LAB#05

INTRODUCING INTENT AND BROADCAST RECEIVERS

Intent

Intents are used as a message-passing mechanism that works both within your application and between applications. You can use Intents to do the following:

- Explicitly start a particular Service or Activity using its class name
- Start an Activity or Service to perform an action with (or on) a particular piece of data
- Broadcast that an event has occurred

You can use Intents to support interaction among any of the application components installed on an Android device, no matter which application they're a part of. This turns your device from a platform containing a collection of independent components into a single, interconnected system.

Using Intents to Launch Activities

To create and display an Activity, call startActivity, passing in an Intent, as follows:
startActivity(myIntent);
Explicitly start an activity
Intent intent = new Intent(MyActivity.this, MyOtherActivity.class);
startActivity(intent);

An implicit Intent is a mechanism that lets anonymous application components service action requests. That means you can ask the system to start an Activity to perform an action without knowing which application, or Activity, will be started.

Intent intent = new Intent(Intent.ACTION_DIAL, Uri.parse("tel:555-2368"));
 startActivity(intent);

Let's try:

Intent myintent=**new** Intent(Intent.***ACTION_VIEW***, Uri.*parse*(**"https://www.google.com/"**));
startActivity(myintent);

MainActivity:

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
```

```xml
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/txtsubject"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="60dp"
        android:text="Date of Birth"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/txtcity" />

    <TextView
        android:id="@+id/txtname"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:text="Name"
        app:layout_constraintBaseline_toBaselineOf="@+id/edtName"
        app:layout_constraintStart_toStartOf="parent" />

    <TextView
        android:id="@+id/txtemail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="4dp"
        android:text="Email"
        app:layout_constraintBaseline_toBaselineOf="@+id/edtEmail"
        app:layout_constraintStart_toStartOf="parent" />

    <TextView
        android:id="@+id/txtgender"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginTop="52dp"
        android:text="Gender"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/edtEmail" />

    <TextView
        android:id="@+id/txtcity"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginTop="104dp"
        android:text="City"
        app:layout_constraintStart_toStartOf="parent"
```

```xml
        app:layout_constraintTop_toBottomOf="@+id/txtgender" />

    <EditText
        android:id="@+id/edtName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="23dp"
        android:layout_marginTop="57dp"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintStart_toEndOf="@+id/txtname"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/edtEmail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp"
        android:ems="10"
        android:inputType="textEmailAddress"
        app:layout_constraintStart_toStartOf="@+id/edtName"
        app:layout_constraintTop_toBottomOf="@+id/edtName" />

    <RadioGroup
        android:id="@+id/radioGroup"
        android:layout_width="163dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="88dp"
        app:layout_constraintStart_toStartOf="@+id/edtEmail"
        app:layout_constraintTop_toTopOf="@+id/edtEmail">

        <RadioButton
            android:id="@+id/radioButton2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Male"
            tools:layout_editor_absoluteX="83dp"
            tools:layout_editor_absoluteY="205dp" />

        <RadioButton
            android:id="@+id/radioButton3"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Female"
            tools:layout_editor_absoluteX="166dp"
            tools:layout_editor_absoluteY="205dp" />
    </RadioGroup>
```

```xml
<Spinner
    android:id="@+id/cityspinner"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="36dp"
    android:layout_marginTop="60dp"
    android:entries="@array/city"
    app:layout_constraintStart_toEndOf="@+id/txtcity"
    app:layout_constraintTop_toBottomOf="@+id/radioGroup"
    tools:ignore="MissingConstraints" />


<DatePicker
    android:id="@+id/dtpicker"
    android:layout_width="wrap_content"
    android:layout_height="210dp"
    android:layout_marginStart="104dp"
    android:layout_marginTop="328dp"
    android:calendarViewShown="false"
    android:datePickerMode="spinner"
    android:minDate="01/01/2000"
    android:spinnersShown="true"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<Button
    android:id="@+id/button"
    android:layout_width="match_parent"
    android:layout_height="47dp"
    android:layout_marginStart="16dp"
    android:onClick="submit"
    android:text="Submit"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent" />

</android.support.constraint.ConstraintLayout>

package com.example.controls_project;

import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.CheckBox;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
```

```java
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.Toast;

import java.util.Date;

public class MainActivity extends AppCompatActivity {

  EditText name,email;
  RadioGroup gender;
  Spinner city;
 DatePicker dob;

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    name=(EditText) findViewById(R.id.edtName);
    email=(EditText) findViewById(R.id.edtEmail);
    gender=(RadioGroup) findViewById(R.id.radioGroup);
city=(Spinner) findViewById(R.id.cityspinner);
dob=(DatePicker)findViewById(R.id.dtpicker);
  }
  public static final String NEW_LIFEFORM_DETECTED =
 "com.paad.action.NEW_LIFEFORM";
  public void submit(View v)
  {
String username=name.getText().toString();
String useremail=email.getText().toString();
int g=gender.getCheckedRadioButtonId();
RadioButton rd=(RadioButton) findViewById(g);
String usercity=city.getSelectedItem().toString();
String dt=dob.getDayOfMonth()+"/"+(dob.getMonth()+1)+"/"+dob.getYear();

Intent customintent=new Intent(this,Home_activity.class);
customintent.putExtra("username",username);
    customintent.putExtra("useremail",useremail);
    customintent.putExtra("gender",rd.getText().toString());
    customintent.putExtra("usercity",usercity);
    customintent.putExtra("dob",dt);
startActivity(customintent);


  }

}
```

HomeActivity:

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/colorPrimaryDark"
    tools:context=".Home_activity">


    <TextView
        android:id="@+id/txtinformation"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="65dp"
        android:text="User Information"
     android:textColor="@android:color/white"
        android:textSize="15pt"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/txtusername"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="84dp"
        android:layout_marginTop="84dp"
        android:textColor="@android:color/white"
        android:text="TextView"
        app:layout_constraintStart_toStartOf="@+id/txtinformation"
        app:layout_constraintTop_toBottomOf="@+id/txtinformation" />

    <TextView
        android:id="@+id/txtuseremail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="72dp"
        android:textColor="@android:color/white"
        android:text="TextView"
        app:layout_constraintStart_toStartOf="@+id/txtusername"
        app:layout_constraintTop_toBottomOf="@+id/txtusername" />

    <TextView
        android:id="@+id/txtusercity"
        android:layout_width="wrap_content"
```

```xml
        android:layout_height="wrap_content"
        android:textColor="@android:color/white"
        android:layout_marginStart="7dp"
        android:layout_marginTop="36dp"
        android:text="TextView"
        app:layout_constraintStart_toStartOf="@+id/txtuseremail"
        app:layout_constraintTop_toBottomOf="@+id/txtuseremail" />

    <TextView
        android:id="@+id/txtusergender"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="55dp"
        android:layout_marginEnd="6dp"
        android:textColor="@android:color/white"
        android:text="TextView"
        app:layout_constraintEnd_toEndOf="@+id/txtusercity"
        app:layout_constraintTop_toBottomOf="@+id/txtusercity" />

    <TextView
        android:id="@+id/txtdateofbirth"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="7dp"
        android:layout_marginTop="53dp"
        android:textColor="@android:color/white"
        android:text="TextView"
        app:layout_constraintStart_toStartOf="@+id/txtusergender"
        app:layout_constraintTop_toBottomOf="@+id/txtusergender" />
</android.support.constraint.ConstraintLayout>
```

```java
package com.example.controls_project;

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

public class Home_activity extends AppCompatActivity {

    TextView u_name,u_email,u_city,u_gender,u_dob;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_home_activity);
        Bundle bundle=getIntent().getExtras();
        u_name=(TextView)findViewById(R.id.txtusername);
        u_email=(TextView)findViewById(R.id.txtuseremail);
        u_city=(TextView)findViewById(R.id.txtusercity);
```

```java
        u_gender=(TextView)findViewById(R.id.txtusergender);
        u_dob=(TextView)findViewById(R.id.txtdateofbirth);

        u_name.setText(bundle.getString("username"));
        u_email.setText(bundle.getString("useremail"));
        u_city.setText(bundle.getString("gender"));
        u_gender.setText(bundle.getString("usercity"));
        u_dob.setText(bundle.getString("dob"));

    }
}
```

Broadcast Receiver:

Broadcasting Intents helps make your application more open; by broadcasting an event using an Intent, you let yourself and third-party developers react to events without having to modify your original application. Within your applications you can listen for Broadcast Intents to to react to device state changes and third-party application events.

Let's try:

```java
package com.example.broadcast_example;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.widget.Toast;

public class MyCustomReciever extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent) {
        Toast.makeText(context,"My Activity send message: Airplane mode on",Toast.LENGTH_LONG).show();


    }
}
```

//Register broadcast activity

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

    <application
        android:allowBackup="true"
```

```xml
                android:icon="@mipmap/ic_launcher"
                android:label="@string/app_name"
                android:roundIcon="@mipmap/ic_launcher_round"
                android:supportsRtl="true"
                android:theme="@style/AppTheme">



        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <receiver android:name=".MyCustomReciever">
            <intent-filter>
                <action android:name="android.intent.action.AIRPLANE_MODE"></action>

            </intent-filter>
        </receiver>
    </application>

</manifest>
```

Lab Task

1) Create a Signup activity for Employee and Displays information to another activity.

```xml
<LinearLayout

    <EditText
        android:id="@+id/etEmail"
        android:layout_width="match_parent"
        android:layout_height="48dp"
        android:autofillHints=""
        android:hint="@string/enter_email"
        android:inputType="textEmailAddress" />

    <EditText
        android:id="@+id/etPhone"
        android:layout_width="match_parent"
        android:layout_height="48dp"
        android:autofillHints=""
        android:hint="@string/enter_phone_number"
        android:inputType="phone" />

    <Button
        android:id="@+id/btnSubmit"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/submit" />
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">

    <TextView
        android:id="@+id/tvName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/name"
        android:textSize="18sp" />

    <TextView
        android:id="@+id/tvEmail"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/email"
        android:textSize="18sp" />

    <TextView
        android:id="@+id/tvPhone"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/phone"
        android:textSize="18sp" />
```

gnupxml > ☐ app > src > ☐ main > res > layout > </> activity_employee_info.xml

```java
public class SignupActivity extends AppCompatActivity {

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

        EditText etName = findViewById(R.id.etName);
        EditText etEmail = findViewById(R.id.etEmail);
        EditText etPhone = findViewById(R.id.etPhone);
        Button btnSubmit = findViewById(R.id.btnSubmit);

        btnSubmit.setOnClickListener(v -> {
            // Get user inputs
            String name = etName.getText().toString();
            String email = etEmail.getText().toString();
            String phone = etPhone.getText().toString();

            // Start EmployeeInfoActivity and pass the data
            Intent intent = new Intent( packageContext: SignupActivity.this, signupInfoActivity.class);
            intent.putExtra( name: "name", name);
            intent.putExtra( name: "email", email);
            intent.putExtra( name: "phone", phone);
            startActivity(intent);


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

        TextView tvName = findViewById(R.id.tvNam
        TextView tvEmail = findViewById(R.id.tvEm
        TextView tvPhone = findViewById(R.id.tvPh

        // Get data from intent
        String name = getIntent().getStringExtra(
        String email = getIntent().getStringExtra
        String phone = getIntent().getStringExtra( name: "phone");

        // Display the data
        tvName.setText("Name: " + name);
        tvEmail.setText("Email: " + email);
        tvPhone.setText("Phone: " + phone);
    }
```
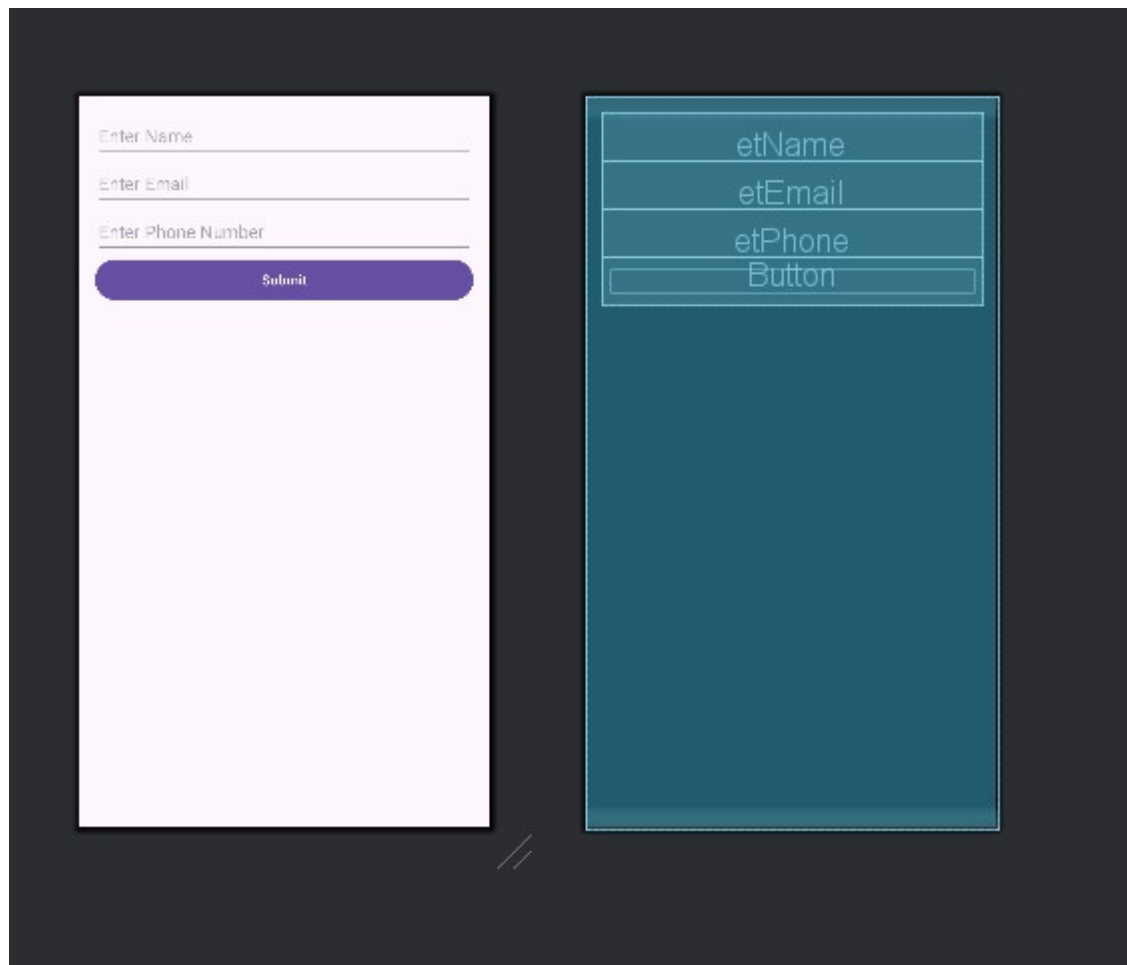
Bundle savedInstanceState

savedInstanceState – If the activity is being re-initialized after previously being shut down then this Bundle contains the data it most recently supplied in onSaveInstanceState . *Note: Otherwise it is null.*

activity_signup.xml.app.main

2) Create a Custom Broadcast message when user changes the date of mobile device.

```java
public class SignupActivity extends AppCompatActivity {

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

        EditText etName = findViewById(R.id.etName);
        EditText etEmail = findViewById(R.id.etEmail);
        EditText etPhone = findViewById(R.id.etPhone);
        Button btnSubmit = findViewById(R.id.btnSubmit);

        btnSubmit.setOnClickListener(v -> {
            // Get user inputs
            String name = etName.getText().toString();
            String email = etEmail.getText().toString();
            String phone = etPhone.getText().toString();

            // Start EmployeeInfoActivity and pass the data
            Intent intent = new Intent( packageContext: SignupActivity.this, signupInfoActivity.class);
            intent.putExtra( name: "name", name);
            intent.putExtra( name: "email", email);
            intent.putExtra( name: "phone", phone);
            startActivity(intent);
```

3) Create Activity to play music using Service Component.

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:gravity="center"
    android:padding="16dp">

    <Button
        android:id="@+id/startMusicButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/start_music"
        android:padding="16dp" />

    <Button
        android:id="@+id/stopMusicButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/stop_music"
        android:padding="16dp"
        android:layout_marginTop="16dp" />

</LinearLayout>
```

```java
package com.example.musicplayerapp;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
    3 usages
    private Intent musicServiceIntent;

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

        musicServiceIntent = new Intent( packageContext: this, MusicService.class);

        Button startButton = findViewById(R.id.startMusicButton);
        startButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                startService(musicServiceIntent);
            }
        });
```

```java
package com.example.musicplayerapp;

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

public class MusicService extends Service {
    @Override
    public IBinder onBind(Intent intent) {
        return null;
    }


    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {
        return START_STICKY;
    }
}
```