

21) Factorial - compute in one Activity and show in another

FactorialInputActivity.java

```
package com.example.madpracticals;

import android.content.Intent;
import android.os.Bundle;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityFactorialInputBinding;
import java.math.BigInteger;

public class FactorialInputActivity extends AppCompatActivity {
    private ActivityFactorialInputBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityFactorialInputBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());

        b.btnCompute.setOnClickListener(v -> {
            String s = b.etNum.getText().toString().trim();
            if (s.isEmpty()) { Toast.makeText(this, "Enter
number", Toast.LENGTH_SHORT).show(); return; }
            int n = Integer.parseInt(s);
            BigInteger res = BigInteger.ONE;
            for (int i=2;i<=n;i++) res =
res.multiply(BigInteger.valueOf(i));
            Intent i = new Intent(this, FactorialResultActivity.class);
            i.putExtra("n", n);
            i.putExtra("result", res.toString());
            startActivity(i);
        });
    }
}
```

FactorialResultActivity.java

```
package com.example.madpracticals;
```

```

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import
com.example.madpracticals.databinding.ActivityFactorialResultBinding;

public class FactorialResultActivity extends AppCompatActivity {
    private ActivityFactorialResultBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b =
ActivityFactorialResultBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());
        int n = getIntent().getIntExtra("n", 0);
        String res = getIntent().getStringExtra("result");
        b.tv.setText(n + "! = " + res);
    }
}

```

activity_factorial_input.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="vertical" android:padding="12dp"
android:layout_width="match_parent"
android:layout_height="match_parent">
    <EditText android:id="@+id/etNum" android:inputType="number"
android:hint="Enter number" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
    <Button android:id="@+id/btnCompute" android:text="Compute and
Show" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
</LinearLayout>

```

activity_factorial_result.xml

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
android:layout_height="match_parent">
<LinearLayout android:orientation="vertical" android:padding="12dp"
android:layout_width="match_parent"
android:layout_height="wrap_content">
    <TextView android:id="@+id/tv" android:layout_width="match_parent"
android:layout_height="wrap_content" android:textSize="16sp"/>

```

```
</LinearLayout>
</ScrollView>
```

22) Bank menu - simple withdraw/deposit

BankActivity.java

```
package com.example.madpracticals;

import android.os.Bundle;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityBankBinding;

public class BankActivity extends AppCompatActivity {
    private ActivityBankBinding b;
    private double balance = 1000.0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityBankBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());
        updateUI();

        b.btnWithdraw.setOnClickListener(v -> {
            try {
                double amt =
Double.parseDouble(b.etAmount.getText().toString().trim());
                if (amt <= 0) { Toast.makeText(this,"Enter positive
amount",Toast.LENGTH_SHORT).show(); return; }
                if (amt > balance) { Toast.makeText(this,"Insufficient
balance",Toast.LENGTH_SHORT).show(); return; }
                balance -= amt;
                updateUI();
            } catch (Exception e) { Toast.makeText(this,"Invalid
amount",Toast.LENGTH_SHORT).show(); }
        });

        b.btnDeposit.setOnClickListener(v -> {
            try {
                double amt =
Double.parseDouble(b.etAmount.getText().toString().trim());
                if (amt <= 0) { Toast.makeText(this,"Enter positive
```

```

amount", Toast.LENGTH_SHORT).show(); return; }
        balance += amt;
        updateUI();
    } catch (Exception e) { Toast.makeText(this, "Invalid
amount", Toast.LENGTH_SHORT).show(); }
    });
}

private void updateUI() {
    b.tvBalance.setText("Balance: Rs. " + balance);
    b.etAmount.setText("");
}
}

```

activity_bank.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="vertical" android:padding="12dp"
android:layout_width="match_parent"
android:layout_height="match_parent">
    <TextView android:id="@+id/tvBalance"
android:layout_width="match_parent"
android:layout_height="wrap_content" android:textSize="18sp"/>
    <EditText android:id="@+id/etAmount" android:hint="Amount"
android:inputType="numberDecimal" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
    <Button android:id="@+id/btnWithdraw" android:text="Withdraw"
android:layout_width="match_parent"
android:layout_height="wrap_content"/>
    <Button android:id="@+id/btnDeposit" android:text="Deposit"
android:layout_width="match_parent"
android:layout_height="wrap_content" android:layout_marginTop="6dp"/>
</LinearLayout>

```

23) Options Menu demo

OptionsMenuActivity.java

```

package com.example.madpracticals;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;

```

```

import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import
com.example.madpracticals.databinding.ActivityOptionsMenuBinding;

public class OptionsMenuActivity extends AppCompatActivity {
    private ActivityOptionsMenuBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityOptionsMenuBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        menu.add(0,1,0,"Settings");
        menu.add(0,2,0,"About");
        menu.add(0,3,0,"Exit");
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        switch(item.getItemId()){
            case 1: Toast.makeText(this,"Settings
clicked",Toast.LENGTH_SHORT).show(); return true;
            case 2: Toast.makeText(this,"About
clicked",Toast.LENGTH_SHORT).show(); return true;
            case 3: finish(); return true;
        }
        return super.onOptionsItemSelected(item);
    }
}

```

activity_options_menu.xml

```

<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView android:layout_gravity="center" android:text="Open
options menu (three-dot) to see items"
    android:layout_width="wrap_content"

```

```
android:layout_height="wrap_content"/>
</FrameLayout>
```

24) Vertical ScrollView demo

ScrollActivity.java

```
package com.example.madpracticals;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityScrollBinding;

public class ScrollActivity extends AppCompatActivity {
    private ActivityScrollBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityScrollBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());
    }
}
```

activity_scroll.xml

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <LinearLayout android:orientation="vertical" android:padding="16dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
        <TextView android:text="Long content line 1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"/>
        <TextView android:text="Line 2" android:layout_width="match_parent"
            android:layout_height="wrap_content"/>
        <TextView android:text="Line 3" android:layout_width="match_parent"
            android:layout_height="wrap_content"/>
        <TextView android:text="Line 4" android:layout_width="match_parent"
            android:layout_height="wrap_content"/>
        <TextView android:text="Line 5" android:layout_width="match_parent"
            android:layout_height="wrap_content"/>
        <TextView android:text="Line 6" android:layout_width="match_parent"
            android:layout_height="wrap_content"/>
    </LinearLayout>
</ScrollView>
```

```

        <TextView android:text="Line 7" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
        <TextView android:text="Line 8" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
        <TextView android:text="Line 9" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
        <TextView android:text="Line 10"
android:layout_width="match_parent"
android:layout_height="wrap_content"/>
    </LinearLayout>
</ScrollView>

```

25) Employee info transfer using Intent

EmployeeInputActivity.java

```

package com.example.madpracticals;

import android.content.Intent;
import android.os.Bundle;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityEmployeeInputBinding;

public class EmployeeInputActivity extends AppCompatActivity {
    private ActivityEmployeeInputBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityEmployeeInputBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());

        b.btnSend.setOnClickListener(v -> {
            String name = b.etName.getText().toString().trim();
            String desg = b.etDesg.getText().toString().trim();
            if (name.isEmpty() || desg.isEmpty()) {
                Toast.makeText(this, "Fill both", Toast.LENGTH_SHORT).show(); return; }
            Intent i = new Intent(this, EmployeeDisplayActivity.class);
            i.putExtra("name", name);
            i.putExtra("desg", desg);
            startActivity(i);
        });
    }
}

```

```
    }  
}
```

EmployeeDisplayActivity.java

```
package com.example.madpracticals;  
  
import android.os.Bundle;  
import androidx.appcompat.app.AppCompatActivity;  
import  
com.example.madpracticals.databinding.ActivityEmployeeDisplayBinding;  
  
public class EmployeeDisplayActivity extends AppCompatActivity {  
    private ActivityEmployeeDisplayBinding b;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        b =  
ActivityEmployeeDisplayBinding.inflate(getLayoutInflater());  
        setContentView(b.getRoot());  
        b.tv.setText("Name: " + getIntent().getStringExtra("name") +  
"\nDesg: " + getIntent().getStringExtra("desg"));  
    }  
}
```

activity_employee_input.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout  
xmlns:android="http://schemas.android.com/apk/res/android"  
android:orientation="vertical" android:padding="12dp"  
android:layout_width="match_parent"  
android:layout_height="match_parent">  
    <EditText android:id="@+id/etName" android:hint="Name"  
android:layout_width="match_parent"  
android:layout_height="wrap_content"/>  
    <EditText android:id="@+id/etDesg" android:hint="Designation"  
android:layout_width="match_parent"  
android:layout_height="wrap_content"/>  
    <Button android:id="@+id/btnSend" android:text="Send"  
android:layout_width="match_parent"  
android:layout_height="wrap_content"/>  
</LinearLayout>
```

activity_employee_display.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="vertical" android:padding="12dp"
android:layout_width="match_parent"
android:layout_height="match_parent">
    <TextView android:id="@+id/tv" android:layout_width="match_parent"
android:layout_height="wrap_content"/>
</LinearLayout>
```

26) Send Email using Intent

EmailActivity.java

```
package com.example.madpracticals;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityEmailBinding;

public class EmailActivity extends AppCompatActivity {
    private ActivityEmailBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityEmailBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());

        b.btnSend.setOnClickListener(v -> {
            String to = b.etTo.getText().toString().trim();
            String subject = b.etSubject.getText().toString().trim();
            String body = b.etBody.getText().toString().trim();
            if (to.isEmpty()) { Toast.makeText(this, "Enter
recipient", Toast.LENGTH_SHORT).show(); return; }
            Intent i = new Intent(Intent.ACTION_SENDTO);
            i.setData(Uri.parse("mailto:" + Uri.encode(to)));
            i.putExtra(Intent.EXTRA_SUBJECT, subject);
            i.putExtra(Intent.EXTRA_TEXT, body);
            startActivity(i);
        });
    }
}
```

```
    }  
}
```

activity_email.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout  
    xmlns:android="http://schemas.android.com/apk/res/android"  
    android:orientation="vertical" android:padding="12dp"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent">  
    <EditText android:id="@+id/etTo" android:hint="To"  
        android:inputType="textEmailAddress"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"/>  
    <EditText android:id="@+id/etSubject" android:hint="Subject"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"/>  
    <EditText android:id="@+id/etBody" android:hint="Body"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"/>  
    <Button android:id="@+id/btnSend" android:text="Send Email"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"/>  
</LinearLayout>
```

27) Popup Menu (change color / reset layout)

PopupColorActivity.java

```
package com.example.madpracticals;  
  
import android.graphics.Color;  
import android.os.Bundle;  
import android.view.MenuItem;  
import android.view.View;  
import android.widget.PopupMenu;  
import androidx.appcompat.app.AppCompatActivity;  
import com.example.madpracticals.databinding.ActivityPopupColorBinding;  
  
public class PopupColorActivity extends AppCompatActivity {  
    private ActivityPopupColorBinding b;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);
```

```

b = ActivityPopupColorBinding.inflate(getLayoutInflater());
setContentView(b.getRoot());

b.btnMenu.setOnClickListener(v -> {
    PopupMenu pm = new PopupMenu(this, b.btnMenu);
    pm.getMenu().add(0,1,0,"Red");
    pm.getMenu().add(0,2,0,"Blue");
    pm.getMenu().add(0,3,0,"Reset");
    pm.setOnMenuItemClickListener(item -> {
        switch(item.getItemId()){
            case 1: b.root.setBackgroundColor(Color.RED);
return true;
            case 2: b.root.setBackgroundColor(Color.BLUE);
return true;
            case 3: b.root.setBackgroundColor(Color.WHITE);
return true;
        }
        return false;
    });
    pm.show();
});
}
}

```

activity_popup_color.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:id="@+id/root" android:orientation="vertical"
android:padding="12dp" android:layout_width="match_parent"
android:layout_height="match_parent">
    <Button android:id="@+id/btnMenu" android:text="Open Menu"
android:layout_width="wrap_content"
android:layout_height="wrap_content"/>
</LinearLayout>

```

28) Login and pass username to next screen

LoginPassActivity.java

```

package com.example.madpracticals;

import android.content.Intent;
import android.os.Bundle;

```

```

import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityLoginPassBinding;

public class LoginPassActivity extends AppCompatActivity {
    private ActivityLoginPassBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityLoginPassBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());

        b.btnLogin.setOnClickListener(v -> {
            String u = b.etUser.getText().toString().trim();
            String p = b.etPass.getText().toString().trim();
            if (u.equals("user") && p.equals("pass")) {
                Intent i = new Intent(this, WelcomeActivity.class);
                i.putExtra("user", u);
                startActivity(i);
            } else
                Toast.makeText(this, "Invalid", Toast.LENGTH_SHORT).show();
        });
    }
}

```

activity_login_pass.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:padding="12dp"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <EditText android:id="@+id/etUser" android:hint="Username"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
    <EditText android:id="@+id/etPass" android:hint="Password"
        android:inputType="textPassword" android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
    <Button android:id="@+id/btnLogin" android:text="Login"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
</LinearLayout>

```

29) Search location on Google Maps (open Maps app)

MapActivity.java

```
package com.example.madpracticals;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityMapBinding;

public class MapActivity extends AppCompatActivity {
    private ActivityMapBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityMapBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());
        b.btnSearch.setOnClickListener(v -> {
            String loc = b.etLoc.getText().toString().trim();
            if (loc.isEmpty()) return;
            Uri uri = Uri.parse("geo:0,0?q=" + Uri.encode(loc));
            Intent i = new Intent(Intent.ACTION_VIEW, uri);
            i.setPackage("com.google.android.apps.maps");
            startActivity(i);
        });
    }
}
```

activity_map.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:padding="12dp"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <EditText android:id="@+id/etLoc" android:hint="Enter location"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
    <Button android:id="@+id/btnSearch" android:text="Search on Map"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"/>
</LinearLayout>
```

30) RadioButton demo

RadioActivity.java

```
package com.example.madpracticals;

import android.os.Bundle;
import android.widget.RadioButton;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import com.example.madpracticals.databinding.ActivityRadioBinding;

public class RadioActivity extends AppCompatActivity {
    private ActivityRadioBinding b;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        b = ActivityRadioBinding.inflate(getLayoutInflater());
        setContentView(b.getRoot());
        b.btnShow.setOnClickListener(v -> {
            int id = b.rGroup.getCheckedRadioButtonId();
            if (id == -1) { Toast.makeText(this, "Select
option", Toast.LENGTH_SHORT).show(); return; }
            RadioButton r = findViewById(id);
            Toast.makeText(this, "Selected: " +
r.getText(), Toast.LENGTH_SHORT).show();
        });
    }
}
```

activity_radio.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="vertical" android:padding="12dp"
android:layout_width="match_parent"
android:layout_height="match_parent">
    <RadioGroup android:id="@+id/rGroup"
android:layout_width="match_parent"
android:layout_height="wrap_content">
        <RadioButton android:id="@+id/rMale" android:text="Male"/>
        <RadioButton android:id="@+id/rFemale" android:text="Female"/>
    </RadioGroup>
    <Button android:id="@+id/btnShow" android:text="Show"
android:layout_width="match_parent"
```

```
android:layout_height="wrap_content"/>  
</LinearLayout>
```