

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

1.Create an android application using Kotlin, to demonstrate the use of Shared Preferences.

MainActivity.kt :

```
package com.example.practicals1

import android.content.Context
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val btn_login = findViewById<Button>(R.id.btn_login)
        val username = findViewById<EditText>(R.id.username)
        val password = findViewById<EditText>(R.id.password)

        fun setData(username:String,password:String) {

            val sharedPreferences = getSharedPreferences("LOGIN_DATA",
            Context.MODE_PRIVATE)

            val editor = sharedPreferences.edit()

            editor.putString("Username",username)
            editor.putString("Password",password)

            editor.apply()
        }
    }
}
```

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```
}  
  
val sharedPreferences = getSharedPreferences("LOGIN_DATA",  
Context.MODE_PRIVATE)  
  
username.setText(sharedPreferences.getString("Username",null));  
password.setText(sharedPreferences.getString("Password",null));  
  
btn_login.setOnClickListener({  
    setData(username.text.toString(),password.text.toString())  
    Toast.makeText(this,"Data Saved..",Toast.LENGTH_LONG).show() })  
}  
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.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">  
  
    <TextView  
        android:id="@+id/textView"  
  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"
```

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```
android:layout_marginTop="50dp"
android:text="Login"
android:textColor="@color/black"
android:textSize="30dp"
android:textStyle="bold"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

```
<EditText
    android:id="@+id/password"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:ems="10"
    android:hint="Password"
    android:inputType="textPersonName"
    android:minHeight="48dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/username" />
```

```
<EditText
    android:id="@+id/username"
    android:layout_width="0dp"
```

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```
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:ems="10"
android:hint="Username"
android:inputType="textPersonName"
android:minHeight="48dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView" />
```

```
<Button
android:id="@+id/btn_login"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="100dp"
android:text="Login"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/password" />
```

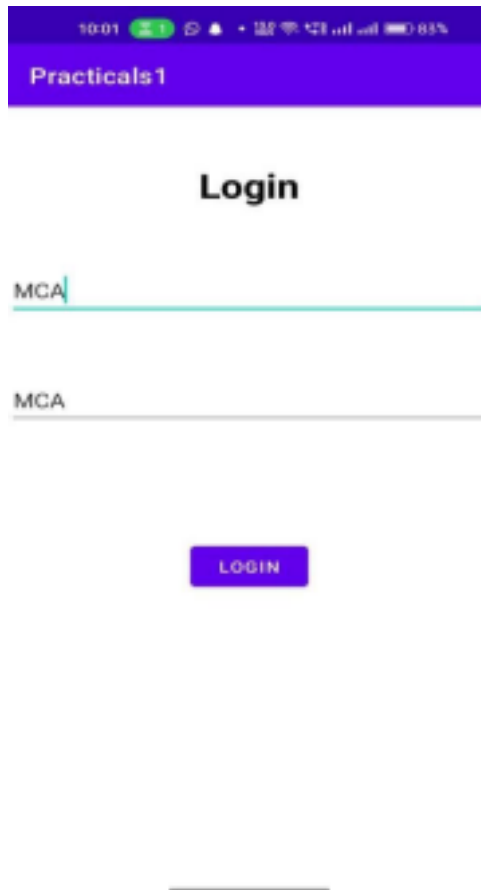
```
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

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2. Create an android application using Kotlin, to demonstrate the use of Internal Storage.

MainActivity.kt

```
package com.example.pro3_2
```

```
import android.content.Context
```

```
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 java.io.*
```

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```
class MainActivity : AppCompatActivity() {  
    override fun onCreate(savedInstanceState: Bundle?) {  
        super.onCreate(savedInstanceState)  
        setContentView(R.layout.activity_main)  
  
        val fileName = findViewById<EditText>(R.id.editFile) val  
        fileData = findViewById<EditText>(R.id.editData)  
  
        val btnSave = findViewById<Button>(R.id.btnSave)  
        val btnView = findViewById<Button>(R.id.btnView)  
  
        btnSave.setOnClickListener(View.OnClickListener {  
            val file:String = fileName.text.toString()  
            val data:String = fileData.text.toString()  
            val fileOutputStream: FileOutputStream  
            try {  
                fileOutputStream = openFileOutput(file, Context.MODE_PRIVATE)  
                fileOutputStream.write(data.toByteArray())  
            } catch (e: FileNotFoundException){  
                e.printStackTrace()  
            }catch (e: NumberFormatException){  
                e.printStackTrace()  
            }catch (e: IOException){  
                e.printStackTrace()  
            }catch (e: Exception){
```

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```
e.printStackTrace()
}

Toast.makeText(applicationContext,"data save",Toast.LENGTH_LONG).show()

fileName.text.clear()

fileData.text.clear()

})

btnView.setOnClickListener(View.OnClickListener {

val filename = fileName.text.toString()

if(filename.toString()!=null && filename.toString().trim()!=""){ var

fileInputStream: FileInputStream? = null

fileInputStream = openFileInput(filename)

var inputStreamReader: InputStreamReader =

InputStreamReader(fileInputStream)

val bufferedReader: BufferedReader = BufferedReader(inputStreamReader) val

stringBuilder: StringBuilder = StringBuilder()

var text: String? = null

while ({ text = bufferedReader.readLine(); text }() != null) {

stringBuilder.append(text)

}

//Displaying data on EditText
fileData.setText(stringBuilder.toString().toString())

}else{

Toast.makeText(applicationContext,"file name cannot be

blank",Toast.LENGTH_LONG).show()

}

})
```

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```
}
```

```
}
```

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">
```

```
<TextView
```

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

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:layout_alignParentLeft="true"
```

```
android:layout_alignParentStart="true"
```

```
android:layout_alignParentTop="true"
```

```
android:layout_marginLeft="31dp"
```

```
android:layout_marginStart="31dp"
```

```
android:layout_marginTop="117dp"
```

```
android:text="File Name"
```

```
android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"/>
```

```
<EditText
```

```
android:id="@+id/editFile"
```


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```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignBaseline="@+id/textView"
android:layout_alignBottom="@+id/textView"
android:layout_alignLeft="@+id/btnSave"
android:layout_alignStart="@+id/btnSave"
android:layout_marginLeft="31dp"
android:layout_marginStart="31dp"
android:ems="10"
android:paddingLeft="10dp"
android:inputType="textPersonName"
android:hint="file name" />
```

```
<TextView
android:id="@+id/textView2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignEnd="@+id/textView"
android:layout_alignRight="@+id/textView"
android:layout_below="@+id/textView"
android:layout_marginTop="67dp"
android:text="File Data"
android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"/>
```

```
<EditText
android:id="@+id/editData"
```

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```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignBaseline="@+id/textView2"
android:layout_alignBottom="@+id/textView2"
android:layout_alignLeft="@+id/editFile"
android:layout_alignStart="@+id/editFile"
android:ems="10"
android:lines="5"
android:hint="data" />
```

```
<Button
android:id="@+id/btnSave"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignLeft="@+id/textView2"
android:layout_alignParentBottom="true"
android:layout_alignStart="@+id/textView2"

android:layout_marginBottom="53dp"
android:layout_marginLeft="49dp"
android:layout_marginStart="49dp"
android:text="Save" />
```

```
<Button
android:id="@+id/btnView"
android:layout_width="wrap_content"
```

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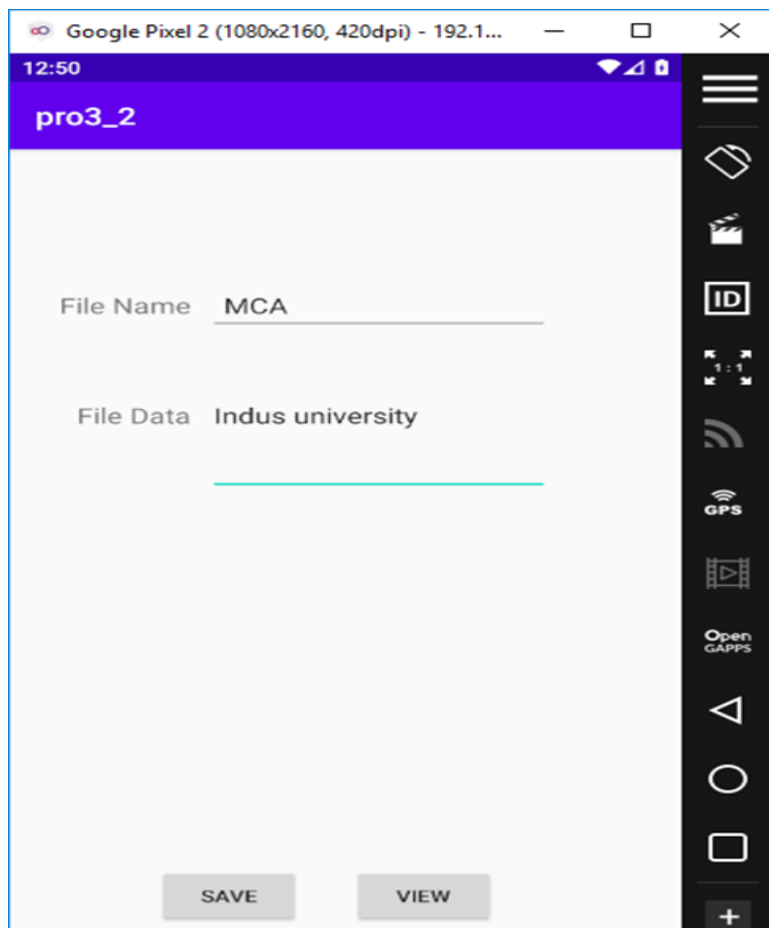
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```
android:layout_height="wrap_content"
android:layout_alignEnd="@+id/editData"
android:layout_alignRight="@+id/editData"
android:layout_alignTop="@+id/btnSave"
android:layout_marginEnd="33dp"
android:layout_marginRight="33dp"
android:text="View" />

</RelativeLayout>
```

OUTPUT:-



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3. Create an android application using Kotlin, to demonstrate the use of External Storage.

MainActivity.kt

```
package com.example.practicals2

import android.content.Context
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity
import java.io.*

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val btn_write = findViewById<Button>(R.id.button)
        val btn_read = findViewById<Button>(R.id.button2)
        val fileName = findViewById<EditText>(R.id.fileName) val
        fileText = findViewById<EditText>(R.id.fileText)

        val textView2 = findViewById<TextView>(R.id.textView2)

        btn_write.setOnClickListener {
```

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```
val fileOutputStream = openFileOutput(fileName.text.toString(),
Context.MODE_PRIVATE)

fileOutputStream.write(fileText.text.toString().toByteArray())

fileOutputStream.close()

Toast.makeText(this, "Files Created...", Toast.LENGTH_LONG).show() }

btn_read.setOnClickListener({

// val file_name = "mb.txt"

var text = ""

val fileOutputStream = openFileInput(fileName.text.toString()) do{

val read = fileOutputStream.read()

if(read != -1){

text += read.toChar()

}

} while(read != -1)

textView2.text = text

Toast.makeText(this, "Files Readed...", Toast.LENGTH_LONG).show() })

}

}
```

activity_main.xml

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

<androidx.constraintlayout.widget.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"
```

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

```
<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:text="Internal Storage"
    android:textSize="40sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.458"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<EditText
    android:id="@+id/fileName"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="60dp"
    android:ems="10"
    android:hint="Files Name..."
    android:inputType="textPersonName"
    android:minHeight="48dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
```

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```
app:layout_constraintTop_toBottomOf="@+id/textView"  
android:autofillHints="" />
```

```
<EditText  
    android:id="@+id/fileText"  
    android:layout_width="0dp"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="80dp"  
    android:ems="10"  
    android:gravity="start|top"  
    android:hint="Types Here..."  
    android:inputType="textMultiLine"  
    android:minHeight="48dp"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/fileName"  
    android:autofillHints="" />
```

```
<Button  
    android:id="@+id/button"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginStart="50dp"  
    android:layout_marginTop="100dp"  
    android:text="File Write"  
    app:layout_constraintStart_toStartOf="parent"
```

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```
app:layout_constraintTop_toBottomOf="@+id/fileText" />
```

```
<Button
```

```
android:id="@+id/button2"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:layout_marginTop="100dp"
```

```
android:layout_marginEnd="50dp"
```

```
android:text="File Read"
```

```
app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/fileText" />
```

```
<TextView
```

```
android:id="@+id/textView2"
```

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

```
android:layout_marginBottom="134dp"
```

```
android:text="TextView"
```

```
android:textSize="22dp"
```

```
android:textStyle="bold"
```

```
app:layout_constraintBottom_toBottomOf="parent"
```

```
app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintStart_toStartOf="parent" />
```

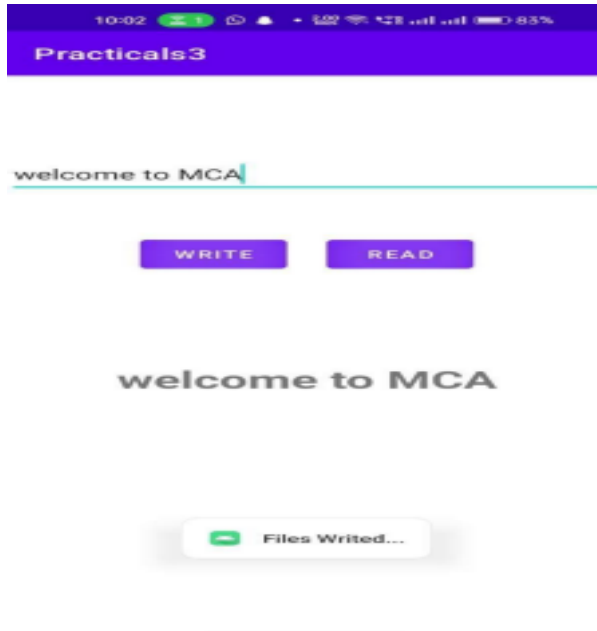
```
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

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4. Create an android application using Kotlin, to implement the Telephony API to make a call.

MainActivity.kt

```
package com.example.a34
```

```
import android.content.Intent
```

```
import android.net.Uri
```

```
import android.os.Bundle
```

```
import android.view.View
```

```
import android.widget.Button
```

```
import android.widget.EditText
```

```
import androidx.appcompat.app.AppCompatActivity
```

```
class MainActivity : AppCompatActivity() {
```

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```
// define objects for edit text and button

private lateinit var editText: EditText

private lateinit var button: Button


override fun onCreate(savedInstanceState: Bundle?) {
    super.onCreate(savedInstanceState)
    setContentView(R.layout.activity_main)


    // Getting instance of editText and button
    button = findViewById(R.id.button)
    editText = findViewById(R.id.editText)


    // Attach set on click listener to the button for initiating intent
    button.setOnClickListener(View.OnClickListener { // getting phone
        number from edit text and changing it to String val phone_number =
        editText.text.toString()

        // Getting instance of Intent with action as ACTION_CALL val
        phone_intent = Intent(Intent.ACTION_CALL)


        // Set data of Intent through Uri by parsing phone number
        phone_intent.data = Uri.parse("tel:$phone_number")


        // start Intent
        startActivity(phone_intent)
    })
}
```

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```
}  
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.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">  
  
    <!-- Edit text for phone number -->  
    <!-- Button to make call -->  
  
    <EditText  
        android:id="@+id/editText"  
        android:layout_width="214dp"  
        android:layout_height="56dp"  
        android:layout_alignParentTop="true"  
        android:layout_centerHorizontal="true"  
        android:layout_marginStart="104dp"  
        android:layout_marginTop="144dp"  
        app:layout_constraintStart_toStartOf="parent"
```

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```
app:layout_constraintTop_toTopOf="parent" />
```

```
<Button
```

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

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_alignParentTop="true"
```

```
    android:layout_centerHorizontal="true"
```

```
    android:layout_marginTop="88dp"
```

```
    android:padding="5dp"
```

```
    android:text="Make Call!!"
```

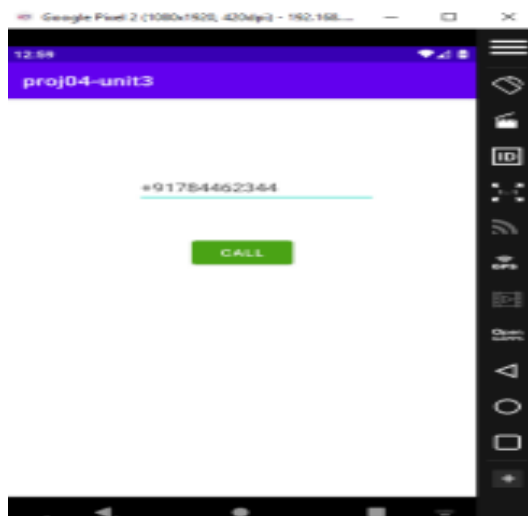
```
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toBottomOf="@+id/editText" />
```

```
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-



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5. Create an android application using Kotlin, to implement the Telephony API to send SMS.

MainActivity.kt

```
package com.example.a35
```

```
import android.os.Build
```

```
import android.os.Bundle
```

```
import android.telephony.SmsManager
```

```
import android.widget.Button
```

```
import android.widget.EditText
```

```
import android.widget.Toast
```

```
import androidx.appcompat.app.AppCompatActivity
```

```
class MainActivity : AppCompatActivity() {
```

```
    lateinit var phoneEdt: EditText
```

```
    lateinit var messageEdt: EditText
```

```
    lateinit var sendMsgBtn: Button
```

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```
override fun onCreate(savedInstanceState: Bundle?) {  
    super.onCreate(savedInstanceState)  
    setContentView(R.layout.activity_main)  
  
    phoneEdt = findViewById(R.id.idEdtPhone)  
    messageEdt = findViewById(R.id.idEdtMessage)  
    sendMsgBtn = findViewById(R.id.idBtnSendMessage)  
  
    sendMsgBtn.setOnClickListener {  
  
        val phoneNumber = phoneEdt.text.toString()  
        val message = messageEdt.text.toString()  
  
        try {  
            val smsManager:SmsManager  
            smsManager = SmsManager.getDefault()  
  
            smsManager.sendTextMessage(phoneNumber, null, message, null, null)  
            Toast.makeText(applicationContext, "Message Sent",  
                Toast.LENGTH_LONG).show()  
  
        } catch (e: Exception) {  
            Toast.makeText(applicationContext, "Please enter all the  
data.." + e.message.toString(), Toast.LENGTH_LONG)  
                .show()  
        }  
    }  
}
```

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}

}

}

activity_main.xml

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

```
<androidx.constraintlayout.widget.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">
```

```
<TextView
```

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

```
android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"
```

```
android:layout_gravity="center"
```

```
android:layout_marginTop="30dp"
```

```
android:padding="10dp"
```

```
android:text="SMS Manager App"
```

```
android:textAlignment="center"
```

```
android:textColor="@color/black"
```

```
android:textSize="20sp"
```

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```
app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toTopOf="parent" />
```

<!--on below line we are creating a
simple edit text for phone number-->

<!--on below line we are creating a
message edit text for message-->

<!--on below line we are creating
a button for sending message-->

```
<EditText
```

```
android:id="@+id/idEdtPhone"
```

```
android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"
```

```
android:layout_marginTop="56dp"
```

```
android:hint="Enter phone number"
```

```
android:inputType="phone"
```

```
app:layout_constraintStart_toStartOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/textView" />
```

```
<EditText
```

```
android:id="@+id/idEdtMessage"
```

```
android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"
```


MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

```
android:layout_marginTop="56dp"
android:hint="Enter Message"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/idEdtPhone" />
```

```
<Button
    android:id="@+id/idBtnSendMessage"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="60dp"
    android:padding="5dp"
    android:text="Send Message"
    android:textAllCaps="false"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/
    idEdtMessage" />
```

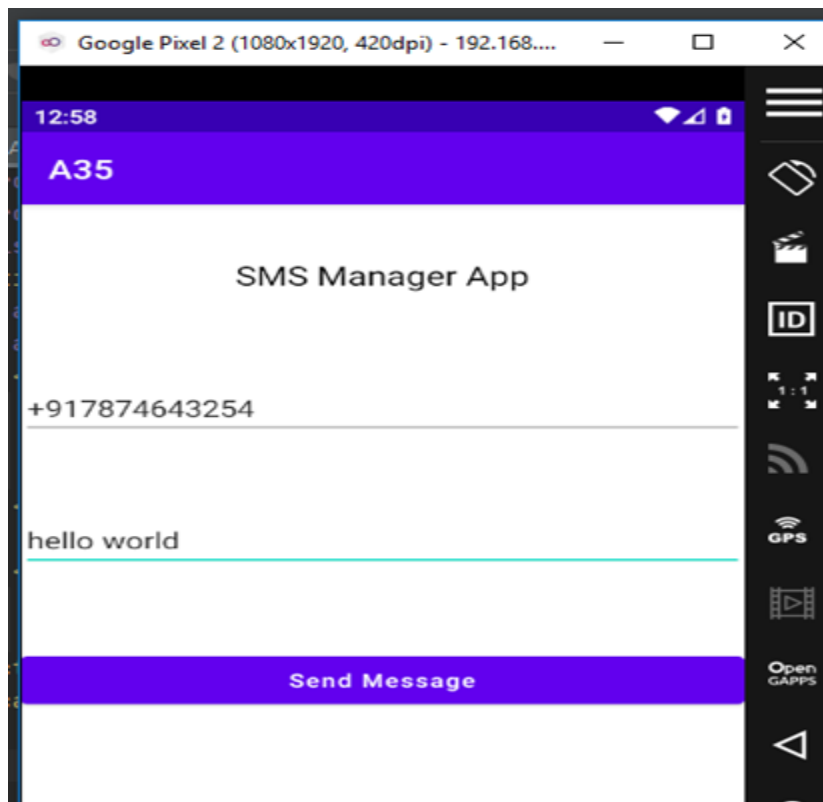
```
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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6. Create an android application using Kotlin, to implement the Telephony API to send Email.

MainActivity.kt

```
package com.example.practicals6

import android.content.Intent
import android.net.Uri
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.Toast

class MainActivity : AppCompatActivity() {
```

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NAME :- POKAR BHAVIK

```
override fun onCreate(savedInstanceState: Bundle?) {  
    super.onCreate(savedInstanceState)  
    setContentView(R.layout.activity_main)  
    val btn = findViewById<Button>(R.id.button)  
    btn.setOnClickListener({  
        val recipient = "mca@gmail.com"  
        val subject = "Subject"  
        val body = "MCA ...."  
        Toast.makeText(this,"Send Mail.....",Toast.LENGTH_LONG).show() val  
        intent = Intent(Intent.ACTION_SENDTO)  
        intent.data = Uri.parse("mailto:")  
        intent.putExtra(Intent.EXTRA_EMAIL, arrayOf(recipient))  
        intent.putExtra(Intent.EXTRA_SUBJECT, subject)  
        intent.putExtra(Intent.EXTRA_TEXT, body)  
        startActivity(Intent.createChooser(intent, "Send Email")) })  
    }  
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.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">
```

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NAME :- POKAR BHAVIK

```
<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:text="Internal Storage"
    android:textSize="40sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.458"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

```
<EditText
    android:id="@+id/fileName"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="60dp"
    android:ems="10"
    android:hint="Files Name..."
    android:inputType="textPersonName"
    android:minHeight="48dp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView"
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

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```
android:autofillHints="" />

<EditText

android:id="@+id/fileText"

android:layout_width="0dp"

android:layout_height="wrap_content"

android:layout_marginTop="80dp"

android:ems="10"

android:gravity="start|top"

android:hint="Types Here..."

android:inputType="textMultiLine"

android:minHeight="48dp"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/fileName"

android:autofillHints="" />

<Button

android:id="@+id/button"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginStart="50dp"

android:layout_marginTop="100dp"

android:text="File Write"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/fileText" />

<Button

android:id="@+id/button2"

android:layout_width="wrap_content"
```

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ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

```
android:layout_height="wrap_content"
android:layout_marginTop="100dp"
android:layout_marginEnd="50dp"
android:text="File Read"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toBottomOf="@+id/fileText" />
<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="134dp"
    android:text="TextView"
    android:textSize="22dp"
    android:textStyle="bold"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

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SEND EMAIL

7. Create an android application using Kotlin, to integrate Notifications, whenever an SMS is received. Note: Reuse the application created in Q5.

MainActivity.kt

```
package com.example.a37

import android.os.Bundle
import android.telephony.SmsManager
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity

class MainActivity : AppCompatActivity() {

    lateinit var phoneEdt: EditText
    lateinit var messageEdt: EditText
    lateinit var sendMsgBtn: Button

    override fun onCreate(savedInstanceState: Bundle?) {
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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NAME :- POKAR BHAVIK

```
super.onCreate(savedInstanceState)

setContentView(R.layout.activity_main)


phoneEdt = findViewById(R.id.idEdtPhone)

messageEdt = findViewById(R.id.idEdtMessage)
sendMsgBtn = findViewById(R.id.idBtnSendMessage)


sendMsgBtn.setOnClickListener {

    val phoneNumber = phoneEdt.text.toString()
    val message = messageEdt.text.toString()


    try {
        val smsManager:SmsManager
        smsManager = SmsManager.getDefault()

        smsManager.sendTextMessage(phoneNumber, null, message, null, null)

        Toast.makeText(applicationContext, "Message Sent",
        Toast.LENGTH_LONG).show()

    } catch (e: Exception) {

        Toast.makeText(applicationContext, "Please enter all the
        data.." + e.message.toString(), Toast.LENGTH_LONG)

        .show()
    }
}
```


MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
}  
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.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">  
  
<TextView  
android:id="@+id/textView"  
android:layout_width="match_parent"  
android:layout_height="wrap_content"  
android:layout_gravity="center"  
android:layout_marginTop="30dp"  
android:padding="10dp"  
android:text="SMS Manager App"  
android:textAlignment="center"  
android:textColor="@color/black"  
android:textSize="20sp"  
app:layout_constraintStart_toStartOf="parent"  
app:layout_constraintTop_toTopOf="parent" />
```

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<!--on below line we are creating a
simple edit text for phone number-->

<!--on below line we are creating a
message edit text for message-->

<!--on below line we are creating
a button for sending message-->

```
<EditText
    android:id="@+id/idEdtPhone"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="56dp"
    android:hint="Enter phone number"
    android:inputType="phone"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView" />
```

```
<EditText
    android:id="@+id/idEdtMessage"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="56dp"
    android:hint="Enter Message"
    app:layout_constraintStart_toStartOf="parent"
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

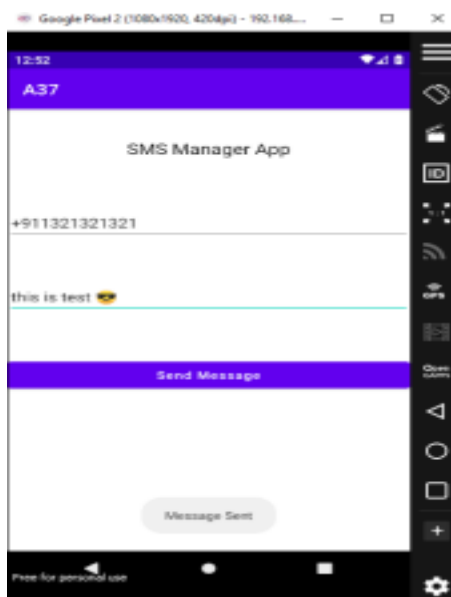
ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

```
app:layout_constraintTop_toBottomOf="@+id/idEdtPhone" />

<Button
    android:id="@+id/idBtnSendMessage"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="60dp"
    android:padding="5dp"
    android:text="Send Message"
    android:textAllCaps="false"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/idEdtMessage" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-



8. Create a database “Employee” to store information about employees. Implement CRUD functionality for the given database.

MainActivity.kt

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

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```
package com.example.sqlitedatabase

import android.annotation.SuppressLint
import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.Toast

class MainActivity : AppCompatActivity() {
    @SuppressLint("MissingInflatedId")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val btn_Add = findViewById<Button>(R.id.button); val
        btn_View = findViewById<Button>(R.id.button2); val
        btn_Edit = findViewById<Button>(R.id.btn_Edit); val
        btn_Del = findViewById<Button>(R.id.btn_Del);

        btn_Add.setOnClickListener({
            Toast.makeText(this,"Add Data",Toast.LENGTH_LONG).show( val
            intent = Intent(this,AddData::class.java);
            startActivity(intent)
        });

        btn_View.setOnClickListener({
```

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```
Toast.makeText(this,"View Data",Toast.LENGTH_LONG).show() val  
intent = Intent(this,ViewData::class.java)  
  
startActivity(intent);  
});
```

```
btn_Edit.setOnClickListener({  
  
val intent = Intent(this,EditData::class.java)  
  
startActivity(intent);  
  
})
```

```
btn_Del.setOnClickListener({  
  
val intent = Intent(this,DelData::class.java)  
  
startActivity(intent);  
  
})  
  
}  
  
}
```

AddData.kt

```
package com.example.sqlitedatabase
```

```
import android.content.Intent  
import androidx.appcompat.app.AppCompatActivity  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.Toast
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

```
class AddData : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)

        setContentView(R.layout.activity_add_data)

        val btn_add = findViewById<Button>(R.id.button3);
        val txtName = findViewById<EditText>(R.id.editTextTextPersonName); val
        txtAge = findViewById<EditText>(R.id.editTextTextPersonName2); val db =
        DBHelper(this);

        btn_add.setOnClickListener({
            db.insert(txtName.text.toString(),txtAge.text.toString())
            Toast.makeText(this,"Added Record Successfully.",Toast.LENGTH_LONG).show()
            txtName.text.clear()
            txtAge.text.clear()

            val intent = Intent(this,ViewData::class.java)
            startActivity(intent);
        });
    }
}
```

EditData.kt

```
package com.example.sqlitedatabase

import android.annotation.SuppressLint
```

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```
import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast

class EditData : AppCompatActivity() {
    @SuppressWarnings("MissingInflatedId")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_edit_data)

        val btn_edit = findViewById<Button>(R.id.button3);
        val txtid = findViewById<EditText>(R.id.editTextTextPersonName); val
        txtName = findViewById<EditText>(R.id.editTextTextPersonName3); val
        txtAge = findViewById<EditText>(R.id.editTextTextPersonName2); val db =
        DBHelper(this);

        btn_edit.setOnClickListener({
            db.editData(txtid.text.toString(),txtName.text.toString(),txtAge.text.toString())
            Toast.makeText(this,"Edited Record Successfully.", Toast.LENGTH_LONG).show()
            txtName.text.clear()
            txtAge.text.clear()

            val intent = Intent(this,ViewData::class.java)
            startActivity(intent);

        })
    }
}
```

DelData.kt

```
package com.example.sqlitedatabase

import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
```

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```
import android.widget.Toast
class DelData : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_del_data)

        val del_btn = findViewById<Button>(R.id.button6)
        val editText = findViewById<EditText>(R.id.editTextTextPersonName4)

        del_btn.setOnClickListener({
            Toast.makeText(this, "Del Data..", Toast.LENGTH_LONG).show() val db
            = DBHelper(this);
            db.delData(editText.text.toString())

            val intent = Intent(this, ViewData::class.java)
            startActivity(intent);

        })
    }
}
```

ViewData.kt

```
package com.example.sqlitedatabase

import android.annotation.SuppressLint
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.*
import com.example.sqlitedatabase.DataModel.Companion.KEY_AGE
import com.example.sqlitedatabase.DataModel.Companion.KEY_ID
import com.example.sqlitedatabase.DataModel.Companion.KEY_NAME

class ViewData : AppCompatActivity() {
    @SuppressLint("Range", "SetTextI18n", "MissingInflatedId")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_view_data)
        val btn_ViewData = findViewById<Button>(R.id.button4) val
        listView = findViewById<ListView>(R.id.listView);
```


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```
val userList = ArrayList<HashMap<String, String>>()
var arrayAdapter: ArrayAdapter<*>

btn_ViewData.setOnClickListener{
    Toast.makeText(this,"View Data..",Toast.LENGTH_LONG).show() val db
= DBHelper(this);
    val cursor = db.getData();
    userList.clear()

    while (cursor.moveToNext()) {
        val user = HashMap<String,String>()

        user.put("id", cursor.getString(cursor.getColumnIndex(KEY_ID)));
        user.put("name", cursor.getString(cursor.getColumnIndex(KEY_NAME)))
        user.put("age", cursor.getString(cursor.getColumnIndex(KEY_AGE)))
        userList.add(user)
    }
    arrayAdapter = ArrayAdapter(this,
    android.R.layout.simple_list_item_1, userList)
    listView.adapter = arrayAdapter
    cursor.close()
})

listView.setOnItemClickListener { parent, view, position, id -> val
selectedFromList =(listView.getItemAtPosition(position)); val data =
view as TextView
    Toast.makeText(this,"${position} :- ${ data.text} is
Selected",Toast.LENGTH_LONG).show()
    true;
}
}
}
```

DataModel.kt

```
package com.example.sqlitedatabase
class DataModel(val name:String,val age:Int) {

    companion object {

        val DATABASE_VERSION = 1

        val DATABASE_NAME = "Students"
```

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```
val TABLE_NAME = "students_records"

val KEY_ID = "id"

val KEY_NAME = "name"

val KEY_AGE = "age"

}

}
```

DBHelper.kt

```
package com.example.sqlitedatabase
```

```
import android.annotation.SuppressLint
```

```
import android.content.ContentValues
```

```
import android.content.Context
```

```
import android.database.Cursor
```

```
import android.database.sqlite.SQLiteDatabase
```

```
import android.database.sqlite.SQLiteOpenHelper
```

```
import com.example.sqlitedatabase.DataModel.Companion.DATABASE_NAME
```

```
import com.example.sqlitedatabase.DataModel.Companion.DATABASE_VERSION
```

```
import com.example.sqlitedatabase.DataModel.Companion.KEY_AGE import
```

```
com.example.sqlitedatabase.DataModel.Companion.KEY_ID
```

```
import com.example.sqlitedatabase.DataModel.Companion.KEY_NAME
```

```
import com.example.sqlitedatabase.DataModel.Companion.TABLE_NAME
```

```
class DBHelper(context: Context) :
```

```
SQLiteOpenHelper(context,DATABASE_NAME,null,DATABASE_VERSION) {
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
override fun onCreate(db: SQLiteDatabase) {

    val query = ("CREATE TABLE " + TABLE_NAME + " (" + KEY_ID + " INTEGER PRIMARY KEY
    AUTOINCREMENT, " + KEY_NAME + " VARCHAR(255), " + KEY_AGE + " VARCHAR(255) "
    + ")")

    db.execSQL(query)

}

fun insert(name: String, age: String) {

    val db = this.writableDatabase;

    val values = ContentValues();

    values.put(KEY_NAME,name);

    values.put(KEY_AGE,age);

    db.insert(TABLE_NAME,null,values)

    db.close()

}

fun getData() : Cursor {

    val db = this.writableDatabase

    return db.rawQuery("SELECT * FROM " + TABLE_NAME, null)

}

@SuppressLint("Recycle")

fun editData(id: String, name: String, age: String) {

    val db = this.writableDatabase;
    val values = ContentValues();

    values.put(KEY_NAME,name);

    values.put(KEY_AGE,age);

    db.update(TABLE_NAME, values,KEY_ID+"=?", arrayOf(id.toString())) }

@SuppressLint("Recycle")

fun delData(id: String) {
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
val db = this.writableDatabase

db.delete(TABLE_NAME, KEY_ID+"=?", arrayOf(id))

db.close()

}

override fun onUpgrade(db: SQLiteDatabase?, p1: Int, p2: Int) {

TODO("Not yet implemented")

}

}
```

activity_main.xml

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

<androidx.constraintlayout.widget.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">

<Button
android:id="@+id/button"

android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="85dp"
android:layout_marginTop="200dp"
android:text="Add"

app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

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```
<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="200dp"
    android:layout_marginEnd="85dp"
    android:text="View"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
<Button
    android:id="@+id/btn_Del"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:layout_marginEnd="85dp"
    android:text="Delete"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/button2" />
<Button
    android:id="@+id/btn_Edit"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="85dp"
    android:layout_marginTop="50dp"
    android:text="Edit"
    app:layout_constraintStart_toStartOf="parent"
```

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```
app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

activity_add_data.xml

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

<androidx.constraintlayout.widget.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=".AddData">

<TextView

android:id="@+id/textView3"

android:layout_width="wrap_content"

android:layout_height="wrap_content"
android:layout_marginTop="50dp"

android:text="Add Data"

android:textSize="30sp"

android:textStyle="bold"

app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

<EditText

android:id="@+id/editTextTextPersonName"

android:layout_width="0dp"

android:layout_height="wrap_content"
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

```
android:layout_marginTop="40dp"
android:autofillHints=""
android:ems="10"
android:hint="Enter The Name"
android:inputType="textPersonName"
android:minHeight="48dp"
android:textColorHint="#757575"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView3"
tools:ignore="SpeakableTextPresentCheck" /> <EditText
    android:id="@+id/editTextTextPersonName2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:autofillHints=""
    android:ems="10"
    android:hint="Enter The Age"
    android:inputType="textPersonName"
    android:minHeight="48dp"
    android:textColorHint="#757575"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
    tools:ignore="SpeakableTextPresentCheck" />
<Button
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
android:id="@+id/button3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="100dp"
android:text="Add Data"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName2" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

activity_edit_data

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

<androidx.constraintlayout.widget.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=".EditData">

<TextView

android:id="@+id/textView3"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginTop="50dp"
```


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```
android:text="Edit Data"

android:textSize="30sp"

android:textStyle="bold"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />

<EditText

    android:id="@+id/editTextTextPersonName"

    android:layout_width="0dp"

    android:layout_height="wrap_content"

    android:layout_marginTop="40dp"

    android:autoFillHints=""

    android:ems="10"

    android:hint="Enter The ID"

    android:inputType="textPersonName"

    android:minHeight="48dp"

    android:textColorHint="#757575"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toBottomOf="@+id/textView3"

    tools:ignore="SpeakableTextPresentCheck" />

<EditText
```

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```
android:id="@+id/editTextTextPersonName3"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_marginTop="40dp"
android:autofillHints=""
android:ems="10"
android:hint="Enter The Name"
android:inputType="textPersonName"
android:minHeight="48dp"
android:textColorHint="#757575"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
tools:ignore="SpeakableTextPresentCheck" />
```

```
<EditText
```

```
android:id="@+id/editTextTextPersonName2"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_marginTop="35dp"
android:autofillHints=""
android:ems="10"
```

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```
android:hint="Enter The Age"

android:inputType="textPersonName"

android:minHeight="48dp"

android:textColorHint="#757575"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.0"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName3"

tools:ignore="SpeakableTextPresentCheck" />

<Button

android:id="@+id/button3"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginTop="112dp"

android:text="Edit Data"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="0.501"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName2" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

activity_del_data.xml

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NAME :- POKAR BHAVIK

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

<androidx.constraintlayout.widget.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=".DelData">

<TextView
android:id="@+id/textView2"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginTop="50dp"

android:text="Del Data"

android:textSize="30sp"

android:textStyle="bold"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />

<EditText

android:id="@+id/editTextTextPersonName4"

android:layout_width="0dp"

android:layout_height="wrap_content"

android:layout_marginTop="50dp"
```

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```
android:autofillHints=""

android:ems="10"

android:hint="Enter The Id"

android:inputType="textPersonName"

android:minHeight="48dp"

android:textColorHint="#757575"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintHorizontal_bias="1.0"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/textView2"

tools:ignore="SpeakableTextPresentCheck" />

<Button

android:id="@+id/button6"

android:layout_width="121dp"

android:layout_height="48dp"

android:layout_marginTop="50dp"

android:text="Del Data"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName4"

tools:ignore="DuplicateSpeakableTextCheck" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

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activity_view_data.xml

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

<androidx.constraintlayout.widget.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=".ViewData">

<TextView

android:id="@+id/textView"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_marginTop="20dp"

android:text="View Data"

android:textSize="40dp"

android:textStyle="bold"

app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toTopOf="parent" />

<Button

android:id="@+id/button4"

android:layout_width="wrap_content"
```

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```
android:layout_height="wrap_content"

android:layout_marginBottom="40dp"

android:text="View Data"

app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent" />
<ListView

android:id="@+id/listView"

android:layout_width="0dp"
android:layout_height="500dp"
android:layout_marginStart="50dp"
android:layout_marginTop="50dp"
android:layout_marginEnd="50dp"

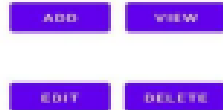
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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Add Data

abo

abc

ADD DATA



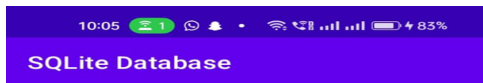
Edit Data

2

test

test

EDIT DATA



Del Data

2

DEL DATA



View Data

{name=abc, id=2, age=20}

View Data

VIEW DATA

MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK

9. Create an android application using Kotlin, to integrate with Firebase and implement its Authentication functionality.

MainActivity.kt

```
package com.example.practicals9

import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val intent = Intent(this, Login::class.java)
        startActivity(intent)

    }
}
```

Login.kt

```
package com.example.practicals9

import android.content.Intent
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity

import com.google.firebase.auth.FirebaseAuth

class Login : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
setContentView(R.layout.activity_login)
```

```
val btn = findViewById<Button>(R.id.button)
```

```
val username = findViewById<EditText>(R.id.editTextTextPersonName) val
```

```
password = findViewById<EditText>(R.id.editTextTextPassword)
```

```
val mAuth = FirebaseAuth.getInstance()
```

```
btn.setOnClickListener({
```

```
if (username.text.isBlank() || username.text.isEmpty()) {
```

```
Toast.makeText(this, "Places Enter Username...",
```

```
Toast.LENGTH_LONG).show()
```

```
} else if (password.text.isBlank() || password.text.isEmpty()) {
```

```
Toast.makeText(this, "Places Enter Password...",
```

```
Toast.LENGTH_LONG).show()
```

```
} else {
```

```
// mAuth.signInWithEmailAndPassword(username.text.toString(),
```

```
password.text.toString())
```

```
mAuth.signInWithEmailAndPassword(username.text.toString(),
```

```
password.text.toString())
```

```
.addOnCompleteListener(this) { task ->
```

```
if (task.isSuccessful) {
```

```
Toast.makeText(this, "Successfully Login...",
```

```
Toast.LENGTH_LONG)
```

```
.show()
```

```
val intent = Intent(this,Dashboard::class.java)
```

```
startActivity(intent)
```

```
} else {
```

```
Toast.makeText(
```

```
this,
```

```
"Username Or Password In-valid...",
```

```
Toast.LENGTH_LONG
```

```
).show()
```

```
}
```

```
}
```

```
}
```

```
})
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
}  
}
```

activity_login.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.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=".Login">  
  
  <TextView  
    android:id="@+id/textView"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="100dp"  
    android:text="Login"  
    android:textSize="40dp"  
    android:textStyle="bold"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent" />  
  <EditText  
    android:id="@+id/editTextTextPersonName"  
    android:layout_width="320dp"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="80dp"  
    android:ems="10"  
    android:hint="Email"  
    android:inputType="textPersonName"  
    android:minHeight="48dp"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/textView" />
```

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```
<EditText
android:id="@+id/editTextTextPassword"
android:layout_width="320dp"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:ems="10"
android:hint="Password"
android:inputType="textPassword"
android:minHeight="48dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
/>
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="100dp"
android:text="Login"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"

app:layout_constraintTop_toBottomOf="@+id/editTextTextPassword"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.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">
<TextView
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

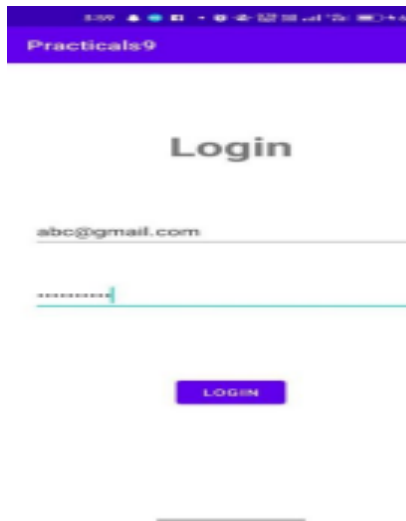
ENROLLMENTNUMBER :- IU2253000059

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```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Hello World!"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-



MOBILE APPLICATION DEVELOPMENT USING ANDROID

ENROLLMENTNUMBER :- IU2253000059

NAME :- POKAR BHAVIK



abc@gmail.com

WRITE DATA IN FIREBASE

Successfully Login...

**10. Create an android application using Kotlin, to generate an OTP and send it to a user. For OTP generation, you can use the random() function of Math class.
Note: Reuse the application created in Q5.**

MainActivity.kt

```
package com.example.practicals4

import android.Manifest
import android.Manifest.permission.CALL_PHONE
import android.annotation.SuppressLint
import android.content.Intent
import android.content.pm.PackageManager
import android.net.Uri
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import androidx.core.app.ActivityCompat
import androidx.core.content.ContextCompat
```

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```
class MainActivity : AppCompatActivity() {  
    @SuppressWarnings("MissingInflatedId")  
    override fun onCreate(savedInstanceState: Bundle?) {  
        super.onCreate(savedInstanceState)  
        setContentView(R.layout.activity_main)  
  
        val btn_cal = findViewById<Button>(R.id.button)  
        btn_cal.setOnClickListener({  
            val PHONE_NUMBER = "1234567890"  
            val REQUEST_PHONE_CALL= 1  
            if (ContextCompat.checkSelfPermission(this, Manifest.permission.CALL_PHONE) !=  
                PackageManager.PERMISSION_GRANTED) {  
                // Request permission if it is not granted  
                ActivityCompat.requestPermissions(this,  
                    arrayOf(Manifest.permission.CALL_PHONE),  
                    REQUEST_PHONE_CALL)  
            } else {  
                // Call the phone number  
                val phoneNumber = "tel:$PHONE_NUMBER"  
                val intent = Intent(Intent.ACTION_CALL, Uri.parse(phoneNumber))  
                startActivity(intent)  
            }  
        })  
    }  
}
```

activity_main.xml

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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NAME :- POKAR BHAVIK

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

<androidx.constraintlayout.widget.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">

<Button

android:id="@+id/button"
android:layout_width="wrap_content"

android:layout_height="wrap_content"
android:layout_marginTop="200dp"
android:text="Call"

app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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NAME :- POKAR BHAVIK



11. Create an android application using Kotlin, to read phonebook contacts using content providers and display in list.

MainActivity.kt

```
package com.example.practicals11
```

```
import android.Manifest
import android.annotation.SuppressLint
import android.content.pm.PackageManager
import android.icu.number.NumberRangeFormatter
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.provider.ContactsContract
import android.widget.Button
import android.widget.TextView
import android.widget.Toast
import androidx.core.app.ActivityCompat
import androidx.core.content.ContextCompat
import androidx.recyclerview.widget.LinearLayoutManager
import androidx.recyclerview.widget.RecyclerView
```

```
class MainActivity : AppCompatActivity() {
```

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```
override fun onCreate(savedInstanceState: Bundle?) {  
    super.onCreate(savedInstanceState)  
    setContentView(R.layout.activity_main)
```

```
    val btn = findViewById<Button>(R.id.button) val textView  
    = findViewById<TextView>(R.id.textView)
```

```
    btn.setOnClickListener({  
        if (ContextCompat.checkSelfPermission( this,  
            Manifest.permission.READ_CONTACTS ) !=  
            PackageManager.PERMISSION_GRANTED ) {  
            ActivityCompat.requestPermissions( this,  
                arrayOf(Manifest.permission.READ_CONTACTS), 1  
            )  
        } else {  
            textView.text = readContacts()  
        }  
    })  
}
```

```
@SuppressWarnings("Range")  
fun readContacts(): String {
```

```
    var NumberList = ""
```

```
    val cursor = contentResolver.query(  
        ContactsContract.CommonDataKinds.Phone.CONTENT_URI, null,  
        null,  
        null,  
        ContactsContract.CommonDataKinds.Phone.DISPLAY_NAME + " ASC" )
```

```
    if (cursor != null && cursor.moveToFirst()) {  
        do {  
            val name =
```

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```
cursor.getString(cursor.getColumnIndex(ContactsContract.CommonDataKinds.Phone.DISPLAY_NAME))
```

```
val phoneNumber =
```

```
cursor.getString(cursor.getColumnIndex(ContactsContract.CommonDataKinds.Phone.NUMBER))
```

```
// contacts.add(Contact(name, phoneNumber))
```

```
//
```

```
NumberList += "Name :- ${name} \nNumber :- ${phoneNumber} \n\n" } while  
(cursor.moveToNext())
```

```
cursor.close()
```

```
} else {
```

```
Toast.makeText(this, "No contacts found", Toast.LENGTH_SHORT).show() }
```

```
return NumberList;
```

```
}
```

```
}
```

```
data class Contact(val name: String, val phoneNumber: String)
```

activity_main.xml

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

```
<androidx.constraintlayout.widget.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">
```

```
<Button
```

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

```
android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"
```

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```
android:layout_marginTop="100dp"
android:text="Phone Number List"
android:textAllCaps="false"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

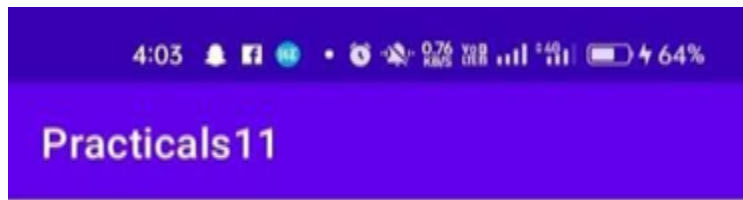
```
<TextView
android:id="@+id/textView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="50dp"
android:text="TextView"
android:textSize="22dp"
android:textStyle="bold"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf=
"parent"
app:layout_constraintTop_toBottomOf=
"@+id/button" />
</androidx.constraintlayout.widget.
ConstraintLayout>
```

OUTPUT:-

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Phone Number List

12. Create an android application using Kotlin, to parse a JSON file, having Employee details like EmpNo, EmpName, EmpDesignation, EmpSalary and display the details on the applications UI. Store minimum of 8 records.

MainActivity.kt

```
package com.example.practicals12

import android.annotation.SuppressLint
import android.content.Context
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import android.widget.Toast

import androidx.appcompat.app.AppCompatActivity
import org.json.JSONArray
import org.json.JSONObject

import java.io.IOException
import java.io.InputStream
```

MOBILE APPLICATION DEVELOPMENT USING ANDROID

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```
class MainActivity : AppCompatActivity() {

    @SuppressWarnings("SetTextI18n")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val btn = findViewById<Button>(R.id.button)
        val textView = findViewById<TextView>(R.id.textView)

        btn.setOnClickListener {
            val jsonArray = ArrayList(parseJSON(loadJSONFromAsset().toString())) var
            data = ""

            for (value in jsonArray) {
                // print(value.empName)

                data += "No :- " + value.empNo +
                    "\nName :- " + value.empNo +
                    "\nEmpDesignation :- " + value.empDesignation +
                    "\nEmpSalary :- " + value.empSalary + "\n\n" }

            textView.text = data
        };
    }

    fun loadJSONFromAsset(): String? {

        var json: String? = null

        try {
```

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NAME :- POKAR BHAVIK

```
val inputStream: InputStream = assets.open("employees.json") val
size: Int = inputStream.available()

val buffer = ByteArray(size)
inputStream.read(buffer)
inputStream.close()

print(buffer.toString(Charsets.UTF_8))
json = buffer.toString(Charsets.UTF_8)
return buffer.toString(Charsets.UTF_8);
```

```
} catch (e: IOException) {
    e.printStackTrace()
    return "";
}
}
```

```
fun parseJSON(json: String): MutableList<Employee> {
    val employees = mutableListOf<Employee>()

    try {
        val jsonArray = JSONArray(json)
        for (i in 0 until jsonArray.length()) {
            val jsonObject = jsonArray.getJSONObject(i)
            val empNo = jsonObject.getInt("EmpNo")
            val empName = jsonObject.getString("EmpName")
            val empDesignation = jsonObject.getString("EmpDesignation") val
            empSalary = jsonObject.getInt("EmpSalary")

            val employee = Employee(empNo, empName, empDesignation, empSalary)
```

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```
employees.add(employee)

}

} catch (e: Exception) {

    e.printStackTrace()

}

return employees

}

}
```

```
data class Employee(

    val empNo: Int,

    val empName: String,

    val empDesignation: String,

    val empSalary: Int

)
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.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">

    <Button

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


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```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:text="Json Read"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

```
<TextView
android:id="@+id/textView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:text="TextView"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/button" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Employees.json

```
[
{
  "EmpNo": 1,
  "EmpName": "John Doe",
  "EmpDesignation": "Software Engineer",
  "EmpSalary": 50000
},
{
  "EmpNo": 2,
```

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```
"EmpName": "Jane Smith",
"EmpDesignation": "UI Designer",
"EmpSalary": 45000
},
{
"EmpNo": 3,
"EmpName": "Bob Johnson",
"EmpDesignation": "Project Manager",
"EmpSalary": 60000
},
{
"EmpNo": 4,
"EmpName": "Alice Brown",
"EmpDesignation": "Business Analyst",
"EmpSalary": 55000
},
{
"EmpNo": 5,
"EmpName": "Tom Wilson",
"EmpDesignation": "QA Engineer",
"EmpSalary": 40000
},
```

7 {

```
"EmpNo": 6,
"EmpName": "Sara Lee",
"EmpDesignation": "Marketing Manager",
"EmpSalary": 65000
},
{
"EmpNo": 7,
"EmpName": "Mike Johnson",
"EmpDesignation": "System Administrator",
"EmpSalary": 45000
},
{
"EmpNo": 8,
"EmpName": "Emily Davis",
"EmpDesignation": "HR Manager",
"EmpSalary": 55000
```

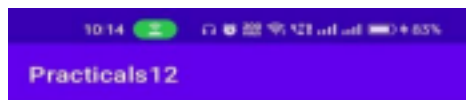
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```
}  
]
```

OUTPUT:-



JSON READ

```
[Employee(empNo=1, empName=John  
Doe, empDesignation=Software Engineer,  
empSalary=50000), Employee(empNo=2,  
empName=Jane Smith, empDesignation=UI  
Designer, empSalary=45000), Employee(empNo=3,  
empName=Bob Johnson, empDesignation=Project  
Manager, empSalary=60000), Employee(empNo=4,  
empName=Alice Brown, empDesignation=Business  
Analyst, empSalary=55000), Employee(empNo=5,  
empName=Tom Wilson, empDesignation=QA  
Engineer, empSalary=40000), Employee(empNo=6,  
empName=Sans Lee, empDesignation=Marketing  
Manager, empSalary=65000), Employee(empNo=7,  
empName=Mike Johnson, empDesignation=System  
Administrator, empSalary=45000), Employee(empNo=8,  
empName=Emily Davis, empDesignation=HR Manager,  
empSalary=55000)]
```

13. Create an android application using Kotlin, to parse a XML file, having Users details like User Id, User Name & User Email and display the details on the applications UI. Store minimum of 8 records.

MainActivity.kt

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```
package com.example.practicals13

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import org.xmlpull.v1.XmlPullParser

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val btn = findViewById<Button>(R.id.button)
        val textView = findViewById<TextView>(R.id.textView )

        btn.setOnClickListener({
            val xmlArray = ArrayList(parseUsers())
            var data = ""
            for (value in xmlArray) {
                // print(value.empName)
                data += "Id :- " + value.id +
                    "\nName :- " + value.name +
                    "\nEmail :- " + value.email + "\n\n"
            }
            textView.text = data
        })
    }
}
```

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```
}
```

```
private fun parseUsers(): List<User> {  
    val users = mutableListOf<User>()  
    val xmlResourceParser = resources.getXml(R.xml.users)  
    var eventType = xmlResourceParser.eventType  
    while (eventType != XmlPullParser.END_DOCUMENT) {  
        if (eventType == XmlPullParser.START_TAG && xmlResourceParser.name == "user")  
        {  
            var id = 0  
            var name = ""  
            var email = ""  
  
            while (eventType != XmlPullParser.END_TAG || xmlResourceParser.name != "user") {  
                if (eventType == XmlPullParser.START_TAG && xmlResourceParser.name == "id") {  
                    id = xmlResourceParser.nextText().toInt()  
                } else if (eventType == XmlPullParser.START_TAG &&  
xmlResourceParser.name == "name") {  
                    name = xmlResourceParser.nextText()  
                } else if (eventType == XmlPullParser.START_TAG &&  
xmlResourceParser.name == "email") {  
                    email = xmlResourceParser.nextText() }  
                eventType = xmlResourceParser.next() }  
            val user = User(id, name, email)  
            users.add(user)  
        }  
        eventType = xmlResourceParser.next()
```

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```
}  
  
return users  
  
}  
  
}
```

```
data class User(val id: Int, val name: String, val email: String)
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
  
<androidx.constraintlayout.widget.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">  
<TextView  
  
android:id="@+id/textView"  
  
android:layout_width="wrap_content"  
  
android:layout_height="wrap_content"  
  
android:layout_marginTop="20dp"  
  
android:text="Text View"  
  
app:layout_constraintEnd_toEndOf="parent"  
  
app:layout_constraintStart_toStartOf="parent"  
  
app:layout_constraintTop_toBottomOf="@+id/button" />
```

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```
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="61dp"
android:text="Read Xml"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

User.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<users>
<user>

<id>1</id>

<name>John Doe</name>

<email>john.doe@example.com</email>

</user>

<user>

<id>2</id>

<name>Jane Smith</name>

<email>jane.smith@example.com</email>

</user>

<user>
```

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```
<id>3</id>
<name>Bob Johnson</name>
<email>bob.johnson@example.com</email>
</user>
</users>
```

OUTPUT:-



14. Create an android application using Kotlin, to integrate with Firebase and implement its realtime database feature along with authentication. Note: Reuse the application created in

MainActivity.kt

```
package com.example.practicals9
```

```
import android.content.Intent
```


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```
import androidx.appcompat.app.AppCompatActivity import
android.os.Bundle
```

```
class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val intent = Intent(this,Login::class.java)
        startActivity(intent)
    }
}
```

Login.kt

```
package com.example.practicals9
```

```
import android.content.Intent
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity import
```

```
com.google.firebase.auth.FirebaseAuth
```

```
class Login : AppCompatActivity() {
```

```
    override fun onCreate(savedInstanceState: Bundle?) { super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_login)
```

```
        val btn = findViewById<Button>(R.id.button)
```

```
        val username = findViewById<EditText>(R.id.editTextTextPersonName) val password =
        findViewById<EditText>(R.id.editTextTextPassword)
```

```
        val mAuth = FirebaseAuth.getInstance()
```

```
        btn.setOnClickListener{
```

```
            if (username.text.isBlank() || username.text.isEmpty()) {
                Toast.makeText(this, "Places Enter Username...",
```

```
                Toast.LENGTH_LONG).show()
```

```
            } else if (password.text.isBlank() || password.text.isEmpty()) {
                Toast.makeText(this, "Places Enter Password...",
```

```
                Toast.LENGTH_LONG).show()
```

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```
    }

    else {

        // mAuth.signInWithEmailAndPassword(username.text.toString(), password.text.toString())

        mAuth.signInWithEmailAndPassword(username.text.toString(),
        password.text.toString())
            .addOnCompleteListener(this) { task ->
                if (task.isSuccessful) {
                    Toast.makeText(this, "Successfully Login...",
                    Toast.LENGTH_LONG).show()
                    val intent = Intent(this,Dashboard::class.java) startActivity(intent)
                }
                else {
                    Toast.makeText( this,"Username Or Password In-valid...", Toast.LENGTH_LONG).show()

                }

            }

        }

    })

}

}
```

Dashboard.kt

```
package com.example.practicals9
```

```
import android.annotation.SuppressLint
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import android.widget.Toast
import androidx.appcompat.app.AppCompatActivity import
com.google.firebase.auth.FirebaseAuth
```

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```
import com.google.firebase.database.FirebaseDatabase

class Dashboard : AppCompatActivity() { @SuppressWarnings("MissingInflatedId")

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_dashboard)

        val mAuth = FirebaseAuth.getInstance()

        val textView = findViewById<TextView>(R.id.textView2) val btn =
        findViewById<Button>(R.id.button2) textView.text =
        mAuth.currentUser?.email.toString() btn.setOnClickListener ({
            val database = FirebaseDatabase.getInstance() val

            myRef=database.getReference("Users/${FirebaseAu

            th.getInstance().currentUser?.uid}")

            myRef.child("Email").setValue(FirebaseAuth.getInst

            ance().currentUser?.email)

            Toast.makeText( this,"Successfully Save Email In Real-Time Database...", Toast.LENGTH_LONG

            ).show()

        })

    }

}
```

Activity_main.xml

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

<androidx.constraintlayout.widget.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"
```

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```
android:layout_height="match_parent"
tools:context=".MainActivity">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="paren
t" app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_login.xml

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

<androidx.constraintlayout.widget.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=".Login">
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="100dp"
        android:text="Login" android:textSize="40dp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" />

    <EditText android:id="@+id/editTextTextPersonName"

        android:layout_width="320dp"

        android:layout_height="wrap_content"

        android:layout_marginTop="80dp" android:ems="10"

        android:hint="Email" android:inputType="textPersonName"
        android:minHeight="48dp"
        app:layout_constraintEnd_toEndOf="parent"
```

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```
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView" />
<EditText
    android:id="@+id/editTextTextPassword"
    android:layout_width="320dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="50dp"
    android:ems="10" android:hint="Password"
    android:inputType="textPassword"
    android:minHeight="48dp"

app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100dp"
    android:text="Login"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPassword" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Activity_dashboard.xml

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

<androidx.constraintlayout.widget.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=".Dashboard">

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="100dp" android:text="TextView"
```

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```
android:textSize="30sp" android:textStyle="bold"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="200dp"
    android:text="Write Data In Firebase"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:-

