intents.Address;

**import** com.google.android.gms.location.LocationServices;

**import** java.io.IOException;

**import** java.util.List;

**import** java.util.Locale;

**public class** MainActivity **extends** AppCompatActivity **implements** GoogleApiClient.OnConnectionFailedListener, GoogleApiClient.ConnectionCallbacks {

TextView **tvInfo**;

Button **btnShare**;

GoogleApiClient **gac**;

Location **loc**;

@Override

**protected void** onCreate(Bundle savedInstanceState) {

**super**.onCreate(savedInstanceState);

setContentView(R.layout.***activity\_main***);

**tvInfo** = findViewById(R.id.***tvInfo***);

**btnShare** = findViewById(R.id.***btnShare***);

GoogleApiClient.Builder builder = **new** GoogleApiClient.Builder(**this**);

builder.addApi(LocationServices.***API***);

builder.addConnectionCallbacks(**this**);

builder.addOnConnectionFailedListener(**this**);

**gac** = builder.build();

**btnShare**.setOnClickListener(**new** View.OnClickListener() {

@Override

**public void** onClick(View view) {

Intent i = **new** Intent(Intent.***ACTION\_SEND***);

i.setType(**"text/plain"**);

i.putExtra(Intent.***EXTRA\_TEXT***, **"My address is: "** + **tvInfo**.getText().toString());

startActivity(i);

}

});

}

@Override

**protected void** onStart() {

**super**.onStart();

**if** (**gac** != **null**)

**gac**.connect();

}

@Override

**protected void** onStop() {

**super**.onStop();

**if** (**gac** != **null**) {

**gac**.disconnect();

*//btnShare.setEnabled(false);*

}

}

@Override

**public void** onPointerCaptureChanged(**boolean** hasCapture) {

}

@Override

**public void** onConnectionFailed(@NonNull ConnectionResult connectionResult) {

Toast.*makeText*(**this**, **"Connection Failed"**, Toast.***LENGTH\_SHORT***).show();

}

@Override

**public void** onConnected(@Nullable Bundle bundle) {

**if** (ActivityCompat.*checkSelfPermission*(**this**, android.Manifest.permission.***ACCESS\_FINE\_LOCATION***) != PackageManager.***PERMISSION\_GRANTED*** && ActivityCompat.*checkSelfPermission*(**this**, android.Manifest.permission.***ACCESS\_COARSE\_LOCATION***) != PackageManager.***PERMISSION\_GRANTED***) {

*//* ***TODO: Consider calling***

*// ActivityCompat#requestPermissions*

*// here to request the missing permissions, and then overriding*

*// public void onRequestPermissionsResult(int requestCode, String[] permissions,*

*// int[] grantResults)*

*// to handle the case where the user grants the permission. See the documentation*

*// for ActivityCompat#requestPermissions for more details.*

**return**;

}

**loc** = LocationServices.***FusedLocationApi***.getLastLocation(**gac**);

**if**(**loc** != **null**){

**double** lat = **loc**.getLatitude();

**double** lon = **loc**.getLongitude();

**tvInfo**.setText(**"Latitude: "**+ lat+ **" Longitude: "**+ lon);

Geocoder g = **new** Geocoder(**this**, Locale.***ENGLISH***);

**try** {

List<android.location.Address> la = g.getFromLocation(lat, lon, 1); *//number of results = 1*

android.location.Address add = la.get(0);

String msg = add.getCountryName() + **" "** +

add.getAdminArea() + **" "** +

add.getSubAdminArea() + **" "** +

add.getLocality() + **" "** +

add.getSubLocality() + **" "** +

add.getThoroughfare() + **" "** +

add.getSubThoroughfare() + **" "** +

add.getPostalCode();

**tvInfo**.setText(msg);

} **catch** (IOException e) {

e.printStackTrace();

}

}

**else**{

**tvInfo**.setText(**"Please enable GPS"**);

}

}

@Override

**public void** onConnectionSuspended(**int** i) {

Toast.*makeText*(**this**, **"Connection Suspended "**+***CAUSE\_NETWORK\_LOST***, Toast.***LENGTH\_SHORT***).show();

}

}

**Activity\_main.xml**

*<?***xml version="1.0" encoding="utf-8"***?>*

<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"**

**xmlns:app="http://schemas.android.com/apk/res-auto"**

**android:orientation="vertical"**

**xmlns:tools="http://schemas.android.com/tools"**

**android:layout\_width="match\_parent"**

**android:layout\_height="match\_parent"**

**tools:context=".MainActivity"**>

<**TextView**

**android:id="@+id/tvInfo"**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:text="TextView"** />

<**Button**

**android:id="@+id/btnShare"**

**android:layout\_width="match\_parent"**

**android:layout\_height="wrap\_content"**

**android:text="Share"** />

</**LinearLayout**>

**Manifest.xml**

*<?***xml version="1.0" encoding="utf-8"***?>*

<**manifest xmlns:android="http://schemas.android.com/apk/res/android"**

**package="com.example.bhavesh.myapplication"**>

<**uses-permission android:name="android.permission.ACCESS\_COARSE\_LOCATION"**/>

<**uses-permission android:name="android.permission.ACCESS\_FINE\_LOCATION"**/>

<**uses-permission android:name="android.permission.INTERNET"**/>

<**application**

**android:allowBackup="true"**

**android:icon="@mipmap/ic\_launcher"**

**android:label="MyGPS"**

**android:roundIcon="@mipmap/ic\_launcher\_round"**

**android:supportsRtl="true"**

**android:theme="@style/AppTheme"**>

<**activity android:name=".MainActivity"**>

<**intent-filter**>

<**action android:name="android.intent.action.MAIN"** />

<**category android:name="android.intent.category.LAUNCHER"** />

</**intent-filter**>

</**activity**>

<**meta-data**

**android:name="com.google.android.geo.API\_KEY"**

**android:value="YOUR KEY HERE"**/>

</**application**>

</**manifest**>

**Gradle:**

ADD THIS → implementation **'com.google.android.gms:play-services:12.0.1'**

**ALARM CLOCK**

**Activity\_main.xml:**

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical">

<TimePicker

android:id="@+id/timePicker"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_gravity="center" />

<ToggleButton

android:id="@+id/toggleButton"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_gravity="center"

android:layout\_margin="20dp"

android:checked="false"

android:onClick="OnToggleClicked" />

</LinearLayout>

### AndroidManifest.xml

<application

android:allowBackup="true"

android:icon="@mipmap/ic\_launcher"

android:label="@string/app\_name"

android:supportsRtl="true"

android:theme="@style/AppTheme" >

<activity android:name=".MainActivity" >

<intent-filter>

<action android:name="android.intent.action.MAIN" />

<category android:name="android.intent.category.LAUNCHER" />

</intent-filter>

</activity>

<receiver android:name=".AlarmReceiver" >

</receiver>

</application>

**MainAcivity.java**

**import android.app.AlarmManager;**

**import android.app.PendingIntent;**

**import android.content.Intent;**

**import android.os.Bundle;**

**import android.support.v7.app.AppCompatActivity;**

**import android.view.View;**

**import android.widget.TimePicker;**

**import android.widget.Toast;**

**import android.widget.ToggleButton;**

**import java.util.Calendar;**

**public class MainActivity extends AppCompatActivity**

**{**

**TimePicker alarmTimePicker;**

**PendingIntent pendingIntent;**

**AlarmManager alarmManager;**

**@Override**

**protected void onCreate(Bundle savedInstanceState)**

**{**

**super.onCreate(savedInstanceState);**

**setContentView(R.layout.activity\_main);**

**alarmTimePicker = (TimePicker) findViewById(R.id.timePicker);**

**alarmManager = (AlarmManager) getSystemService(ALARM\_SERVICE);**

**}**

**public void OnToggleClicked(View view)**

**{**

**long time;**

**if (((ToggleButton) view).isChecked())**

**{**

**Toast.makeText(MainActivity.this, "ALARM ON", Toast.LENGTH\_SHORT).show();**

**Calendar calendar = Calendar.getInstance();**

**calendar.set(Calendar.HOUR\_OF\_DAY, alarmTimePicker.getCurrentHour());**

**calendar.set(Calendar.MINUTE, alarmTimePicker.getCurrentMinute());**

**Intent intent = new Intent(this, AlarmReceiver.class);**

**pendingIntent = PendingIntent.getBroadcast(this, 0, intent, 0);**

**time=(calendar.getTimeInMillis()-(calendar.getTimeInMillis()%60000));**

**if(System.currentTimeMillis()>time)**

**{**

**if (calendar.AM\_PM == 0)**

**time = time + (1000\*60\*60\*12);**

**else**

**time = time + (1000\*60\*60\*24);**

**}**

**alarmManager.setRepeating(AlarmManager.RTC\_WAKEUP, time, 10000, pendingIntent);**

**}**

**else**

**{**

**alarmManager.cancel(pendingIntent);**

**Toast.makeText(MainActivity.this, "ALARM OFF", Toast.LENGTH\_SHORT).show();**

**}**

**}**

**}**

**AlarmReceiver.java**

import android.content.BroadcastReceiver;

import android.content.Context;

import android.content.Intent;

import android.media.Ringtone;

import android.media.RingtoneManager;

import android.net.Uri;

import android.widget.Toast;

public class AlarmReceiver extends BroadcastReceiver

{

@Override

public void onReceive(Context context, Intent intent)

{

Toast.makeText(context, "Alarm! Wake up! Wake up!", Toast.LENGTH\_LONG).show();

Uri alarmUri = RingtoneManager.getDefaultUri(RingtoneManager.TYPE\_ALARM);

if (alarmUri == null)

{

alarmUri = RingtoneManager.getDefaultUri(RingtoneManager.TYPE\_NOTIFICATION);

}

Ringtone ringtone = RingtoneManager.getRingtone(context, alarmUri);

ringtone.play();

}}

**Calculator :**

MainActivity.java

package com.sp.calculator;

import android.content.DialogInterface;

import android.content.pm.ActivityInfo;

import android.speech.tts.TextToSpeech;

import android.support.v7.app.AlertDialog;

import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.widget.Toast;

import java.util.Locale;

public class MainActivity extends AppCompatActivity {

EditText etNumber;

Button btnSquare,btnSquareRoot;

TextView tvResult;

TextToSpeech tts;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

int o = ActivityInfo.SCREEN\_ORIENTATION\_PORTRAIT;

setRequestedOrientation(o);

etNumber = (EditText)findViewById(R.id.etNumber);

btnSquare = (Button)findViewById(R.id.btnSquare);

btnSquareRoot = (Button)findViewById(R.id.btnSquareRoot);

tvResult = (TextView)findViewById(R.id.tvResult);

tts=new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {

@Override

public void onInit(int status) {

if(status != TextToSpeech.ERROR)

tts.setLanguage(Locale.ENGLISH);

}

});

btnSquare.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String s = etNumber.getText().toString();

if(s.length() == 0)

{

Toast.makeText(MainActivity.this, "Number is empty", Toast.LENGTH\_SHORT).show();

etNumber.requestFocus();

return;

}

double n = Double.parseDouble(s);

double r = n \* n;

tvResult.setText("Square =" + r);

tts.speak(tvResult.getText().toString(),TextToSpeech.QUEUE\_ADD,null);

}

});

btnSquareRoot.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

String s=etNumber.getText().toString();

if(s.length() == 0)

{

Toast.makeText(MainActivity.this, "Number is empty", Toast.LENGTH\_SHORT).show();

etNumber.requestFocus();

return;

}

double n = Double.parseDouble(s);

double r = Math.sqrt(n);

tvResult.setText("Square Root =" + r);

tts.speak(tvResult.getText().toString(),TextToSpeech.QUEUE\_ADD,null);

}

});

}

public void onBackPressed()

{

AlertDialog.Builder builder = new AlertDialog.Builder(this);

builder.setMessage("Do you want to close this application?");

builder.setCancelable(false);

builder.setPositiveButton("Yes", new DialogInterface.OnClickListener() {

@Override

public void onClick(DialogInterface dialog, int which) {

finish();

}

});

builder.setNegativeButton("No", new DialogInterface.OnClickListener() {

@Override

public void onClick(DialogInterface dialog, int which) {

dialog.cancel();

}

});

AlertDialog alert = builder.create();

alert.setTitle("Exit");

alert.show();

}

}

activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>

<android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<EditText

android:id="@+id/etNumber"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginTop="33dp"

android:ems="10"

android:hint="Enter a Number"

android:inputType="numberDecimal"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<Button

android:id="@+id/btnSquare"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginStart="56dp"

android:layout\_marginLeft="56dp"

android:layout\_marginTop="140dp"

android:text="SQUARE"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<Button

android:id="@+id/btnSquareRoot"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="140dp"

android:layout\_marginEnd="64dp"

android:layout\_marginRight="64dp"

android:text="SQUARE ROOT"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<TextView

android:id="@+id/tvResult"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="47dp"

android:text=""

android:textSize="30sp"

app:layout\_constraintStart\_toEndOf="@+id/btnSquare"

app:layout\_constraintTop\_toBottomOf="@+id/btnSquareRoot" />

</android.support.constraint.ConstraintLayout>

**GUI COMPONENT (NOT SURE):**

**ActivityMain.xml**

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<TextView

android:id="@+id/textView"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_margin="30dp"

android:gravity="center"

android:text="Hello World!"

android:textSize="25sp"

android:textStyle="bold" />

<Button

android:id="@+id/button1"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_margin="20dp"

android:gravity="center"

android:text="Change font size"

android:textSize="25sp" />

<Button

android:id="@+id/button2"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_margin="20dp"

android:gravity="center"

android:text="Change color"

android:textSize="25sp" />

</LinearLayout>

**Mainactivity.java**

import android.graphics.Color;

import //android.support.v7.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity

{

int ch=1;

float font=30;

@Override

protected void onCreate(Bundle savedInstanceState)

{

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

final TextView t= (TextView) findViewById(R.id.textView);

Button b1= (Button) findViewById(R.id.button1);

b1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

t.setTextSize(font);

font = font + 5;

if (font == 50)

font = 30;

}

});

Button b2= (Button) findViewById(R.id.button2);

b2.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

switch (ch) {

case 1:

t.setTextColor(Color.RED);

break;

case 2:

t.setTextColor(Color.GREEN);

break;

case 3:

t.setTextColor(Color.BLUE);

break;

case 4:

t.setTextColor(Color.CYAN);

break;

case 5:

t.setTextColor(Color.YELLOW);

break;

case 6:

t.setTextColor(Color.MAGENTA);

break;

}

ch++;

if (ch == 7)

ch = 1;

}

});

}

}