Rajiv Gandhi University of Knowledge Technologies

Department of Computer Science and Engineering

Mobile Application Development LAB

# EXPERIMENTS

1.LAB-1: Develop an application for login page with username and password, setting parent activity

Steps:

1. Open android studio File-->Ne-->New Project-->choose Empty Activity

2. Give project name(MyLogin) and configure your project

3. Name, PackageName, Save Location Language (Java)

4. Enter the package name
5. Choose the Minimum API Level click **Finish**
6. Go to res folder and select layout. Double click the activity_main.xml file

7. Now you can see the Graphics layout window.

8. Click the activity_main.xml file and type the code below

9. Note: **keep the default code and change necessary code only**

```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">
    <EditText
    android:id="@+id/name"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="195dp"
    android:layout_marginEnd="83dp"
    android:layout_marginRight="83dp"
    android:ems="10"
    android:inputType="textPersonName"
    android:textColor="@color/colorAccent"
    android:hint="Enter Name"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```
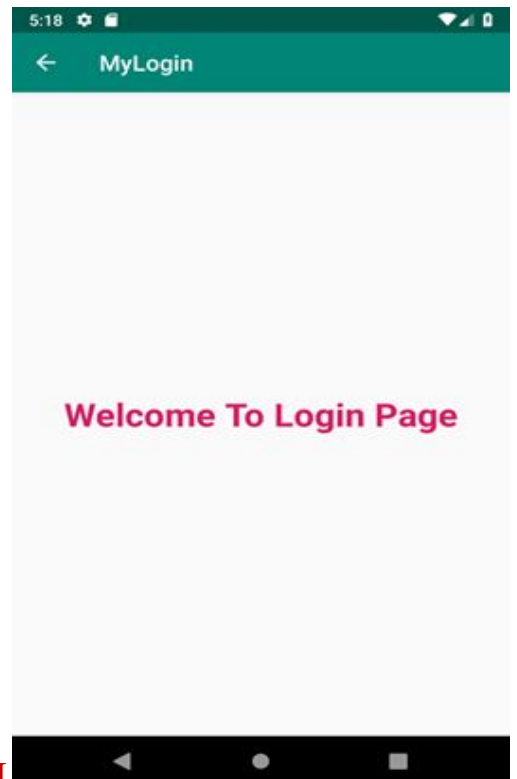
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```xml
    <EditText
    android:id="@+id/password"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="15dp"
    android:ems="10"
    android:hint="Enter Password"
    android:inputType="textPassword"
    android:textColor="@color/colorAccent"
    app:layout_constraintStart_toStartOf="@+id/name"
app:layout_constraintTop_toBottomOf="@+id/name" />
    <Button
    android:id="@+id/login"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="24sp"
    android:layout_marginBottom="407dp"
    android:text="Login"
    android:onClick="userLogin"
    app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toBottomOf="@+id/password"
app:layout_constraintHorizontal_bias="0.467"
    app:layout_constraintVertical_bias="0.111" />

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

1. Go to project explorer and select java \ MainActivity.java (keep the default code and change accordingly
) and type the following code

```java
package com.bhuvan.mylogin;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText name,pass;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    name=findViewById(R.id.name);
    pass=findViewById(R.id.password);
    }
    public void userLogin(View view) {
    String userName=name.getText().toString();
    String password=pass.getText().toString();
    Toast.makeText(this, "Logged in Successfully", Toast.LENGTH_SHORT).show();
    if(userName.equals("bhuvan") && password.equals("bhuvan")){
    Toast.makeText(this, "Logged in Successfully", Toast.LENGTH_SHORT).show();
    Intent SecondIntent= new Intent(this,second.class);
    startActivity(SecondIntent);
    }else{
    Toast.makeText(this, "Enter user name and password correctly", Toast.LENGTH_SHORT).show();
    }
    }
}
```

3.   Now create second.java class with activity_second
steps: right-click on java folder→New→Activity→Empty Activity
give Activity Name as second check generate the layout, layout name activity_second click finish
add TextView element in activity_second.xml with **android:text="Welcome To Login Page"**
4. keep default code in second.java file
5.   RUN the application and supply username and password you will get Welcome page
 7. Add following code in AndroidManifest.xml file
To move to parent activity (i.e MainActivity.java)
<activity android:name=".second"
        android:parentActivityName=".MainActivity"
        >

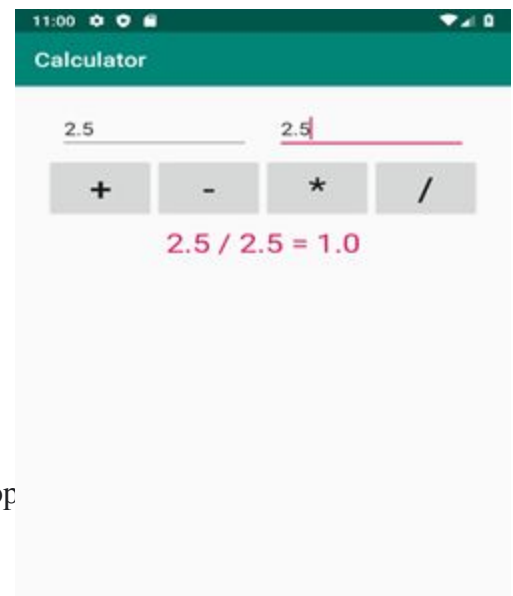# 2.LAB-2 Develop a native calculator application

Steps:

1) Open android studio File-->New-->New Project-->choose Empty Activity

2) Give a project name(Calculator) and configure your project

3) Name, PackageName, Save Location Language (Java)

4)   Enter the package name
5) Choose the Minimum API Level click **Finish**

6) Go to res folder and select layout. Double click the activity_main.xml file

7) Now you can see the Graphics layout window.

8) Click the activity_main.xml file and type the code below

Note: **keep the default code and change necessary code only**

```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:padding="15dp"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/linearLayout1"
    android:layout_marginLeft="10pt"
    android:layout_marginRight="10pt"
    android:layout_marginTop="3pt">

    <EditText
    android:layout_weight="1"
    android:layout_height="wrap_content"
    android:layout_marginRight="5pt"
    android:id="@+id/etNum1"
    android:layout_width="match_parent"
    android:inputType="numberDecimal"/>
    <EditText
    android:layout_height="wrap_content"
    android:layout_weight="1"
```

```xml
        android:layout_marginLeft="5pt"
        android:id="@+id/etNum2"
        android:layout_width="match_parent"

        android:inputType="numberDecimal"/>
</LinearLayout>

<LinearLayout
android:layout_height="wrap_content"
android:id="@+id/linearLayout2"
android:layout_marginTop="3pt"
android:layout_marginLeft="5pt"
android:layout_marginRight="5pt"
android:layout_width="match_parent">
<Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="+"
        android:textSize="15pt"
        android:id="@+id/btnAdd"
        />
<Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="-"
        android:textSize="15pt"
        android:id="@+id/btnSub"/>
<Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="*"
        android:textSize="15pt"
        android:id="@+id/btnMult"/>
<Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="/"
        android:textSize="15pt"
    android:id="@+id/btnDiv"/>

</LinearLayout>
```

```xml
<TextView
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt"
    android:textSize="12pt"
    android:layout_marginTop="3pt"
    android:id="@+id/tvResult"
    android:gravity="center_horizontal"
    android:textColor="@color/colorAccent"
    />
</LinearLayout>
```

In MainActivity.java
```java
package com.bhuvan.calculator;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
// step 1 : implements View.OnClickListener
// with the error implements onClick method
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    // declare variables
    EditText input1,input2;
    Button addition,subtraction,multiplication,division;
    TextView tvResult;
    String oper = "";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    input1 = (EditText) findViewById(R.id.etNum1);
    input2 = (EditText) findViewById(R.id.etNum2);
    addition = (Button) findViewById(R.id.btnAdd);
    subtraction = (Button) findViewById(R.id.btnSub);
    multiplication = (Button) findViewById(R.id.btnMult);
    division = (Button) findViewById(R.id.btnDiv);
    tvResult = (TextView) findViewById(R.id.tvResult);
    // set a listener
    addition.setOnClickListener(this);
    subtraction.setOnClickListener(this);
```

```java
        multiplication.setOnClickListener(this);
        division.setOnClickListener(this);
        }

        @Override
        public void onClick(View v) {
        float num1 = 0; float num2 = 0; float result = 0;
// check if the fields are empty
            if (TextUtils.isEmpty(input1.getText().toString())
                    || TextUtils.isEmpty(input2.getText().toString())) {
        return;
        }
//read EditText and fill variables with numbers
num1=Float.parseFloat(input1.getText().toString());
num2=Float.parseFloat(input2.getText().toString());
// defines the button that has been clicked and performs the corresponding operation
// write operation into oper, we will use it later for output
        switch (v.getId()) { case R.id.btnAdd:
         oper = "+";
        result = num1 + num2; break;
        case R.id.btnSub: oper = "-";
                result = num1 - num2; break;
        case R.id.btnMult: oper = "*";
                result = num1 * num2; break;
        case R.id.btnDiv: oper = "/";
                result = num1 / num2; break;
        default:
                break;
        }
        // form the output line
        tvResult.setText(num1 + " " + oper + " " + num2 + " = " + result);
        }
}
```

3.LAB-3: Implicit intents

In this LAB ImplicitIntents app demonstrates the use of implicit intents for starting activities. It contains three buttons for sending implicit intents:

Open a URL in a browser.

Find a location on a map.

Share a text string

Steps:

1) Open android studio File-->New-->New Project-->choose Empty Activity

2) Give a project name(Implicit intents)and configure your project

3) Name, PackageName, Save Location Language (Java)

4) Enter the package name

5) Choose the Minimum API Level click **Finish**

6) Go to res folder and select layout. Double click the activity_main.xml file

7) Now you can see the Graphics layout window.

8) Click the activity_main.xml file and type the code below

Note: **keep the default code and change necessary code only**

```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:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/website_edittext"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/edittext_uri"/>

    <Button
        android:id="@+id/open_website_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="24dp"
        android:text="@string/button_uri"
        android:onClick="openWebsite"/>
```
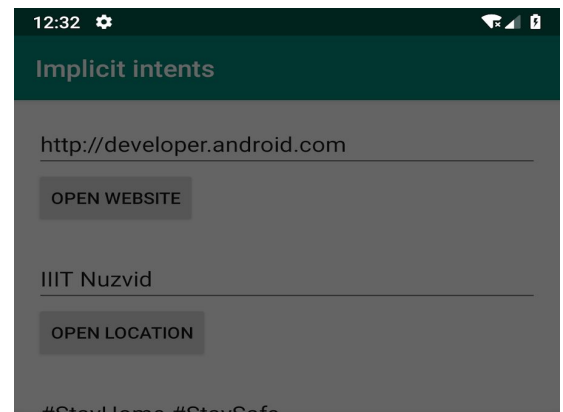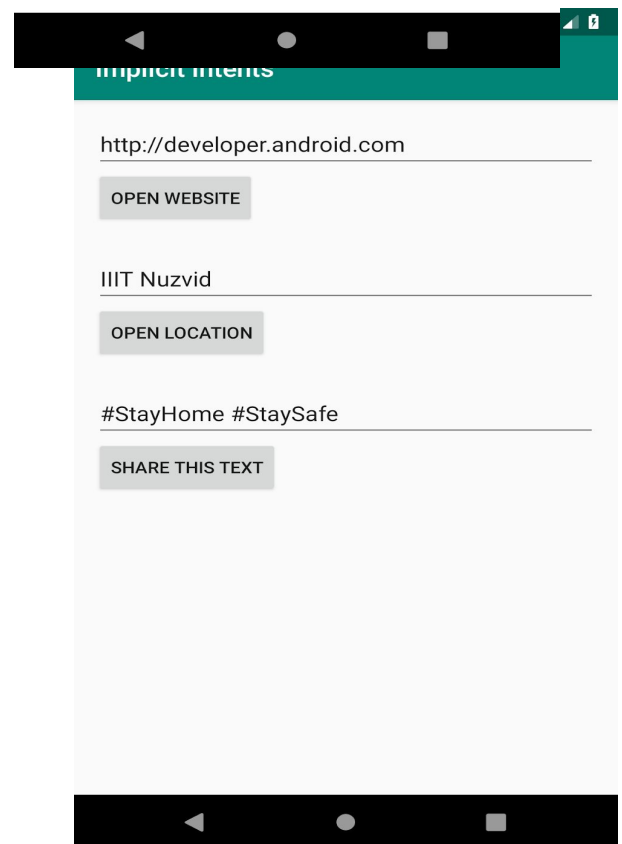
```xml
<EditText
    android:id="@+id/location_edittext"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/edittext_loc"/>

<Button
    android:id="@+id/open_location_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="24dp"
    android:text="@string/button_loc"
    android:onClick="openLocation"/>

<EditText
    android:id="@+id/share_edittext"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/edittext_share"/>

<Button
    android:id="@+id/share_text_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="24dp"
    android:text="@string/button_share"
    android:onClick="shareText"/>

</LinearLayout>
```

In res\values\strings.xml

```xml
<resources>
    <string name="app_name">Implicit intents</string>
    <string name="edittext_uri">http://developer.android.com</string>
    <string name="button_uri">Open Website</string>
<string name="edittext_loc">RGUKT Nuzvid</string>
    <string name="button_loc">Open Location</string>
    <string name="edittext_share">\'Stay Home Stay Safe </string>
    <string name="button_share">Share This Text</string>
    <string name="share_text_with">Share this text with:</string>
    </resources>
```

In MainActivity.java

```java
package com.bhuvan.implicitintents;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ShareCompat;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    private EditText mWebsiteEditText;
    private EditText mLocationEditText;
    private EditText mShareTextEditText;

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

        mWebsiteEditText = findViewById(R.id.website_edittext);
        mLocationEditText = findViewById(R.id.location_edittext);
        mShareTextEditText = findViewById(R.id.share_edittext);
    }

    /**
     * Handles the onClick for the "Open Website" button. Gets the URI
     * from the edit text and sends an implicit intent for that URL
     */
    public void openWebsite(View view) {
        // Get the URL text.
        String url = mWebsiteEditText.getText().toString();

        // Parse the URI and create the intent.
        Uri webpage = Uri.parse(url);
        Intent intent = new Intent(Intent.ACTION_VIEW, webpage);

        // Find an activity to hand the intent and start that activity.
        if (intent.resolveActivity(getPackageManager()) != null) {
            startActivity(intent);
        } else {
            Log.d("ImplicitIntents", "Can't handle this!");
        }
```

```java
    }

    /**
     * Handles the onClick for the "Open Location" button. Gets the location
     * text from the edit text and sends an implicit intent for that location.
     *
     * The location text can be any searchable geographic location.
     */
    public void openLocation(View view) {
        // Get the string indicating a location. Input is not validated; it is
        // passed to the location handler intact.
        String loc = mLocationEditText.getText().toString();
        // Parse the location and create the intent.
        Uri addressUri = Uri.parse("geo:0,0?q=" + loc);
        Intent intent = new Intent(Intent.ACTION_VIEW, addressUri);
        // Find an activity to handle the intent, and start that activity.
        if (intent.resolveActivity(getPackageManager()) != null) {
            startActivity(intent);
        } else {
            Log.d("ImplicitIntents", "Can't handle this intent!");
        }
    }
    /**
     * Handles the onClick for the "Share This Text" button. The
     * implicit intent here is created by the  {@link ShareCompat.IntentBuilder}
     * class. An app chooser appears with the available options for sharing.
     * ShareCompat.IntentBuilder is from the v4 Support Library.
     */
    public void shareText(View view) {
        String txt = mShareTextEditText.getText().toString();
        String mimeType = "text/plain";
        ShareCompat.IntentBuilder
            .from(this)
            .setType(mimeType)
            .setChooserTitle(R.string.share_text_with)
            .setText(txt)
            .startChooser();
    }
}
```

4.LAB-4 Implement an application that creates an alert and toast upon receiving a message?

Steps:

1) Open android studio File-->Ne-->New Project-->choose Empty Activity

2) Give a project name(MyAlert) and configure your project

3) Name, PackageName, Save Location Language (Java)

4) Enter the package name
5) Choose the Minimum API Level click **Finish**

6) Go to res folder and select layout. Double click the activity_main.xml file

7) Now you can see the Graphics layout window.

8) Click the activity_main.xml file and type the code below

Note: **keep the default code and change necessary code only**
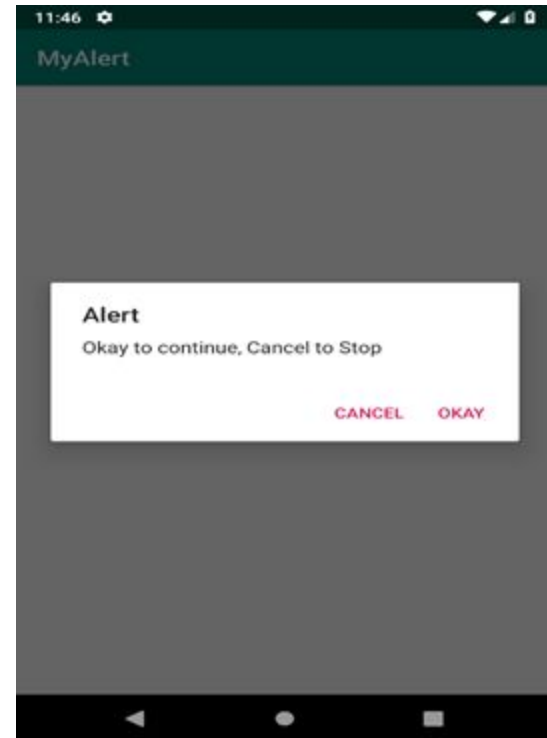
```xml
<?xml version="1.0" encoding="utf-8"?>

<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:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Alert"
    android:onClick="dialogAlert"
    android:textColor="@color/colorAccent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"

    app:layout_constraintRight_toRightOf="parent"
```

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```
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

In MainActivity.java
package com.bhuvan.myalert;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {

        @Override
        protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        }
        public void dialogAlert(View view) {
        // create myalert object from Builder class
        AlertDialog.Builder myalert =    new AlertDialog.Builder(MainActivity.this);
        // setting title name
        myalert.setTitle("Alert");
        // setting message
        myalert.setMessage("Okay to continue, Cancel to Stop");
        // in setPositiveButton positive button_name and OnClickListener
        myalert.setPositiveButton("Okay", new DialogInterface.OnClickListener() {

        @Override
        public void onClick(DialogInterface dialog, int which) {
                Toast.makeText(MainActivity.this, "Clicked okay",
                Toast.LENGTH_SHORT).show();
        }

        });
        myalert.setNegativeButton("cancel", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {
                Toast.makeText(MainActivity.this, "clicked on Cancel",  Toast.LENGTH_SHORT).show();
        }
        });
// show alert
        myalert.show(); } }
```

5. LAB-5 Droid Cafe Input

This app demonstrates images used as buttons and a floating action button to use an intent to launch a second activity. The app lets a user tap an image to make a choice. The app displays a Toast message showing the user's choice.

Steps:

1) Open android studio File-->New-->New Project-->choose **Basic Activity**

2) Give a project name(Droid Cafe Input) and configure your project

3) Name, PackageName, Save Location Language (Java)

4) Enter the package name
5) Choose the Minimum API Level click **Finish**

6) Go to the res folder and select layout. Double click the content_main.xml file

7) Now you can see the Graphics layout window.

8) Click the content_main.xml file and type the code below

Note: **keep the default code and change necessary code only**

```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"
    app:layout_behavior="@string/appbar_scrolling_view_behavior"
    tools:context="com.example.android.droidcafe.MainActivity"
    tools:showIn="@layout/activity_main">

    <TextView
        android:id="@+id/textintro"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:text="@string/intro_text"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
```

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

<ImageView
    android:id="@+id/donut"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="24dp"
    android:layout_marginStart="24dp"
    android:layout_marginTop="24dp"
    android:contentDescription="@string/donuts"
    android:onClick="showDonutOrder"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textintro"
    app:srcCompat="@drawable/donut_circle" />

<ImageView
    android:id="@+id/ice_cream"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="24dp"
    android:layout_marginStart="24dp"
    android:layout_marginTop="24dp"
    android:contentDescription="@string/ice_cream_sandwiches"
    android:onClick="showIceCreamOrder"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/donut"
    app:srcCompat="@drawable/icecream_circle" />

<ImageView
    android:id="@+id/froyo"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="24dp"
    android:layout_marginStart="24dp"
    android:layout_marginTop="24dp"
    android:contentDescription="@string/froyo"
    android:onClick="showFroyoOrder"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/ice_cream"
    app:srcCompat="@drawable/froyo_circle" />

<TextView
    android:id="@+id/donut_description"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
```
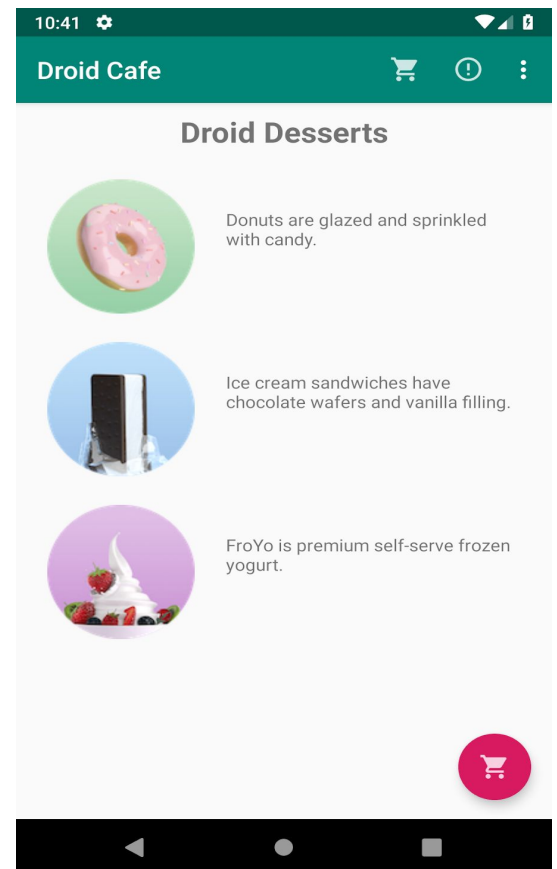
```xml
        android:layout_marginEnd="24dp"
        android:layout_marginStart="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/donuts"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/donut"
        app:layout_constraintTop_toTopOf="@+id/donut" />

    <TextView
        android:id="@+id/ice_cream_description"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginEnd="24dp"
        android:layout_marginStart="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/ice_cream_sandwiches"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/ice_cream"
        app:layout_constraintTop_toTopOf="@+id/ice_cream" />

    <TextView
        android:id="@+id/froyo_description"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginEnd="24dp"
        android:layout_marginStart="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/froyo"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/froyo"
        app:layout_constraintTop_toTopOf="@+id/froyo" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

In MainActivity.java

```java
package com.example.android.droidcafe;

import android.content.Intent;
import android.os.Bundle;
import com.google.android.material.floatingactionbutton.FloatingActionButton;
import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.Toolbar;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
```

```java
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {

    // Tag for the intent extra.
    public static final String EXTRA_MESSAGE =
            "com.example.android.droidcafe.extra.MESSAGE";

    // The order message, displayed in the Toast and sent to the new Activity.
    private String mOrderMessage;

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

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

        FloatingActionButton fab = findViewById(R.id.fab);
        fab.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(MainActivity.this,
                        OrderActivity.class);
                intent.putExtra(EXTRA_MESSAGE, mOrderMessage);
                startActivity(intent);
            }
        });
    }

    /**
     * Inflates the menu, and adds items to the action bar if it is present.
     *
     * @param menu Menu to inflate.
     * @return Returns true if the menu inflated.
     */
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }

    /**
     * Handles app bar item clicks.
```

```java
 *
 * @param item Item clicked.
 * @return True if one of the defined items was clicked.
 */
@Override
public boolean onOptionsItemSelected(MenuItem item) {
    switch (item.getItemId()) {
        case R.id.action_order:
            displayToast(getString(R.string.action_order_message));
            Intent intent = new Intent(MainActivity.this,
                    OrderActivity.class);
            intent.putExtra(EXTRA_MESSAGE, mOrderMessage);
            startActivity(intent);
            return true;

        case R.id.action_status:
            displayToast(getString(R.string.action_status_message));
            return true;
        case R.id.action_favorites:
            displayToast(getString(R.string.action_favorites_message));
            return true;
        case R.id.action_contact:
            displayToast(getString(R.string.action_contact_message));
            return true;
        default:
            // Do nothing
    }
    return super.onOptionsItemSelected(item);
}

/**
 * Displays a Toast with the message.
 *
 * @param message Message to display
 */
public void displayToast(String message) {
    Toast.makeText(getApplicationContext(), message,
            Toast.LENGTH_SHORT).show();
}

/**
 * Shows a message that the donut image was clicked.
 */
public void showDonutOrder(View view) {
    mOrderMessage = getString(R.string.donut_order_message);
```

```java
        displayToast(mOrderMessage);
    }

    /**
     * Shows a message that the ice cream sandwich image was clicked.
     */
    public void showIceCreamOrder(View view) {
        mOrderMessage = getString(R.string.ice_cream_order_message);
        displayToast(mOrderMessage);
    }

    /**
     * Shows a message that the froyo image was clicked.
     */
    public void showFroyoOrder(View view) {
        mOrderMessage = getString(R.string.froyo_order_message);
        displayToast(mOrderMessage);
    }

}
```

10) create OrderActivity with activity_order.xml

In activity_order.xml
```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="com.example.android.droidcafe.OrderActivity">

    <TextView
        android:id="@+id/order_textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/order_label_text"
        android:textSize="18sp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <TextView
```

```xml
        android:id="@+id/name_label"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/name_label_text"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/order_textview" />

    <EditText
        android:id="@+id/name_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="@string/enter_name_hint"

app:layout_constraintBaseline_toBaselineOf="@id/name_label"
        app:layout_constraintStart_toEndOf="@id/name_label"
        />
    <TextView
        android:id="@+id/address_label"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/address_label_text"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/name_label"
        />

    <EditText
        android:id="@+id/address_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:ems="10"
        android:gravity="start|top"
        android:inputType="textMultiLine"
        android:hint="@string/enter_address_hint"
```

```xml
            app:layout_constraintBaseline_toBaselineOf="@id/address_label"
            app:layout_constraintStart_toEndOf="@id/address_label"
            />
<TextView
    android:id="@+id/phone_label"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="24dp"
    android:layout_marginLeft="24dp"
    android:layout_marginTop="24dp"
    android:text="@string/phone_label_text"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/address_text"
    />
    <EditText
        android:id="@+id/phone_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:ems="10"
        android:inputType="phone"
        android:hint="@string/enter_phone_hint"
        app:layout_constraintBaseline_toBaselineOf="@id/phone_label"
        app:layout_constraintStart_toEndOf="@id/phone_label"
            />
    <TextView
        android:id="@+id/note_label"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/note_label_text"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/phone_label"
        />

    <EditText
        android:id="@+id/note_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:ems="10"
```

```xml
        android:inputType="textMultiLine|textCapSentences"
        android:hint="@string/enter_note_hint"
        app:layout_constraintBaseline_toBaselineOf="@id/note_label"
        app:layout_constraintStart_toEndOf="@id/note_label"
/>
  <TextView
        android:id="@+id/delivery_label"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="24dp"
        android:layout_marginLeft="24dp"
        android:layout_marginTop="24dp"
        android:text="@string/choose_delivery_method"
        android:textSize="18sp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/note_text"
        />

  <RadioGroup
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="24dp"
        android:layout_marginStart="24dp"
        android:orientation="vertical"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/delivery_label">
        <RadioButton
          android:id="@+id/sameday"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
          android:onClick="onRadioButtonClicked"
          android:text="@string/same_day_messenger_service" />

        <RadioButton
          android:id="@+id/nextday"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
          android:checked="true"
          android:onClick="onRadioButtonClicked"
          android:text="@string/next_day_ground_delivery" />

        <RadioButton
          android:id="@+id/pickup"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
```

```xml
        android:onClick="onRadioButtonClicked"
        android:text="@string/pick_up" />
    </RadioGroup>


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

11) in OrderActivity.java

```java
package com.example.android.droidcafe;
import android.content.Intent;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;

import android.view.View;
import android.widget.RadioButton;
import android.widget.TextView;
import android.widget.Toast;
/**
* This activity shows the order chosen.  The order is sent as data
* with the intent to launch this activity.
*/
public class OrderActivity extends AppCompatActivity {

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

    // Get the intent and its data.
    Intent intent = getIntent();
    String message = intent.getStringExtra(MainActivity.EXTRA_MESSAGE);
    TextView textView = findViewById(R.id.order_textview);
    textView.setText(message);
  }
  public void displayToast(String message) {
    Toast.makeText(getApplicationContext(), message,
        Toast.LENGTH_SHORT).show();
  }


  public void onRadioButtonClicked(View view) {
    // Is the button now checked?
    boolean checked = ((RadioButton) view).isChecked();
```

```java
      // Check which radio button was clicked.

      switch (view.getId()) {
          case R.id.sameday:
              if (checked)
                  // Same day service
                  displayToast(getString(R.string.same_day_messenger_service));
              break;
          case R.id.nextday:
              if (checked)
                  // Next day delivery
                  displayToast(getString(R.string.next_day_ground_delivery));
              break;
          case R.id.pickup:
              if (checked)
                  // Pick up
                  displayToast(getString(R.string.pick_up));
              break;
          default:
              // Do nothing.
              break;
      }
  }
}
```

12) in res\menu\menu_main.xml

```xml
<menu
  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"
  tools:context="com.example.android.droidcafe.MainActivity">
  <item
    android:id="@+id/action_contact"
    android:orderInCategory="100"
    android:title="@string/action_contact"
    app:showAsAction="never" />
  <item
    android:id="@+id/action_order"
    android:orderInCategory="1"
    android:title="@string/action_order"
    android:icon="@drawable/ic_action_order"
    app:showAsAction="always" />
  <item
```

```xml
            android:id="@+id/action_status"
            android:orderInCategory="2"
            android:title="@string/action_status"
            android:icon="@drawable/ic_action_status"
            app:showAsAction="always" />
        <item
            android:id="@+id/action_favorites"
            android:orderInCategory="3"
            android:title="@string/action_favorites"
            android:icon="@drawable/ic_action_favorite"
            app:showAsAction="ifRoom" />
    </menu>
```

13) in res\values\strings.xml

```xml
<resources>
    <string name="app_name">Droid Cafe</string>
    <string name="action_settings">Settings</string>
    <string name="intro_text">Droid Desserts</string>
    <string name="donuts">Donuts are glazed and sprinkled with candy.</string>
    <string name="ice_cream_sandwiches">Ice cream sandwiches have chocolate wafers and vanilla filling.</string>
    <string name="froyo">FroYo is premium self-serve frozen yogurt.</string>
    <string name="donut_order_message">You ordered a donut.</string>
    <string name="ice_cream_order_message">You ordered an ice cream sandwich.</string>
    <string name="froyo_order_message">You ordered a FroYo.</string>
    <string name="change_dessert">Change dessert</string>
    <string name="order_label_text">Order</string>
    <string name="name_label_text">Name</string>
    <string name="enter_name_hint">Enter your name</string>
    <string name="address_label_text">Address</string>
    <string name="enter_address_hint">Enter address</string>
    <string name="phone_label_text">Phone</string>
    <string name="enter_phone_hint">Enter phone</string>
    <string name="note_label_text">Note</string>
    <string name="enter_note_hint">Enter note</string>
    <string name="choose_delivery_method">Choose a delivery method:</string>
    <string name="same_day_messenger_service">Same day messenger service</string>
    <string name="next_day_ground_delivery">Next day ground delivery</string>
    <string name="pick_up">Pick up</string>
    <string name="action_contact">Contact</string>
    <string name="action_order">Order</string>
    <string name="action_status">Status</string>
    <string name="action_favorites">Favorites</string>
    <string name="action_order_message">You selected Order.</string>
```

```xml
    <string name="action_status_message">You selected Status.</string>
    <string name="action_favorites_message">You selected Favorites.</string>
    <string name="action_contact_message">You selected Contact.</string>

</resources>
```

14) res\values\styles.xml

```xml
<resources>
    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here. -->
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>

    <style name="AppTheme.NoActionBar">
        <item name="windowActionBar">false</item>
        <item name="windowNoTitle">true</item>
    </style>
    <style name="AppTheme.AppBarOverlay" parent="ThemeOverlay.AppCompat.Dark.ActionBar" />
    <style name="AppTheme.PopupOverlay" parent="ThemeOverlay.AppCompat.Light" />
</resources>
```

Click here to download Image resources

6.LAB-6.1 Services and BroadCast Receivers

Services

1) Open android studio File-->New-->New Project-->choose Empty Activity

2) Give a project name(Services)and configure your project

3) Name, PackageName, Save Location Language (Java)

4) Enter the package name
5) Choose the Minimum API Level click **Finish**

6) Go to res folder and select layout. Double click the activity_main.xml file

7) Now you can see the Graphics layout window.

8) Click the activity_main.xml file and type the code below

Note: **keep the default code and change necessary code only**

```
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:paddingLeft="24dp"
   android:paddingRight="24dp"
   android:paddingTop="24dp"
   android:paddingBottom="24dp" tools:context=".MainActivity">

   <TextView
      android:id="@+id/textView1"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Example of services"
      android:layout_alignParentTop="true"
      android:layout_centerHorizontal="true"
      android:textSize="30dp"
      android:layout_marginBottom="150dp"
   />


   <Button
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/button2"
      android:text="Start Services"
      android:onClick="startService"
      android:layout_below="@+id/textView1"
```
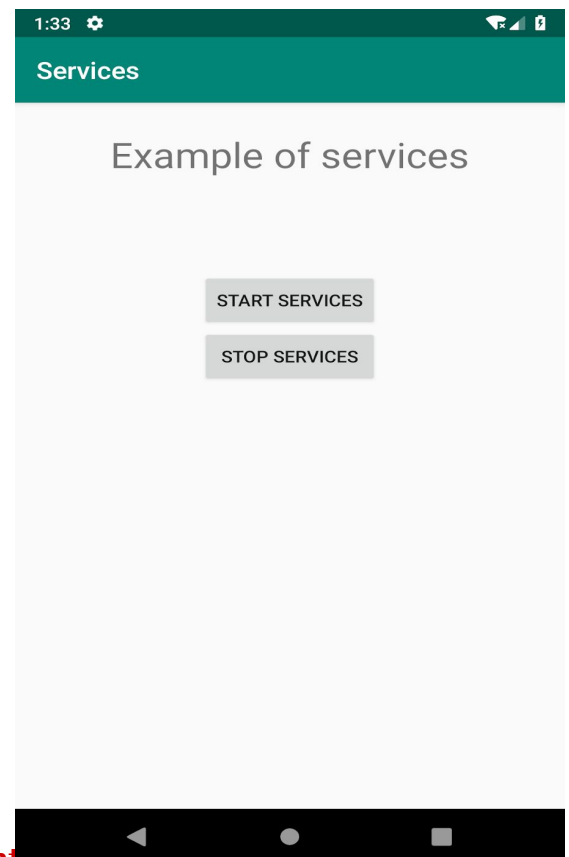
```xml
            android:layout_centerHorizontal="true" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Stop Services"
        android:id="@+id/button"
        android:onClick="stopService"
        android:layout_below="@+id/button2"
        android:layout_alignLeft="@+id/button2"
        android:layout_alignStart="@+id/button2"
        android:layout_alignRight="@+id/button2"
        android:layout_alignEnd="@+id/button2" />

</RelativeLayout>
```

In MainActivity.java

```java
package com.bhuvan.services;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;

public class MainActivity extends AppCompatActivity {
    String msg = "Android : ";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d(msg,"The onCreate() event");
    }

    public void startService(View view) {
        Intent serviceIntent = new Intent(this,MyService.class);
        startService(serviceIntent);

    }

    public void stopService(View view) {
        Intent serviceIntent = new Intent(this,MyService.class);
        stopService(serviceIntent);
```

```
    }
}
```

In MyService.java

Creating MyService class
File-->New-->service-->service

```java
package com.bhuvan.services;

import android.app.Service;
import android.content.Intent;
import android.os.IBinder;
import android.widget.Toast;

// step 1: create MyService class and extends to Service class
// step 2: implements the methods onStartCommand() and onDestroy()
public class MyService extends Service {

    public MyService() {
    }

    @Override
    public IBinder onBind(Intent intent) {
        // TODO: Return the communication channel to the service.
        //throw new UnsupportedOperationException("Not yet implemented");
        return null;
    }

    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {
        // Let it continue running until it is stopped.
        Toast.makeText(this, "Service Started", Toast.LENGTH_LONG).show();
        return START_STICKY;

    }

    @Override
    public void onDestroy() {
        super.onDestroy();
        Toast.makeText(this, "Service Destroyed", Toast.LENGTH_LONG).show();
    }
}
```

6.2 BroadcastPowerReceiver

In activity_main.xml
Add Button
```xml
<Button
  android:layout_width="wrap_content"
  android:layout_height="wrap_content"
  android:text="Send Custom Broadcast"
  android:onClick="sendCustomBroadcast"
  app:layout_constraintBottom_toBottomOf="parent"
  app:layout_constraintLeft_toLeftOf="parent"
  app:layout_constraintRight_toRightOf="parent"
  app:layout_constraintTop_toTopOf="parent" />
```

In MainActivity.java

```java
package com.bhuvan.broadcastpowerreceiver;
import androidx.appcompat.app.AppCompatActivity;
import androidx.localbroadcastmanager.content.LocalBroadcastManager;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.view.View;

import com.MyReceiver;
public class MainActivity extends AppCompatActivity {
  private MyReceiver myReceiver = new MyReceiver();
  private static String ACTION_CUSTOM_BROADCAST=
      BuildConfig.APPLICATION_ID+".CUSTOM_MESSAGE_BROADCAST";
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    IntentFilter intentFilter = new IntentFilter();
    intentFilter.addAction(Intent.ACTION_POWER_CONNECTED);
    intentFilter.addAction(Intent.ACTION_POWER_DISCONNECTED);
    this.registerReceiver(myReceiver,intentFilter);
    LocalBroadcastManager.getInstance(this)
        .registerReceiver(myReceiver,
            new IntentFilter(ACTION_CUSTOM_BROADCAST));
  }
  @Override
  protected void onDestroy() {
```

```java
        this.unregisterReceiver(myReceiver);
        LocalBroadcastManager.getInstance(this)
                .unregisterReceiver(myReceiver);
        super.onDestroy();
    }
    public void sendCustomBroadcast(View view) {
        Intent cBIntent = new Intent(ACTION_CUSTOM_BROADCAST);
        LocalBroadcastManager.getInstance(this).sendBroadcast(cBIntent);
    }
}
```

Creating MyReceiver class
File-->New-->other-->BroadcastReceiver
In MyReceiver.java

```java
package com;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.widget.Toast;

import com.bhuvan.broadcastpowerreceiver.BuildConfig;
// Step 1: create MyReceiver class and extends it to BroadcastReceiver
    public class MyReceiver extends BroadcastReceiver {
        private static final String ACTION_CUSTOM_BROADCAST=
            BuildConfig.APPLICATION_ID+".CUSTOM_MESSAGE_BROADCAST";
        @Override
        public void onReceive(Context context, Intent intent) {
            String action=intent.getAction();
            String message;
            if(action!=null){
                message="Unwanted Connection";
                switch (action){
                    case Intent.ACTION_POWER_CONNECTED:
                    message="Power Connected";
                    break;
                    case Intent.ACTION_POWER_DISCONNECTED:
                        message="Power DISCONNECTED";
                        break;
                    case ACTION_CUSTOM_BROADCAST:
                        message="ACTION_CUSTOM_BROADCAST RECEIVED";
                        break;
                }
                Toast.makeText(context,message,Toast.LENGTH_LONG).show();
            }
```

```
    }
}
```

Output Screens
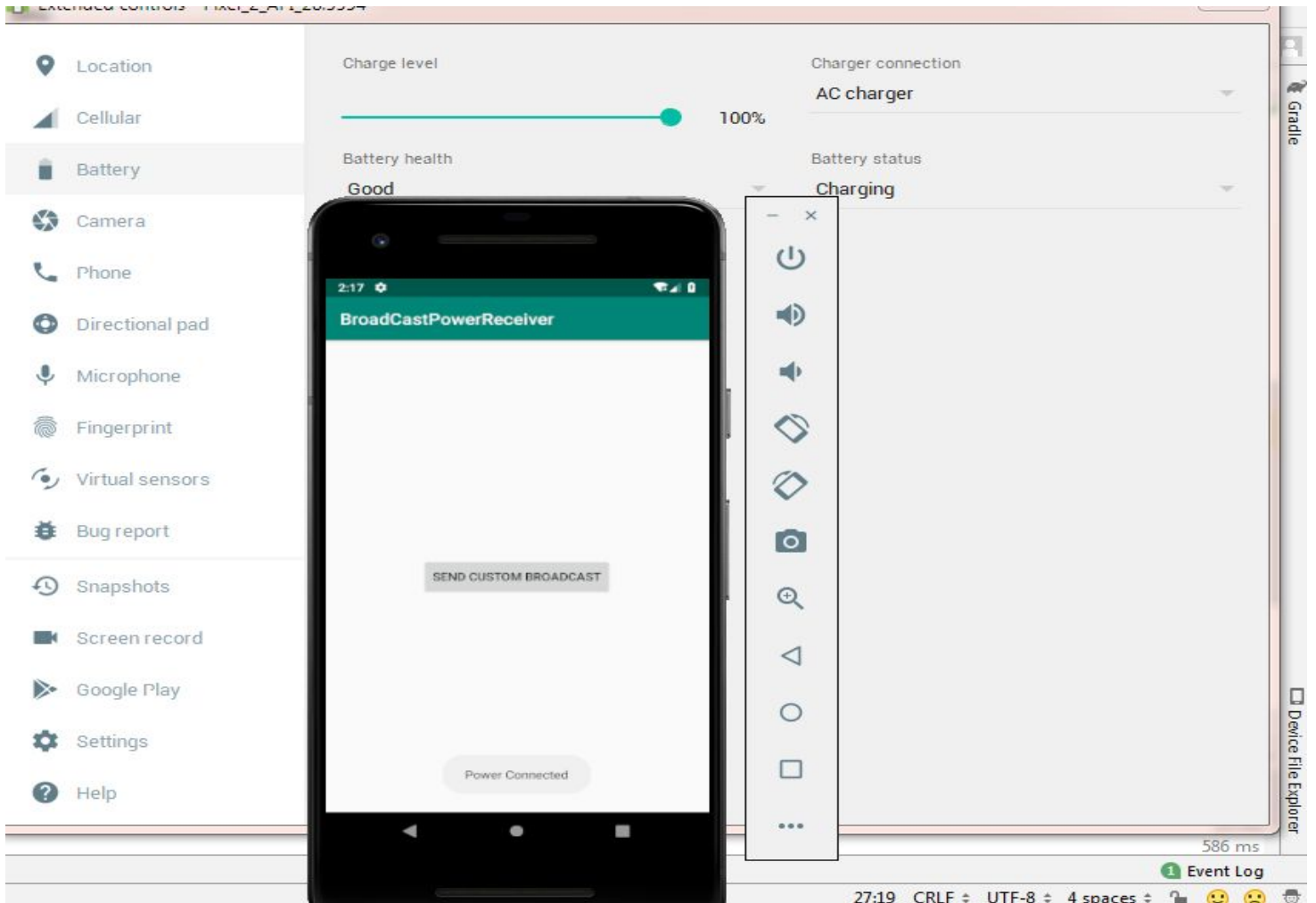
7. LAB-7 DatePicker and TimePicker

This labs explains about DatePicker and TimePicker
In activity_main.xml

```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="#F7F7F8"
  android:padding="10dp"
  android:layout_gravity="center"
  tools:context=".MainActivity">
  <EditText
    android:id="@+id/ed_date"
    android:hint="Choose Date"
    android:onClick="chooseDate"
    android:inputType="date"
    style="@style/inputStyle"
     />
  <EditText
    android:id="@+id/ed_time"
    android:hint="Choose Time"
    android:onClick="chooseTime"
    android:inputType="time"
    style="@style/inputStyle"
    />

  <TextView
    android:id="@+id/time"
    android:text="0:0"
    style="@style/tv" />

  <TextView
    android:id="@+id/date"
    style="@style/tv"
    android:text="0:0"
    />
</LinearLayout>
```
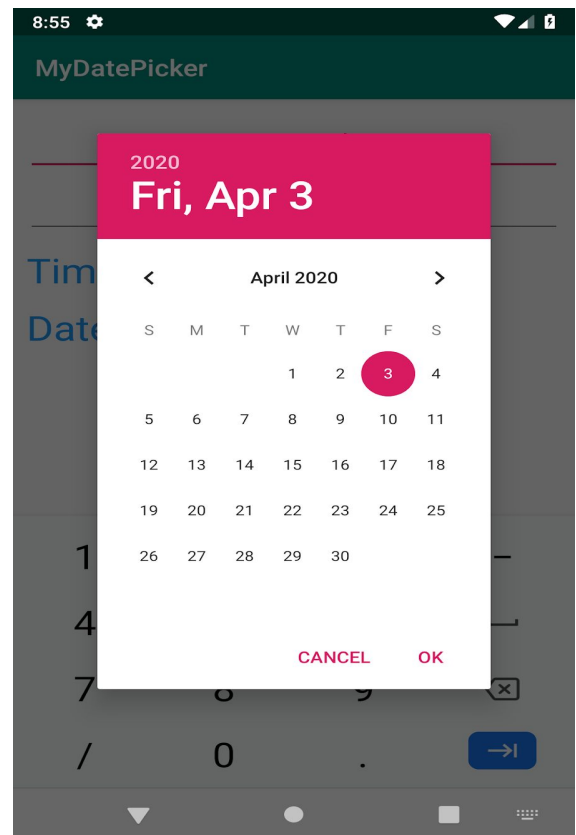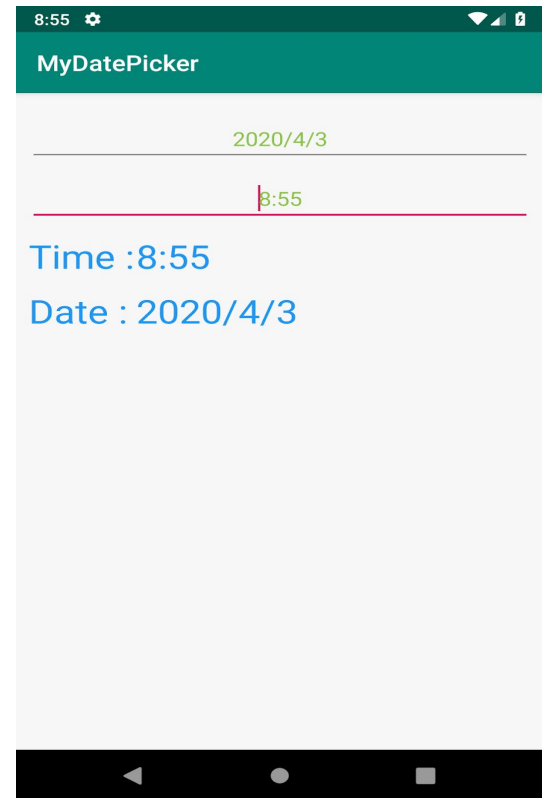
In MainActivity.java

```java
package com.bhuvan.mydatepicker;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.DialogFragment;

import android.app.DatePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText Edate,Etime;
    TextView tvTime;
    TextView tvDate;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Edate = findViewById(R.id.ed_date);
        Etime = findViewById(R.id.ed_time);
        tvTime = findViewById(R.id.time);
        tvDate=findViewById(R.id.date);
    }

    public void chooseDate(View view) {
        DialogFragment newFragment= new myDateFragment();
        newFragment.show(getSupportFragmentManager(),"datePicker");
    }

    public void dateResult(View v,int year,int month,int day){
        String month_string = Integer.toString(month+1);
        String day_string = Integer.toString(day);
        String year_string = Integer.toString(year);
        String date=year_string+"/"+month_string+"/"+day_string;
        Edate.setText(date);
        tvDate.setText("Date :\t"+date);
        Toast.makeText(this, ""+date, Toast.LENGTH_SHORT).show();
    }
```
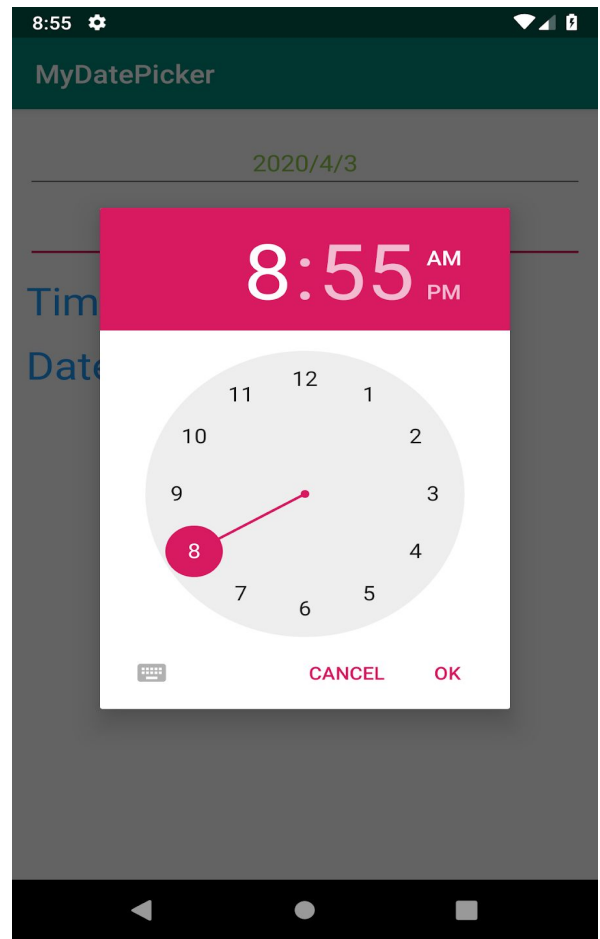
```java
    public void chooseTime(View view) {
        DialogFragment newFragment= new timepicker();
        newFragment.show(getSupportFragmentManager(),"timePicker");

    }
    public void timeResult(View v,int hour,int min){
        String hr_string = Integer.toString(hour);
        String min_string = Integer.toString(min);
        String time=hr_string+":"+min_string;
        Etime.setText(time);
        tvTime.setText("Time :\t"+time);
        Toast.makeText(this, ""+time, Toast.LENGTH_SHORT).show();
    }
}
```

In timepicker.java

```java
package com.bhuvan.mydatepicker;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.app.TimePickerDialog;
import android.os.Bundle;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.DialogFragment;
import androidx.fragment.app.Fragment;

import android.text.format.DateFormat;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import android.widget.TimePicker;
import android.text.format.DateFormat;
import java.util.Calendar;


/**
 * A simple {@link Fragment} subclass.
 */
public class timepicker extends DialogFragment
    implements TimePickerDialog.OnTimeSetListener

{
```

```java
    @NonNull
    @Override
    public Dialog onCreateDialog(@Nullable Bundle savedInstanceState) {
        final Calendar c = Calendar.getInstance();
        int hour = c.get(Calendar.HOUR_OF_DAY);
        int minute = c.get(Calendar.MINUTE);
        return new TimePickerDialog(getActivity(),
            this, hour, minute,
            DateFormat.is24HourFormat(getActivity()));

    }

    @Override
    public void onTimeSet(TimePicker view, int hourOfDay, int minute) {
        MainActivity activity = (MainActivity) getActivity();
        activity.timeResult(view,hourOfDay,minute);

    }
}
```

In mydatefragment.java

```java
package com.bhuvan.mydatepicker;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.os.Bundle;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.DialogFragment;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentActivity;

import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.DatePicker;
import android.widget.TextView;

import java.util.Calendar;

/**
 * A simple {@link Fragment} subclass.
 */
```

```java
public class myDateFragment extends DialogFragment
    implements DatePickerDialog .OnDateSetListener
{
    @NonNull
    @Override
    public Dialog onCreateDialog(@Nullable Bundle
                                savedInstanceState) {
        final Calendar c = Calendar.getInstance();
        int year = c.get(Calendar.YEAR);
        int month = c.get(Calendar.MONTH);
        int day = c.get(Calendar.DAY_OF_MONTH);
        return new DatePickerDialog(getActivity(),this,year,month,day);
    }
    @Override
    public void onDateSet(DatePicker view, int year, int month, int dayOfMonth) {
        MainActivity activity = (MainActivity)getActivity();
        activity.dateResult(view,year,month,dayOfMonth);
    }
}
```

In res\values\styles.xml

```xml
<resources>

    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here. -->
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>

    <style name="inputStyle">
        <item name="android:layout_width">match_parent</item>
        <item name="android:layout_height">wrap_content</item>
        <item name="android:layout_marginTop">10dp</item>
        <item name="android:gravity">center</item>
        <item name="android:textColor">#8BC34A</item>

    </style>

    <style name="tv">
        <item name="android:layout_width">match_parent</item>
        <item name="android:layout_height">wrap_content</item>
        <item name="android:layout_marginTop">10dp</item>
```

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```xml
    <item name="android:textSize">30dp</item>
    <item name="android:textColor">#2196F3</item>
  </style>

</resources>
```

8. LAB-8 Notifications & Sending Email

Step1: add **Notify Me!** Button in activity_main.xml

```xml
<Button
  android:id="@+id/notify"
  android:layout_width="wrap_content"
  android:layout_height="wrap_content"
  android:text="Notify Me!"
/>
```

Step2: in MainActivity

```java
package com.bhuvan.notifyme;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;

import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {
  private Button button_notify;

  private static final String PRIMARY_CHANNEL_ID =
"primary_notification_channel";
  private NotificationManager mNotifyManager;
  private static final int NOTIFICATION_ID = 0;

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    button_notify=findViewById(R.id.notify);
```
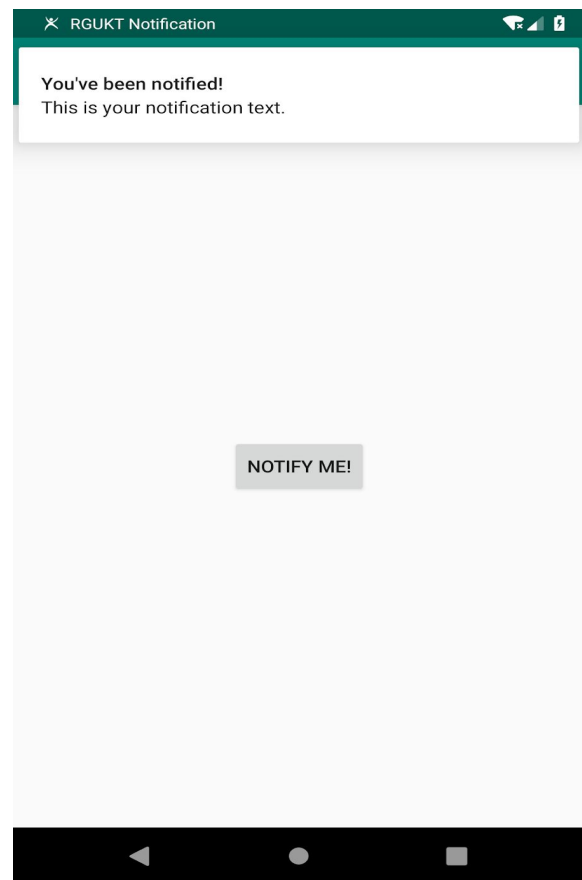
```java
        button_notify.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                sendNotification();
            }
        });
        createNotificationChannel();
    }

    public void sendNotification() {

        NotificationCompat.Builder notifyBuilder =
            getNotificationBuilder();
        mNotifyManager.notify(NOTIFICATION_ID,
            notifyBuilder.build());

    }
    public void createNotificationChannel()
    {
        mNotifyManager = (NotificationManager)
            getSystemService(NOTIFICATION_SERVICE);
        if (android.os.Build.VERSION.SDK_INT >=
            android.os.Build.VERSION_CODES.O) {
            // Create a NotificationChannel
            NotificationChannel notificationChannel =
            new NotificationChannel(PRIMARY_CHANNEL_ID,
                "My Notification",
                NotificationManager.IMPORTANCE_HIGH);
            notificationChannel.enableLights(true);
            notificationChannel.setLightColor(Color.RED);
            notificationChannel.enableVibration(true);
            notificationChannel.setDescription("Notification from MyAPP");
            mNotifyManager.createNotificationChannel(notificationChannel);
        }
    }
    private NotificationCompat.Builder getNotificationBuilder(){
        Intent notificationIntent = new Intent(this, MainActivity.class);
        PendingIntent notificationPendingIntent =
            PendingIntent.getActivity(this,NOTIFICATION_ID,notificationIntent,
                PendingIntent.FLAG_UPDATE_CURRENT);
        NotificationCompat.Builder notifyBuilder =
            new NotificationCompat.Builder(this, PRIMARY_CHANNEL_ID)
                .setContentTitle("You've been notified!")
                .setContentText("This is your notification text.")
                .setSmallIcon(R.drawable.rgukt_logo)
```

```java
                .setContentIntent(notificationPendingIntent)
                .setAutoCancel(true);

        return notifyBuilder;
    }
}
```

8.2 Sending Email

Step1:
Take LinearLayout and add Texview and Button in activity_main.xml

```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="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Sending Mail Example"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:textSize="30dp" />
    <Button
        android:id="@+id/sendEmail"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:onClick="sendEmail"
        android:text="Compose Email"/>


</LinearLayout>
```
Step 2: Add internet permissions in AndroidManifest.xml
```xml
<uses-permission android:name="android.permission.INTERNET"/>
```

Step3: in MainActivity.java
```java
package com.bhuvan.myemail;

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

```java
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
package com.bhuvan.myemail;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Toast;

import java.util.EnumMap;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void sendEmail(View view) {
        /*Log.i("Send email", "");
         take necessary inputs from user interface
         this is only sampleCODE, you have to implement in your own
         and then write lab on record*/
        String[] TO = {"n16@rguktn.ac.in"};
        String[] CC = {"bhuvan@rguktn.ac.in"};
        Intent emailIntent = new Intent(Intent.ACTION_SEND);
        emailIntent.setDataAndType(Uri.parse("mailto:"),"text/plain");
        emailIntent.putExtra(Intent.EXTRA_EMAIL, TO);
        emailIntent.putExtra(Intent.EXTRA_CC, CC);
        emailIntent.putExtra(Intent.EXTRA_SUBJECT, "Course Registraion");
        emailIntent.putExtra(Intent.EXTRA_TEXT, "Dear Students, " +
            "click here to register for MAD course");
        try{
            startActivity(Intent.createChooser(emailIntent,
                "choose via..."));
            finish();
            Log.i("Finished sending..", "");
        }catch (android.content.ActivityNotFoundException ex)
```

```
{          Toast.makeText(MainActivity.this,
                "There is no email client installed.",
                Toast.LENGTH_SHORT).show();
    }
  }
}
```

9.LAB-9 SQLITE / Database

In activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<AbsoluteLayout
  xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:tools="http://schemas.android.com/tools"
  android:id="@+id/myLayout"
  android:stretchColumns="0"
  android:layout_width="fill_parent"
  android:layout_height="fill_parent"
  tools:context=".MainActivity">

  <TextView android:text="@string/title"
    android:layout_x="110dp"
    android:layout_y="10dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"/>
  <TextView
    android:text="@string/empid"
    android:layout_x="30dp"
    android:layout_y="50dp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"/>

  <EditText
    android:id="@+id/editEmpid"
    android:inputType="number"
    android:layout_x="150dp"
    android:layout_y="50dp"
    android:layout_width="150dp"
    android:layout_height="40dp"/>
  <TextView
    android:text="@string/name"
    android:layout_x="30dp"
    android:layout_y="100dp"
```

```xml
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"/>
  <EditText
          android:id="@+id/editName"
          android:inputType="text"
          android:layout_x="150dp"
          android:layout_y="100dp"
          android:layout_width="150dp"
          android:layout_height="40dp"/>
  <TextView
          android:text="@string/salary"
          android:layout_x="30dp"
          android:layout_y="150dp"
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"/>
  <EditText
          android:id="@+id/editsalary"
          android:inputType="number"
          android:layout_x="150dp"
          android:layout_y="150dp"
          android:layout_width="150dp"
          android:layout_height="40dp"/>
  <Button
          android:id="@+id/btnAdd"
          android:text="@string/add"
          android:layout_x="30dp"
          android:layout_y="200dp"
          android:layout_width="130dp"
          android:layout_height="40dp"/>
  <Button
          android:id="@+id/btnDelete"
          android:text="@string/delete"
          android:layout_x="160dp"
          android:layout_y="200dp"
          android:layout_width="130dp"
          android:layout_height="40dp"/>
  <Button
          android:id="@+id/btnModify"
          android:text="@string/modify"
          android:layout_x="30dp"
          android:layout_y="250dp"
          android:layout_width="130dp"
          android:layout_height="40dp"/>
  <Button
          android:id="@+id/btnView"
```
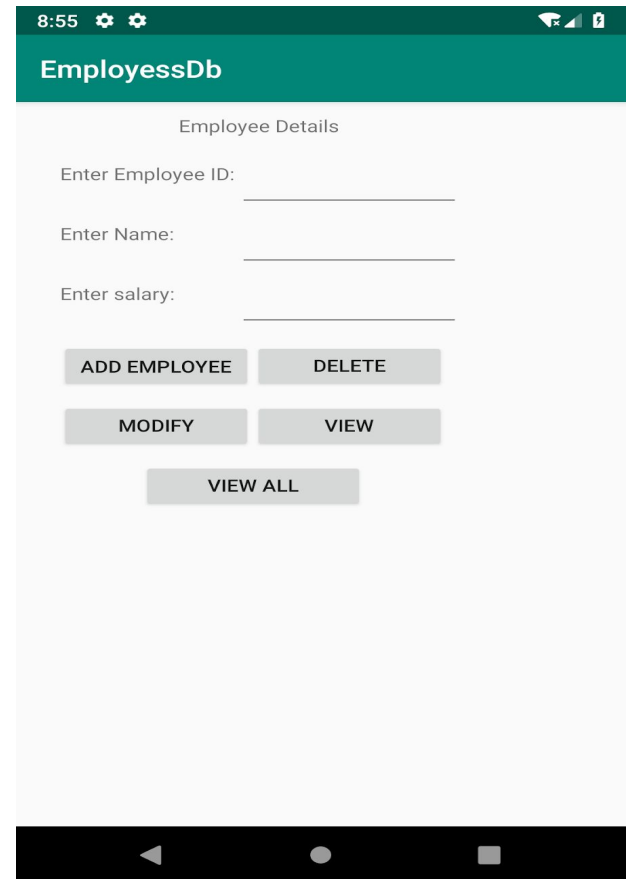
```xml
        android:text="@string/view"
        android:layout_x="160dp"
        android:layout_y="250dp"
        android:layout_width="130dp"
        android:layout_height="40dp"/>
    <Button
        android:id="@+id/btnViewAll"
        android:text="@string/view_all"
        android:layout_x="85dp"
        android:layout_y="300dp"
        android:layout_width="150dp"
        android:layout_height="40dp"/>
</AbsoluteLayout>
```

In MainActivity.java

```java
package com.bhuvan.employessdb;

import androidx.appcompat.app.AppCompatActivity;
import android.app.AlertDialog;
import android.content.Context;
import android.content.DialogInterface;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity
    implements View.OnClickListener
        {
    EditText editEmpid,editName,editSalary;
    Button btnAdd,btnDelete,btnModify,btnView,btnViewAll;
    SQLiteDatabase db;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        editEmpid=(EditText)findViewById(R.id.editEmpid);
        editName=(EditText)findViewById(R.id.editName);
        editSalary=(EditText)findViewById(R.id.editsalary);

        btnAdd=(Button)findViewById(R.id.btnAdd);
```

```java
        btnDelete=(Button)findViewById(R.id.btnDelete);
        btnModify=(Button)findViewById(R.id.btnModify);
        btnView=(Button)findViewById(R.id.btnView);
        btnViewAll=(Button)findViewById(R.id.btnViewAll);

        btnAdd.setOnClickListener(this);
        btnDelete.setOnClickListener(this);
        btnModify.setOnClickListener(this);
        btnView.setOnClickListener(this);
        btnViewAll.setOnClickListener(this);

        db=openOrCreateDatabase("EmployeeDB",
            Context.MODE_PRIVATE, null);

        db.execSQL("CREATE TABLE IF NOT EXISTS " +
            "employee(empid VARCHAR,name VARCHAR,salary VARCHAR);");
    }

    @Override
    public void onClick(View view) {
        if(view==btnAdd)
        {
            if(editEmpid.getText().toString().trim().length()==0||
                editName.getText().toString().trim().length()==0||
                editSalary.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter all values");
                return;
            }
            db.execSQL("INSERT INTO employee VALUES('"+editEmpid.getText()+"','"+editName.getText()+
                "','"+editSalary.getText()+"');");

            showMessage("Success", "Record added");
            clearText();
        }

        if(view==btnDelete)
        {
            if(editEmpid.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter Employee id");
                return;
            }
            Cursor c=db.rawQuery("SELECT * FROM employee WHERE empid='"+editEmpid.getText()+"'",
null);
```

```java
    if(c.moveToFirst())
    {
        db.execSQL("DELETE FROM employee WHERE empid='"+editEmpid.getText()+"'");
        showMessage("Success", "Record Deleted");
    }
    else
    {
        showMessage("Error", "Invalid Employee id");
    }
    clearText();
}
if(view==btnModify){
    if(editEmpid.getText().toString().trim().length()==0)
    {
        showMessage("Error", "Please enter Employee id");
        return;
    }
    Cursor c=db.rawQuery("SELECT * FROM employee WHERE empid='"+editEmpid.getText()+"'",
null);
    if(c.moveToFirst())
    {
        db.execSQL("UPDATE employee SET
name='"+editName.getText()+"',salary='"+editSalary.getText()+
            "' WHERE empid='"+editEmpid.getText()+"'"); showMessage("Success", "Record Modified");
    }
    else
    {
        showMessage("Error", "Invalid Roll No");
    }
    clearText();
}
if(view==btnView)
{
    if(editEmpid.getText().toString().trim().length()==0)
    {
        showMessage("Error", "Please enter Employee id");
        return;
    }
    Cursor c=db.rawQuery("SELECT * FROM employee WHERE empid='"+editEmpid.getText()+"'",
null);
    if(c.moveToFirst())
    {
        editName.setText(c.getString(1));
        editSalary.setText(c.getString(2));
    }
```

```java
            else
            {
                showMessage("Error", "Invalid Employee id");
                clearText();
            }
        }
        if(view==btnViewAll)
        {
            Cursor c=db.rawQuery("SELECT * FROM employee", null);
            if(c.getCount()==0)
            {

                showMessage("Error", "No records found");
                return;
            }
            StringBuffer buffer=new StringBuffer();
            while(c.moveToNext())
            {
                buffer.append("Employee id: "+c.getString(0)+"\n");
                buffer.append("Name: "+c.getString(1)+"\n");
                buffer.append("salary: "+c.getString(2)+"\n\n");
            }
            showMessage("Employee details Details", buffer.toString());
        }
    }
    public void showMessage(String title,String message)
    {
        AlertDialog.Builder builder=new AlertDialog.Builder(this);
        builder.setCancelable(true);
        builder.setTitle(title);
        builder.setMessage(message);
        builder.show();
    }
    public void clearText()
    {
        editEmpid.setText("");
        editName.setText("");
        editSalary.setText("");
        editEmpid.requestFocus();
    }
}
```

In res\values\strings.xml

```xml
    <string name="app_name">EmployessDb</string>
    <string name="hello">Employee detail Activity!</string>
    <string name="title">Employee Details</string>
    <string name="empid">Enter Employee ID: </string>
    <string name="name">Enter Name: </string>
    <string name="salary">Enter salary: </string>
    <string name="add">Add Employee</string>
    <string name="delete">Delete Employee</string>
    <string name="modify">Modify Employee</string>
    <string name="view">View Employee</string>
    <string name="view_all">View All Employee</string>
</resources>
```

10. LAB-10 Working with Firebase

Add Firebase using the Firebase console

Adding Firebase to your app involves tasks both in the Firebase console and in your open Android project (for example, you download Firebase config files from the console, then move them into your Android project).

Step 1: Create a Firebase project

Before you can add Firebase to your Android app, you need to create a Firebase project to connect to your Android app. Visit Understand Firebase Projects to learn more about Firebase projects.

Create a Firebase project

Step 2: Register your app with Firebase

After you have a Firebase project, you can add your Android app to it.

Visit Understand Firebase Projects to learn more about best practices and considerations for adding apps to a Firebase project, including how to handle multiple build variants.

1. Go to the Firebase console.

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2. In the center of the project overview page, click the **Android** icon (plat_android) to launch the setup workflow.
   If you've already added an app to your Firebase project, click **Add app** to display the platform options.

3. Enter your app's package name in the **Android package name** field.

4. What's a package name, and where do you find it?

5. Make sure that you enter the package name that your app is actually using. You cannot add or modify this value after you register your app with your Firebase project.

6. *(Optional)* Enter other app information: **App nickname** and **Debug signing certificate SHA-1**.

7. How are the *App nickname* and the *Debug signing certificate SHA-1* used within Firebase?

8. Click **Register app**.

Step 3: Add a Firebase configuration file

1. Add the Firebase Android configuration file to your app:

    1. Click **Download google-services.json** to obtain your Firebase Android config file (google-services.json).

    2. Move your config file into the module (app-level) directory of your app.

2. What do you need to know about this config file?

3. To enable Firebase products in your app, add the google-services plugin to your Gradle files.

    1. In your root-level (project-level) Gradle file (build.gradle), add rules to include the Google Services Gradle plugin. Check that you have Google's Maven repository, as well.
    2. buildscript {

    3.

    4. repositories {

        // Check that you have the following line (if not, add it):

        google() // Google's Maven repository

        }

```
dependencies {
  // ...

  // Add the following line:
  classpath 'com.google.gms:google-services:4.3.3'  // Google Services plugin
  }
}


allprojects {
  // ...


  repositories {
    // Check that you have the following line (if not, add it):
    google()  // Google's Maven repository
    // ...
  }
}
```

5. In your module (app-level) Gradle file (usually app/build.gradle), apply the Google Services Gradle plugin:
6. apply plugin: 'com.android.application'
7. **// Add the following line:**
8. **apply plugin: 'com.google.gms.google-services' // Google Services plugin**

```
android {
  // ...
}
```

Step 4: Add Firebase SDKs to your app

1. To your module (app-level) Gradle file (usually app/build.gradle), add the dependencies for the Firebase products that you want to use in your app.

2. Analytics enabled

3. Analytics not enabled

4. dependencies {
5. // ...
6.
7. **// Add the Firebase SDK for Google Analytics**

   implementation 'com.google.firebase:firebase-analytics:17.3.0'

   // Add the dependencies for any other Firebase products you want to use in your app

   // For example, to also use Firebase Authentication

   implementation 'com.google.firebase:firebase-auth:19.3.0'

   // Getting a "Could not find" error? Make sure that you've added

   // Google's Maven repository to your root-level build.gradle file

   }

8. Sync your app to ensure that all dependencies have the necessary versions.
9. *If you added Analytics,* run your app to send verification to Firebase that you've successfully integrated Firebase. Otherwise, you can skip the verification step.
   Your device logs will display the Firebase verification that initialization is complete. If you ran your app on an emulator that has network access, the Firebase console notifies you that your app connection is complete.

Firebase Realtime Database

Store and sync data with our NoSQL cloud database. Data is synced across all clients in realtime, and remains available when your app goes offline.

The Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Realtime Database instance and automatically receive updates with the newest data.

Write to your database

// Write a message to the database

FirebaseDatabase database = FirebaseDatabase.getInstance();

DatabaseReference myRef = database.getReference("message");

myRef.setValue("Hello, World!");

// below lines are in our project

databaseReference = //FirebaseDatabase.*getInstance*().getReference();

Department of Computer Science and Engineering   Developed by *Bhuvaneswararao.A*

//databaseReference.child(user.getUid()).setValue(userInformation);

In the project

In activity_main.xml

```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"
  android:padding="5dp"
  tools:context=".MainActivity">

  <LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"

    >
  <TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="User Registration"
    android:textColor="@color/colorAccent"
    android:textStyle="bold"
    android:textAlignment="center"
    />
  <EditText
    android:layout_margin="15dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/email"
    android:inputType="textEmailAddress"
    android:hint="Enter you email" />
  <EditText android:layout_margin="15dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/pass"
    android:inputType="textPassword"
    android:hint="password" />
  <Button
    android:layout_margin="15dp"
    android:layout_width="match_parent"
```

```xml
        android:layout_height="wrap_content"
        android:id="@+id/btnRegister"
        android:text="Register User"
        android:textColor="@color/colorAccent"
        />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/textView"
        android:text="Already Registered? sign in"
        android:textAlignment="center" />
    </LinearLayout>

</RelativeLayout>
```

In MainActivity.java

```java
package com.bhuvan.firebasesignin;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.app.ProgressDialog;
import android.content.Intent;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;
import com.google.firebase.auth.AuthResult;
import com.google.firebase.auth.FirebaseAuth;

public class MainActivity extends AppCompatActivity implements View.OnClickListener{
    private Button Register;
    private EditText email, pass;
    private TextView signIn;
    private ProgressDialog progressDialog;
    private FirebaseAuth firebaseAuth;

    @Override
```

```java
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    firebaseAuth = FirebaseAuth.getInstance();
    if(firebaseAuth.getCurrentUser()!=null){
        finish();// before starting the current activity finish the present activity Intent intent = new
Intent(getApplicationContext(),ProfileActivity.class); startActivity(intent); }
    }
    progressDialog = new ProgressDialog(this);
    email = (EditText) findViewById(R.id.email);
    pass = (EditText) findViewById(R.id.pass);
    signIn = (TextView) findViewById(R.id.textView);
    Register = (Button) findViewById(R.id.btnRegister);
    Register.setOnClickListener(this);
    signIn.setOnClickListener(this);
}

@Override
public void onClick(View v) {
    if(v==Register){
        registerUser();
    } if(v==signIn){
        Intent intent = new Intent(this,LoginActivity.class);
        startActivity(intent);
        }
}
public void registerUser () {
    String Email=email.getText().toString().trim();
    String Pass=pass.getText().toString().trim();
    if(TextUtils.isEmpty(Email)){
        Toast.makeText(this, "Please Enter Email", Toast.LENGTH_SHORT).show();
        return;
    }
    if (TextUtils.isEmpty(Pass)){
        Toast.makeText(this, "Please Enter Password", Toast.LENGTH_SHORT).show();
        return; }
    progressDialog.setMessage("Registering user...");
    progressDialog.show();

    firebaseAuth.createUserWithEmailAndPassword(Email,Pass)
        .addOnCompleteListener(this, new OnCompleteListener<AuthResult>() {
            @Override
            public void onComplete(@NonNull Task<AuthResult> task) {
                progressDialog.dismiss();
                if (task.isSuccessful()) {
```

```java
                    Toast.makeText(MainActivity.this, "Registered Successfully", Toast.LENGTH_SHORT).show();

                } else {
                    Toast.makeText(MainActivity.this, "Could not Register ..! Please try again after some time",
Toast.LENGTH_SHORT).show();
                }
            }
        });

    }

}
```
In activity_profile.xml
```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=".ProfileActivity">
  <Button
    android:id="@+id/btnLogout"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="LogOut"
    android:layout_alignParentRight="true"
    android:layout_gravity="center_horizontal" />

  <LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:layout_alignParentBottom="true"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_marginBottom="150dp">
    <TextView
      android:id="@+id/textViewUserEmail"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_gravity="center_horizontal"
      android:text="Profile Activity"
      android:textAppearance="?android:textAppearanceLarge"
      android:layout_marginBottom="50dp" />
```

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```xml
<EditText
    android:id="@+id/name"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:inputType="textPersonName"
    android:hint="Enter your name"
    android:textColorHint="@color/colorPrimary" />
<EditText
    android:id="@+id/Id"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:inputType="text"
    android:hint="Enter your ID"
    android:textColorHint="@color/colorPrimary" />
<EditText
    android:id="@+id/phonenumber"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:inputType="phone"
    android:hint="Enter your phoneNumber"
    android:textColorHint="@color/colorPrimary" />
<EditText
    android:id="@+id/address"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:inputType="textPostalAddress"
    android:hint="Enter your Postal Address"
    android:textColorHint="@color/colorPrimary" />
<TextView
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:text="have you finished HomeWork?" />
<RadioGroup
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/yesORno"
    android:orientation="horizontal" >
    <RadioButton
        android:layout_width="227dp"
        android:layout_height="wrap_content"
        android:id="@+id/yes"
        android:text="Yes" />
    <RadioButton
        android:layout_width="103dp"
        android:layout_height="21dp"
```

```xml
        android:id="@+id/no"
        android:text="No" />
    </RadioGroup>
    <Button
       android:id="@+id/btnSave"
       android:layout_width="wrap_content"
       android:layout_height="wrap_content"
       android:text="Save Info"
       android:layout_gravity="center_horizontal" />
  </LinearLayout>
</RelativeLayout>
```

In ProfileActivity.java

```java
package com.bhuvan.firebasesignin;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
import android.widget.Toast;

import com.google.firebase.auth.FirebaseAuth;
import com.google.firebase.auth.FirebaseUser;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;

public class ProfileActivity extends AppCompatActivity implements View.OnClickListener {
  private TextView textViewEmail;
  private FirebaseAuth firebaseAuth;
  private Button btnLogout, btnSave;
  private DatabaseReference databaseReference;
  private EditText UserName, Stu_id, phoneNumber, Address;
  private RadioGroup task;

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

```java
        setContentView(R.layout.activity_profile);

        firebaseAuth = FirebaseAuth.getInstance();
        if (firebaseAuth.getCurrentUser() == null) {
            finish();
            Intent intent = new Intent(getApplicationContext(), LoginActivity.class);
            startActivity(intent);
        }
        FirebaseUser firebaseUser = firebaseAuth.getCurrentUser();
        //databaseReference = FirebaseDatabase.getInstance().getReference("users");
        textViewEmail = (TextView) findViewById(R.id.textViewUserEmail);
        textViewEmail.setText("Welcome " + firebaseUser.getEmail());
        UserName = (EditText) findViewById(R.id.name);
        Stu_id = (EditText) findViewById(R.id.Id);
        phoneNumber = (EditText) findViewById(R.id.phonenumber);
        Address = (EditText) findViewById(R.id.address);
        task = (RadioGroup) findViewById(R.id.yesORno);
        btnSave = (Button) findViewById(R.id.btnSave);
        btnLogout = (Button) findViewById(R.id.btnLogout);
        btnLogout.setOnClickListener(this);
        btnSave.setOnClickListener(this);
    }
    private void saveInfo() {
        String name = UserName.getText().toString().trim();
        String StudentId = Stu_id.getText().toString().trim();
        String StudentPhone = phoneNumber.getText().toString().trim();
        String StudentAddress = Address.getText().toString().trim();
        task = (RadioGroup) findViewById(R.id.yesORno);
        int selected = task.getCheckedRadioButtonId();
        RadioButton rbTask = (RadioButton) findViewById(selected);
        String Stu_task = (String) rbTask.getText();
        UserInformation userInformation = new UserInformation(name, StudentId, StudentPhone, StudentAddress,
Stu_task);

        FirebaseUser user = firebaseAuth.getCurrentUser();
        databaseReference = FirebaseDatabase.getInstance().getReference("users");
        databaseReference.child(user.getUid()).setValue(userInformation);
        Toast.makeText(this, "Information Saved for " + user.getEmail(), Toast.LENGTH_SHORT).show();

    }

    @Override
    public void onClick(View view) {
        if (view == btnLogout) {
            firebaseAuth.signOut();
```

```java
            finish();
            startActivity(new Intent(this, LoginActivity.class));
        } if (view == btnSave) {
            saveInfo();
            Toast.makeText(this, "Information Saved", Toast.LENGTH_SHORT).show();
        }

    }
}
```

In UserInformation.java
```java
package com.bhuvan.firebasesignin;

public class UserInformation {
    public String name,id,phoneNumber,address,task;
    public UserInformation(){ }
    public UserInformation(String name, String id, String phoneNumber, String address, String task) {
        this.name = name;
        this.id = id;
        this.phoneNumber = phoneNumber;
        this.address = address;
        this.task = task;
    }
}
```

Activity_login.xml
```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=".LoginActivity">
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:layout_centerVertical="true"
        android:layout_centerHorizontal="true" >
        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:text="User Login"
            android:textColor="@color/colorAccent"
```

```xml
                android:textStyle="bold"
                android:textAlignment="center" />
            <EditText
                android:layout_margin="15dp"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:id="@+id/email"
                android:inputType="textEmailAddress"
                android:hint="Enter you email" />
            <EditText
                android:layout_margin="15dp"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:id="@+id/pass"
                android:inputType="textPassword"
                android:hint="password" />
            <Button
                android:layout_margin="15dp"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:id="@+id/btnSignIn"
                android:text="Sign In" />
            <TextView
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:id="@+id/SignUp"
                android:text="Not have an Account? Sign up Here"
                android:textAlignment="center" />
        </LinearLayout>

</RelativeLayout>
```

In LoginActivity.java

```java
package com.bhuvan.firebasesignin;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.app.ProgressDialog;
import android.content.Intent;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
```

```java
import android.widget.TextView;
import android.widget.Toast;

import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;
import com.google.firebase.auth.AuthResult;
import com.google.firebase.auth.FirebaseAuth;

public class LoginActivity extends AppCompatActivity implements View.OnClickListener{
    private Button signIn;
    private EditText EditTextEmail;
    private EditText EditTextPassword;
    private TextView textViewSignUP;
    ProgressDialog progressDialog;
    private FirebaseAuth firebaseAuth;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_login);
        firebaseAuth= FirebaseAuth.getInstance();
        if(firebaseAuth.getCurrentUser()!=null){
            finish();// before starting the current activity finish the present activity
            Intent intent = new Intent(getApplicationContext(),ProfileActivity.class);
            startActivity(intent);
        }
        EditTextEmail= (EditText)findViewById(R.id.email);
        EditTextPassword=(EditText)findViewById(R.id.pass);
        signIn = (Button)findViewById(R.id.btnSignIn);
        textViewSignUP=(TextView)findViewById(R.id.SignUp);
        progressDialog = new ProgressDialog(this);
        signIn.setOnClickListener(this);
        textViewSignUP.setOnClickListener(this);
    }
    private void userLogin(){
        String Email=EditTextEmail.getText().toString().trim();
        String Pass=EditTextPassword.getText().toString().trim();
        if(TextUtils.isEmpty(Email)){
            Toast.makeText(this, "Please Enter Email", Toast.LENGTH_SHORT).show();
            return;
        }
        if (TextUtils.isEmpty(Pass)){
            Toast.makeText(this, "Please Enter Password", Toast.LENGTH_SHORT).show();
            return; }
        progressDialog.setMessage("Login into Google...!");
        progressDialog.show();
```

```java
        firebaseAuth.signInWithEmailAndPassword(Email,Pass)
            .addOnCompleteListener(this, new OnCompleteListener<AuthResult>() {
                @Override
                public void onComplete(@NonNull Task<AuthResult> task) {
                    progressDialog.dismiss();
                    if(task.isSuccessful()){
                        finish();
                        Intent intent = new Intent(getApplicationContext(),ProfileActivity.class);
                        startActivity(intent);
                    }
                }
            });
    }
    @Override
    public void onClick(View v) {
        if(v==signIn){
            userLogin();
        }
        if(v==textViewSignUP){
            finish();// closing the current activity
            Intent intent= new Intent(this,MainActivity.class);
            startActivity(intent);
        }
    }
}
```