How to start React Experiment

- Open Terminal
- Write command **expo init Navigation**
- Choose template **Blank**
- Write the name of your app
- **cd Navigation**
- **npm start**
- Now go to the Navigation folder , App.js file would already be there
- Edit App.js using any text editor

REACT NATIVE : GUI COMPONENTS / LOGIN SCREEN

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,

  }
});
```

REACT NATIVE:NAVIGATION

App.js

```
import { createAppContainer } from "react-navigation";
import { createStackNavigator } from "react-navigation-stack";
import HomeScreen from "./HomeScreen";
import Page1 from "./Page1";
import Page2 from "./Page2";

const navigator = createStackNavigator(
  {
    Home: HomeScreen,
```

```
    Page1: Page1,
    Page2: Page2
  },
  {
    initialRouteName: "Home",
    defaultNavigationOptions: {
      title: "App"
    }
  }
);
export default createAppContainer(navigator);
```

Page1.js

```
import React from "react";
import { Text, StyleSheet, View } from "react-native";
function Page1() {
  return (
    <View style={styles.viewStyle}>
      <Text style={styles.textStyle}>Welcome to Page 1</Text>
    </View>
  );
}
const styles = StyleSheet.create({
  viewStyle: {
    alignItems: "center",
    flex: 1,
    justifyContent: "center"
  },
  textStyle: {
    fontSize: 30
  }
});
export default Page1;
```

Page2.js

```
import React from "react";
import { Text, StyleSheet, View } from "react-native";
function Page2() {
  return (
    <View style={styles.viewStyle}>
      <Text style={styles.textStyle}>Welcome to Page 2</Text>
    </View>
  );
}
```

```
const styles = StyleSheet.create({
  viewStyle: {
    alignItems: "center",
    flex: 1,
    justifyContent: "center"
  },
  textStyle: {
    fontSize: 30
  }
});
export default Page2;
```

ANDROID: READ AND WRITE FROM EXTERNAL STORAGE:

Give permissions after installing apk in your phone

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

    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity" >

    <EditText
        android:id="@+id/etData"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text=""
        android:hint="Enter Data"/>

    <Button
        android:id="@+id/btnWrite"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Write" />

    <Button
        android:id="@+id/btnRead"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Read" />

    <TextView
        android:id="@+id/tvData"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

        android:text="" />
</LinearLayout>
```

MainActivity.java:(Note only highlighted part)

```
package com.example.storagemcc;

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.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity {
    EditText etData;
    Button btnRead,btnWrite;
    TextView tvData;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        etData=(EditText)findViewById(R.id.etData);
        btnRead=(Button)findViewById(R.id.btnRead);
        btnWrite=(Button)findViewById(R.id.btnWrite);
        tvData=(TextView)findViewById(R.id.tvData);

        btnWrite.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String msg=etData.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
INSERTED",Toast.LENGTH_SHORT).show();
                    etData.setText("");
                } catch (IOException e) {
                    e.printStackTrace();
                }


            }
        });
        btnRead.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String line;
                StringBuffer sb=new StringBuffer();
                try {
                    FileInputStream fis=new FileInputStream("/sdcard/myfile.txt");
                    InputStreamReader isr=new InputStreamReader(fis);
                    BufferedReader br=new BufferedReader(isr);
                    while ((line=br.readLine())!=null){
                        sb.append(line+'\n');
                    }
                    tvData.setText("The text in the file is:\n"+sb.toString());
                    br.close();
                } catch (FileNotFoundException e) {
                    e.printStackTrace();
                } catch (IOException e) {
                    e.printStackTrace();
                }


            }
        });
    }
}
```

AndroidManifest.xml:(Add these 2 lines)

```
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
```

A3 ALGORITHM:

```
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.")
```

ANDROID : GPS

Give permissions after installing apk in your phone

MainActivity.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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:orientation="vertical"
    >

    <TextView
        android:id="@+id/tvInfo"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="" />

    <Button
        android:id="@+id/btnShare"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Share" />
</LinearLayout>
```

MainActivity.java:

```
package com.example.locationmcc;

import android.Manifest;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.location.Address;
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.common.api.GoogleApiClient.ConnectionCallbacks;
import com.google.android.gms.common.api.GoogleApiClient.OnConnectionFailedListener;
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.ConnectionCallbacks, GoogleApiClient.OnConnectionFailedListener {
    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) {
            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();
    }

}
```

AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.locationmcc">
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
    <uses-permission android:name="android.permission.INTERNET"/>
    <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>
        <meta-data
            android:name="com.google.android.geo.API_KEY"
            android:value="YOUR KEY HERE"/>

    </application>
</manifest>
```

Gradle:
(Add this line)

```
implementation 'com.google.android.gms:play-services:12.0.1'
```

ANDROID : CALCULATOR (This code works for one digit numbers only)

MainActivity.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/output"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="28dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text=""
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/plus"
        android:layout_width="0dp"
        android:layout_height="44dp"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginEnd="28dp"
        android:layout_marginRight="28dp"
        android:text="+"
        app:layout_constraintBaseline_toBaselineOf="@+id/minus"
        app:layout_constraintEnd_toStartOf="@+id/minus"
        app:layout_constraintStart_toStartOf="parent" />

    <Button
        android:id="@+id/minus"
        android:layout_width="0dp"
        android:layout_height="49dp"
        android:layout_marginTop="21dp"
        android:layout_marginEnd="32dp"
        android:layout_marginRight="32dp"
        android:layout_marginBottom="36dp"
        android:text="-"
```

```
    app:layout_constraintBottom_toTopOf="@+id/num2"
    app:layout_constraintEnd_toStartOf="@+id/mul"
    app:layout_constraintStart_toEndOf="@+id/plus"
    app:layout_constraintTop_toBottomOf="@+id/output" />

<Button
    android:id="@+id/mul"
    android:layout_width="0dp"
    android:layout_height="45dp"
    android:layout_marginEnd="37dp"
    android:layout_marginRight="37dp"
    android:text="*"
    app:layout_constraintBaseline_toBaselineOf="@+id/minus"
    app:layout_constraintEnd_toStartOf="@+id/div"
    app:layout_constraintStart_toEndOf="@+id/minus" />

<Button
    android:id="@+id/div"
    android:layout_width="0dp"
    android:layout_height="0dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
    android:text="/"
    app:layout_constraintBottom_toBottomOf="@+id/mul"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/mul"
    app:layout_constraintTop_toTopOf="@+id/mul" />

<Button
    android:id="@+id/num1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="36dp"
    android:text="1"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/minus" />

<Button
    android:id="@+id/equal"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="31dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
    android:text="="
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/num9" />
```

```
<Button
    android:id="@+id/num0"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="24dp"
    android:text="0"
    app:layout_constraintStart_toStartOf="@+id/num8"
    app:layout_constraintTop_toBottomOf="@+id/num8" />

<Button
    android:id="@+id/num8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:text="8"
    app:layout_constraintStart_toStartOf="@+id/num5"
    app:layout_constraintTop_toBottomOf="@+id/num5" />

<Button
    android:id="@+id/clear"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="22dp"
    android:text="C"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/num7" />

<Button
    android:id="@+id/num9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="33dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
    android:text="9"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/num6" />

<Button
    android:id="@+id/num4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="26dp"
    android:text="4"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/num1" />
```

```
<Button
    android:id="@+id/num7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="40dp"
    android:text="7"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/num4" />

<Button
    android:id="@+id/num6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="33dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
    android:text="6"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/num3" />

<Button
    android:id="@+id/num5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="26dp"
    android:text="5"
    app:layout_constraintStart_toStartOf="@+id/num2"
    app:layout_constraintTop_toBottomOf="@+id/num2" />

<Button
    android:id="@+id/num2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="37dp"
    android:layout_marginLeft="37dp"
    android:layout_marginTop="106dp"
    android:text="2"
    app:layout_constraintStart_toStartOf="@+id/minus"
    app:layout_constraintTop_toBottomOf="@+id/output" />

<Button
    android:id="@+id/num3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="42dp"
    android:layout_marginEnd="30dp"
    android:layout_marginRight="30dp"
```

```
        android:text="3"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/div" />

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

MainActivity.java:

```
package com.example.calculatormcc;

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.Toast;

public class MainActivity extends AppCompatActivity {
    Button num1, num2, num3, num4, num5, num6, num7, num8, num9, num0, plus, minus,
mul, div, equal,clear;
    EditText output;
    String curr;
    int ip1, ip2;
    String op;

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

            num0 = findViewById(R.id.num0);
            num1 = findViewById(R.id.num1);
            num2 = findViewById(R.id.num2);
            num3 = findViewById(R.id.num3);
            num4 = findViewById(R.id.num4);
            num5 = findViewById(R.id.num5);
            num6 = findViewById(R.id.num6);
            num7 = findViewById(R.id.num7);
            num8 = findViewById(R.id.num8);
            num9 = findViewById(R.id.num9);
            equal = findViewById(R.id.equal);
            plus = findViewById(R.id.plus);
            minus = findViewById(R.id.minus);
            mul = findViewById(R.id.mul);
            div = findViewById(R.id.div);
            clear = findViewById(R.id.clear);
            output = findViewById(R.id.output);
//similar function for all
            num0.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
```

```
                curr = output.getText().toString();
                curr=curr+'0';
                output.setText(curr);

            }

        });

        num1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                curr = output.getText().toString();
                curr=curr+'1';
                output.setText(curr);
            } });

        num2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                curr = output.getText().toString();
                curr=curr+'2';
                output.setText(curr);
            }
        });

        num3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                curr = output.getText().toString();
                curr=curr+'3';
                output.setText(curr);
            }
        });

        num4.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                curr = output.getText().toString();
                curr=curr+'4';
                output.setText(curr);
            }
        });

        num5.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                curr = output.getText().toString();
                curr=curr+'5';
                output.setText(curr);
            }
```

```
});

num6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        curr = output.getText().toString();
        curr=curr+'6';
        output.setText(curr);
    }
});

num7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        curr = output.getText().toString();
        curr=curr+'7';
        output.setText(curr);
    }
});

num8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        curr = output.getText().toString();
        curr=curr+'8';
        output.setText(curr);
    }
});

num9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        curr = output.getText().toString();
        curr=curr+'9';
        output.setText(curr);
    }
});

plus.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        curr = output.getText().toString();
        curr=curr+'+';
        output.setText(curr);
    }
});

minus.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
```

```
            curr = output.getText().toString();
            curr=curr+'-';
            output.setText(curr);
        }
    });

    mul.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            curr = output.getText().toString();
            curr=curr+'*';
            output.setText(curr);
        }
    });

    div.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            curr = output.getText().toString();
            curr=curr+'/';
            output.setText(curr);
        }
    });

    clear.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            output.setText("");
        }
    });

    equal.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {

            curr = output.getText().toString();
            if (curr.length()>3)
            {
                Toast.makeText(getApplicationContext(), "Please enter two
operands only!", Toast.LENGTH_LONG).show();
            }
            else
            {
                ip1 = Integer.parseInt(curr.substring(0,1));
                ip2 = Integer.parseInt(curr.substring(2,3));
                op = curr.substring(1,2);

                switch(op)
                {
                    case "+" : output.setText(ip1+ip2+""); break;
```

```
                                case "-" : output.setText(ip1-ip2+""); break;
                                case "*" : output.setText(ip1*ip2+""); break;
                                case "/" : output.setText(ip1/ip2+""); break;
                            }

                        }
                    }
                });

        }
}
```

ANDROID : PHONEBOOK

ActivityMain.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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity" >

    <EditText
        android:id="@+id/etName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Name" />

    <EditText
        android:id="@+id/etPhone"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="phone"
        android:hint="Phone Number"/>

    <EditText
        android:id="@+id/etEmail"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textEmailAddress"
        android:hint="Email"/>

    <EditText
        android:id="@+id/etAddress"
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPostalAddress"
        android:hint="Address"/>

    <Button
        android:id="@+id/btnAdd"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add" />

    <Button
        android:id="@+id/btnView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="View Contacts" />
</LinearLayout>
```

ActivityView.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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ViewActivity"
    android:orientation="vertical">

    <TextView
        android:id="@+id/tvData"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text=""
        android:scrollbars="vertical"/>
</LinearLayout>
```

MainActivity.java:

```
package com.example.phonebookmcc;

import android.content.Intent;
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.Toast;

import static android.widget.Toast.makeText;

public class MainActivity extends AppCompatActivity {
    static DatabaseHandler dbH;
    EditText etName,etPhone,etAddress,etEmail;
```

```
    Button btnAdd,btnView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        etAddress=(EditText)findViewById(R.id.etAddress);
        etEmail=(EditText)findViewById(R.id.etEmail);
        etName=(EditText)findViewById(R.id.etName);
        etPhone=(EditText)findViewById(R.id.etPhone);
        btnAdd=(Button)findViewById(R.id.btnAdd);
        btnView=(Button)findViewById(R.id.btnView);
        dbH=new DatabaseHandler(this);

        btnAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String name=etName.getText().toString();
                String phone=etPhone.getText().toString();
                String email=etEmail.getText().toString();
                String address=etAddress.getText().toString();
                int check=dbH.addContact(name,phone,email,address);
                if (check==1){
                    Toast.makeText(MainActivity.this,"CONTACT
ADDED",Toast.LENGTH_SHORT).show();
                    etAddress.setText("");
                    etPhone.setText("");
                    etEmail.setText("");
                    etName.setText("");
                    etName.requestFocus();
                }
                else {

Toast.makeText(MainActivity.this,"Issues",Toast.LENGTH_SHORT).show();
                }

            }
        });

        btnView.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent i=new Intent(MainActivity.this,ViewActivity.class);
                startActivity(i);

            }
        });
    }
}
```

ViewActivity.java:

```
package com.example.phonebookmcc;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.text.method.ScrollingMovementMethod;
import android.widget.TextView;

public class ViewActivity extends AppCompatActivity {
TextView tvData;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_view);
        tvData=(TextView)findViewById(R.id.tvData);
        String data=MainActivity.dbH.viewContact();
        tvData.setMovementMethod(new ScrollingMovementMethod());
        if(data.length()==0)
            tvData.setText("No records to show");
        else
            tvData.setText(data);
    }
}
```

DatabaseHandler.java:

```
package com.example.phonebookmcc;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHandler extends SQLiteOpenHelper {
    SQLiteDatabase db;
    Context context;
    public DatabaseHandler(Context context) {
        super(context,"contacts",null,1);
        this.context=context;
        db=this.getWritableDatabase();

    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL("create table phone(name TEXT,phoneNo text,email text,address
text)");
    }

    @Override
```

```
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {

    }
   public int addContact(String name,String phone,String email,String address){
        ContentValues values=new ContentValues();
        values.put("name",name);
        values.put("phoneNo",phone);
        values.put("email",email);
        values.put("address",address);
        long rid=db.insert("phone",null,values);
        if(rid<0)
            return 0;
        else
            return 1;
    }
    public  String viewContact(){
        Cursor cursor=db.query("phone",new
String[]{"name","phoneNo","email","address"},null,null,null,null,null);

        StringBuffer sb=new StringBuffer();
        cursor.moveToFirst();
        if(cursor.getCount()>0)
            do
            {
                sb.append("Name: "+cursor.getString(0)+"\nPhone No:
"+cursor.getString(1)+"\nEmail: "+cursor.getString(2)+"\nAddress:
"+cursor.getString(3)+
                        "\n-----------------------------------------\n");

            }while (cursor.moveToNext());
        return sb.toString();

    }
}
```

ANDROID : TIC TAC TOE

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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
```

```
        <TextView
            android:id="@+id/p1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Player 1:0"
            android:textSize="30sp" />

        <TextView
            android:id="@+id/p2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_below="@+id/p1"
            android:text="Player 2:0"
            android:textSize="30sp"/>
        <Button
            android:id="@+id/breset"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Reset"
            android:layout_alignParentEnd="true"
            android:layout_centerVertical="true"
            android:layout_marginEnd="33dp"/>
    </RelativeLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1">

    <Button
        android:id="@+id/button_00"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:textSize="60sp"/>

    <Button
        android:id="@+id/button_01"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:textSize="60sp"/>

    <Button
        android:id="@+id/button_02"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:textSize="60sp"/>

</LinearLayout>
```

```
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">

        <Button
            android:id="@+id/button_10"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:textSize="60sp"/>

        <Button
            android:id="@+id/button_11"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:textSize="60sp"/>

        <Button
            android:id="@+id/button_12"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:textSize="60sp"/>

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">

        <Button
            android:id="@+id/button_20"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:textSize="60sp"/>

        <Button
            android:id="@+id/button_21"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:textSize="60sp"/>

        <Button
            android:id="@+id/button_22"
```

```
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:textSize="60sp"/>

    </LinearLayout>

</LinearLayout>
```

MainActivity.java

```
package com.example.ticf;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements OnClickListener {
    private Button[][] buttons = new Button[3][3];

    private boolean player1Turn = true;

    private int roundCount;

    private int player1Points;
    private int player2Points;

    private TextView textViewPlayer1;
    private TextView textViewPlayer2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textViewPlayer1 = findViewById(R.id.p1);
        textViewPlayer2 = findViewById(R.id.p2);

        for (int i = 0; i < 3; i++) {
            for (int j = 0; j < 3; j++) {
                String buttonID = "button_" + i + j;
                int resID = getResources().getIdentifier(buttonID, "id",
getPackageName());
                buttons[i][j] = findViewById(resID);
                buttons[i][j].setOnClickListener(this);
            }
        }
```

```
        Button buttonReset = findViewById(R.id.breset);
        buttonReset.setOnClickListener(new OnClickListener() {
            @Override
            public void onClick(View v) {
                resetGame();
            }
        });
    }

    @Override
    public void onClick(View v) {
        if (!((Button) v).getText().toString().equals("")) {
            return;
        }

        if (player1Turn) {
            ((Button) v).setText("X");
        } else {
            ((Button) v).setText("O");
        }

        roundCount++;

        if (checkForWin()) {
            if (player1Turn) {
                player1Wins();
            } else {
                player2Wins();
            }
        } else if (roundCount == 9) {
            draw();
        } else {
            player1Turn = !player1Turn;
        }

    }

    private boolean checkForWin() {
        String[][] field = new String[3][3];

        for (int i = 0; i < 3; i++) {
            for (int j = 0; j < 3; j++) {
                field[i][j] = buttons[i][j].getText().toString();
            }
        }

        for (int i = 0; i < 3; i++) {
            if (field[i][0].equals(field[i][1])
                    && field[i][0].equals(field[i][2])
                    && !field[i][0].equals("")) {
```

```
                return true;
            }
        }

        for (int i = 0; i < 3; i++) {
            if (field[0][i].equals(field[1][i])
                    && field[0][i].equals(field[2][i])
                    && !field[0][i].equals("")) {
                return true;
            }
        }

        if (field[0][0].equals(field[1][1])
                && field[0][0].equals(field[2][2])
                && !field[0][0].equals("")) {
            return true;
        }

        if (field[0][2].equals(field[1][1])
                && field[0][2].equals(field[2][0])
                && !field[0][2].equals("")) {
            return true;
        }

        return false;
    }

    private void player1Wins() {
        player1Points++;
        Toast.makeText(this, "Player 1 wins!", Toast.LENGTH_SHORT).show();
        updatePointsText();
        resetBoard();
    }

    private void player2Wins() {
        player2Points++;
        Toast.makeText(this, "Player 2 wins!", Toast.LENGTH_SHORT).show();
        updatePointsText();
        resetBoard();
    }

    private void draw() {
        Toast.makeText(this, "Draw!", Toast.LENGTH_SHORT).show();
        resetBoard();
    }

    private void updatePointsText() {
        textViewPlayer1.setText("Player 1: " + player1Points);
        textViewPlayer2.setText("Player 2: " + player2Points);
    }
```

```
    private void resetBoard() {
        for (int i = 0; i < 3; i++) {
            for (int j = 0; j < 3; j++) {
                buttons[i][j].setText("");
            }
        }

        roundCount = 0;
        player1Turn = true;
    }

    private void resetGame() {
        player1Points = 0;
        player2Points = 0;
        updatePointsText();
        resetBoard();
    }

    @Override
    protected void onSaveInstanceState(Bundle outState) {
        super.onSaveInstanceState(outState);

        outState.putInt("roundCount", roundCount);
        outState.putInt("player1Points", player1Points);
        outState.putInt("player2Points", player2Points);
        outState.putBoolean("player1Turn", player1Turn);
    }

    @Override
    protected void onRestoreInstanceState(Bundle savedInstanceState) {
        super.onRestoreInstanceState(savedInstanceState);

        roundCount = savedInstanceState.getInt("roundCount");
        player1Points = savedInstanceState.getInt("player1Points");
        player2Points = savedInstanceState.getInt("player2Points");
        player1Turn = savedInstanceState.getBoolean("player1Turn");
    }
}
```

ANDROID: TIMER

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"
    android:padding="10dp">

    <TextView
        android:id="@+id/tvCounter"
        android:layout_marginTop="150dp"
        android:layout_marginBottom="150dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:layout_gravity="center_horizontal"
        android:textSize="60sp"
        android:text="00:00:00"
        android:textStyle="bold"
        android:textColor="#4CAF50"/>

    <EditText
        android:id="@+id/etMinutes"
        android:layout_width="wrap_content"
        android:layout_gravity="center"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10dp"
        android:layout_marginRight="10dp"
        android:hint="Enter Minutes!"
        android:padding="10dp"
        android:maxLength="4"
        android:inputType="number"
        android:textSize="26sp"
```

```
        android:gravity="center"
        android:textColor="#000000"
        android:textColorHint="#9E9E9E" />

    <LinearLayout
        android:layout_marginTop="30dp"
        android:orientation="horizontal"
        android:layout_width="fill_parent"
        android:gravity="center"
        android:padding="10dp"
        android:layout_gravity="center"
        android:layout_height="wrap_content">

        <Button
            android:id="@+id/btnStartStopTimer"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginRight="10dp"
            android:padding="10dp"
            android:background="#009688"
            android:textColor="#ffffff"
            android:textSize="16sp"
            android:text="Start Timer" />

        <Button
            android:id="@+id/btnResetTimer"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:background="#009688"
            android:textColor="#ffffff"
            android:textSize="16sp"
            android:padding="10dp"
            android:layout_marginLeft="10dp"
            android:text="Reset Timer" />
```

```
    </LinearLayout>

</LinearLayout>
```

MainActivity.java:

```
package com.karanmadhu.mytimer;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.os.CountDownTimer;
import android.view.View;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import java.util.concurrent.TimeUnit;

public class MainActivity extends AppCompatActivity {

    TextView tvCounter;
    EditText etMinutes;
    Button btnStartStopTimer, btnResetTimer;
    private static CountDownTimer countDownTimer;

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

        // Hide status bar
```

```
getWindow().addFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN)
;

        // Hide action bar
        getSupportActionBar().hide();

        tvCounter = findViewById(R.id.tvCounter);
        etMinutes = findViewById(R.id.etMinutes);
        btnStartStopTimer =
findViewById(R.id.btnStartStopTimer);
        btnResetTimer = findViewById(R.id.btnResetTimer);

        btnStartStopTimer.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (countDownTimer == null) {
                    String getMinutes =
etMinutes.getText().toString(); //Get minutes from editText
                    //Check validation over editText
                    if (!getMinutes.equals("") &&
getMinutes.length() > 0) {
                        int noOfMinutes =
Integer.parseInt(getMinutes);
                        int milliseconds = noOfMinutes * 60 *
1000; //Convert minutes into milliseconds

                        countDownTimer = new
CountDownTimer(milliseconds, 1000) {
                            public void onTick(long
millisUntilFinished) {
                                long millis =
millisUntilFinished;
```

```
                                    //Convert milliseconds into
hour, minute and seconds
                                    long hours =
TimeUnit.MILLISECONDS.toHours(millis);
                                    long minutes =
TimeUnit.MILLISECONDS.toMinutes(millis) -

TimeUnit.HOURS.toMinutes(hours);
                                    long seconds =
TimeUnit.MILLISECONDS.toSeconds(millis) -

TimeUnit.MINUTES.toSeconds(minutes);
                                    String hms =
String.format("%02d:%02d:%02d", hours, minutes, seconds);
                                    tvCounter.setText(hms);
                                }

                                public void onFinish() {

                                    tvCounter.setText("TIME'S
UP!!");
                                    countDownTimer = null;
                                    btnStartStopTimer.setText("Start
Timer");
                                }
                            }.start();
                            btnStartStopTimer.setText("Stop
Timer");//Change Text

                        } else
                            Toast.makeText(getApplicationContext(),
                                    "Please enter no. of Minutes.",
                                    Toast.LENGTH_SHORT).show();
                    }
```

```
                else {
                    countDownTimer.cancel();
                    countDownTimer = null;
                    btnStartStopTimer.setText("Start Timer");
                }
            }
        });

        btnResetTimer.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (countDownTimer != null) {
                    countDownTimer.cancel();
                    countDownTimer = null;
                }
                btnStartStopTimer.setText("Start Timer");
                tvCounter.setText("00:00:00");
            }
        });
    }
}
```

ANDROID : ALARM CLOCK

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   package="com.example.alarmclockmcc">

   <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>
       <receiver android:name=".AlarmReceiver" >
       </receiver>

   </application>

</manifest>
```

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/tpClock"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center" />
```

```
    <ToggleButton
        android:id="@+id/togbtnSwitch"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_margin="20dp"
        android:checked="false"
        />

</LinearLayout>
```

MainActivity.java

```
package com.karanmadhu.alarm;

import androidx.appcompat.app.AppCompatActivity;

import android.app.AlarmManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.view.WindowManager;
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;
    ToggleButton togbtnSwitch;
```

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

        // Hide status bar

getWindow().addFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN)
;

        // Hide action bar
        getSupportActionBar().hide();

        alarmTimePicker = findViewById(R.id.tpClock);
        alarmManager = (AlarmManager)
getSystemService(ALARM_SERVICE);
        togbtnSwitch = findViewById(R.id.togbtnSwitch);

        togbtnSwitch.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View view) {
                long time;
                if (((ToggleButton) view).isChecked())
                {
                    Toast.makeText(getApplicationContext(),
"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(getApplicationContext(), AlarmReceiver.class);
                    pendingIntent =
PendingIntent.getBroadcast(getApplicationContext(), 0, intent,
0);


time=(calendar.getTimeInMillis()-(calendar.getTimeInMillis()%600
00));
                    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(getApplicationContext(),
"ALARM OFF", Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

AlarmReceiver.java

```
package com.karanmadhu.alarm;
```

```
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();
    }
}
```

ANDROID : TRAFFIC LIGHT

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/tvWhattodo"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textAlignment="center"
        android:text="" />
    <RadioGroup
        android:id="@+id/rgTrafficLight"
        android:orientation="vertical"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
        <RadioButton
            android:id="@+id/rbGreen"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="GREEN" />
        <RadioButton
            android:id="@+id/rgYellow"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="YELLOW" />
        <RadioButton
            android:id="@+id/rgRed"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="RED" />
    </RadioGroup>
    <Button
        android:id="@+id/btnGetResults"
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Get Results" />
</LinearLayout>
```

MainActivity.java

```
package com.example.trafficlight;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    TextView tvWhattodo;
    RadioGroup rgTrafficLight;
    Button btnGetResults;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tvWhattodo = findViewById(R.id.tvWhattodo);
        rgTrafficLight = findViewById(R.id.rgTrafficLight);
        btnGetResults = findViewById(R.id.btnGetResults);
        btnGetResults.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                int id = rgTrafficLight.getCheckedRadioButtonId();
                RadioButton rb = rgTrafficLight.findViewById(id);
                String signal = rb.getText().toString().trim();
                if(signal.equals("GREEN")){
                    tvWhattodo.setText("GO");
                    tvWhattodo.setTextColor(Color.GREEN);
                    tvWhattodo.setTextSize(40);
                }else if(signal.equals("YELLOW")){
                    tvWhattodo.setText("READY");
```

```
                tvWhattodo.setTextColor(Color.YELLOW);
                tvWhattodo.setTextSize(30);
            }else if(signal.startsWith("RED")){
                tvWhattodo.setText("STOP");
                tvWhattodo.setTextColor(Color.RED);
                tvWhattodo.setTextSize(50);
            }
        }
    });
  }
}
```

ANDROID : TICTACTOE-METHOD 2

```
<?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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tv1"
        android:layout_width="match_parent"
        android:textSize="20dp"
        android:layout_height="wrap_content"
        android:text="Player 1 (X)" />

    <TextView
        android:id="@+id/tv2"
        android:layout_width="match_parent"
        android:textSize="20dp"
        android:layout_height="wrap_content"
        android:text="Player 2 (O)" />

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_marginTop="50dp"
        android:layout_height="wrap_content">


        <Button
            android:id="@+id/btn00"
            android:layout_marginLeft="30dp"
            android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />

        <Button
            android:id="@+id/btn01"
            android:layout_marginLeft="30dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />

        <Button
            android:id="@+id/btn02"
            android:layout_width="wrap_content"
            android:layout_marginLeft="30dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />
    </LinearLayout>
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_marginTop="50dp"
        android:layout_height="wrap_content">


        <Button
            android:id="@+id/btn10"
            android:layout_marginLeft="30dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />

        <Button
            android:id="@+id/btn11"
            android:layout_marginLeft="30dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />

        <Button
            android:id="@+id/btn12"
            android:layout_width="wrap_content"
            android:layout_marginLeft="30dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
```

```
            android:text="" />
    </LinearLayout>
    <LinearLayout
            android:layout_width="wrap_content"
        android:layout_marginTop="50dp"
        android:layout_height="wrap_content">


        <Button
            android:id="@+id/btn20"
            android:layout_marginLeft="30dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />

        <Button
            android:id="@+id/btn21"
            android:layout_marginLeft="30dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />

        <Button
            android:id="@+id/btn22"
            android:layout_width="wrap_content"
            android:layout_marginLeft="30dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:text="" />
    </LinearLayout>
</LinearLayout>
package com.example.tictactoeee;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener {
    TextView tv1,tv2;
    private Button [][] btn=new Button[3][3];
```

```
    private int roundCount=0;
    private Boolean player1Tern=true;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv1=findViewById(R.id.tv1);
        tv2=findViewById(R.id.tv2);
        for(int i=0;i<3;i++)
        {
            for(int j=0;j<3;j++)
            {
                String id_name="btn"+i+j; //btn_00 ,btn_01,btn_02
                int
btnId=this.getResources().getIdentifier(id_name,"id",getPackageName());
                btn[i][j]=findViewById(btnId); //findViewById(R.id.btn_00);
                btn[i][j].setOnClickListener(MainActivity.this);
            }
        }
    }//end of protected
    @Override
    public void onClick(View v){
        if(player1Tern){
            ((Button)v).setText("X");
            ((Button)v).setEnabled(false);
        }
        else {
            ((Button) v).setText("O");
            ((Button) v).setEnabled(false);
        }
        roundCount++;
        if(chechForWin()){
            if(player1Tern){
                Toast.makeText(this, "Player 1 wins",
Toast.LENGTH_SHORT).show();
                resertBoard();
            }
            else{
                Toast.makeText(this, "Player 2 wins",
Toast.LENGTH_SHORT).show();
                resertBoard();
            }
        } else if(roundCount==9){
            Toast.makeText(this, "Draw", Toast.LENGTH_SHORT).show();
            resertBoard();
        }else {
            player1Tern = !player1Tern;
```

```
            }
        }//end of onClick
        private void resertBoard(){
            for(int i=0;i<3;i++){
                for (int j=0;j<3;j++){
                    btn[i][j].setText("");
                    btn[i][j].setEnabled(true);
                }
            }
            roundCount=0;
            player1Tern=true;
        }//end of resertBoard
        private boolean chechForWin() {
            String field[][] = new String[3][3];
            for (int i = 0; i < 3; i++) {
                for (int j = 0; j < 3; j++) {
                    field[i][j] = btn[i][j].getText().toString();
                }
            }
            //for rows
            for (int i = 0; i < 3; i++) {
                if (field[i][0].equals(field[i][1]) &&
field[i][0].equals(field[i][2]) && !(field[i][0].equals(""))) {
                    return true;
                }
            }
            //for column
            for (int i = 0; i < 3; i++) {
                if (field[0][i].equals(field[1][i]) &&
field[0][i].equals(field[2][i]) && !(field[0][i].equals(""))) {
                    return true; }
            }
            //for diagonal

if(field[0][0].equals(field[1][1])&&field[0][0].equals(field[2][2])&&!(field[0
][0].equals(""))) {
                return true; }
            //reverse diagonal

if(field[0][2].equals(field[1][1])&&field[0][2].equals(field[2][0])&&!(field[0
][2].equals(""))){
                return true; }
            return  false;
        }//end for checkForWin
}//end of public main
```

ANDROID : GUI COMPONENTS

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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="#bfefff"
    tools:context=".MainActivity"
    android:layout_gravity="center">

    <TextView
        android:id="@+id/tvWelcome"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Welcome to Android"
        android:gravity="center"
        android:color="#fa1207"
        android:typeface="monospace"
        />

    <EditText
        android:id="@+id/etMessage"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="Enter message"/>

    <Button
        android:id="@+id/btnSubmit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="#71C412"
        android:layout_marginLeft="150dp"
        android:text="Submit"
        android:typeface="serif"
        android:textColor="#ffffff" />
</LinearLayout>
```

MainActivity.java:

```
package com.example.guimcc2;

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;

public class MainActivity extends AppCompatActivity {
    TextView tvWelcome;
    EditText etMessage;
    Button btnSubmit;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tvWelcome=(TextView)findViewById(R.id.tvWelcome);
        etMessage=(EditText)findViewById(R.id.etMessage);
        btnSubmit=(Button)findViewById(R.id.btnSubmit);
        btnSubmit.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String msg="Entered message is:\n"+etMessage.getText().toString();
                Toast.makeText(MainActivity.this,msg,Toast.LENGTH_LONG).show();
                etMessage.setText("");
                etMessage.requestFocus();

            }
        });
    }
}
```

ANDROID : GRAPHICAL PRIMITIVES (CIRCLE,RECTANGLE,LINE)

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">


    <ImageView
        android:id="@+id/image"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
         />
</RelativeLayout>
```

MainActivity.java:

```
package com.example.basicprimitivesmcc;
```

```
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.drawable.BitmapDrawable;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {

    @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);//left top right bottom
        canvas.drawCircle(200,200,100,paint);//cx,cy,radius
        canvas.drawRect(50,800,300,1100,paint);
        canvas.drawLine(500,800,500,1100,paint);//startx,starty,stopx,stopy

    }
}
```

ANDROID : ALERT ON RECEIVING MESSAGE

Here, it shows notification on submitting message

Activity_main.xml:

MainActivity.java:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.smsalert">
    <uses-permission android:name="android.permission.WRITE_SMS"
/>
    <uses-permission android:name="android.permission.READ_SMS"
/>
    <uses-permission
android:name="android.permission.RECEIVE_SMS" />
    <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">
        <receiver
            android:name=".SmsBroadcast" android:exported="true" >
            <intent-filter android:priority="999" >
                <action
android:name="android.provider.Telephony.SMS_RECEIVED" />
            </intent-filter>
        </receiver>
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category
android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>

<?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"
```

```
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

</LinearLayout>
package com.example.smsalert;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
package com.example.smsalert;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.telephony.SmsMessage;
import android.widget.Toast;

public class SmsBroadcast extends BroadcastReceiver {
    public static final String SMS_BUNDLE = "pdus";

    public void onReceive(Context context, Intent intent) {
        Bundle intentExtras = intent.getExtras();
        if (intentExtras != null) {
            Object[] sms = (Object[]) intentExtras.get(SMS_BUNDLE);
            String smsMessageStr = "";
            for (int i = 0; i < sms.length; ++i) {
                SmsMessage smsMessage =
SmsMessage.createFromPdu((byte[]) sms[i]);

                String smsBody =
smsMessage.getMessageBody().toString();
                String address = smsMessage.getOriginatingAddress();
```

```
                    smsMessageStr += "SMS From: " + address + "\n";
                    smsMessageStr += smsBody + "\n";
                }
                Toast.makeText(context, smsMessageStr,
Toast.LENGTH_LONG).show();

            }
        }
    }
```