Experiment – 10
Aim: Design an application to run music in the background while using other application.

<u>**Solution:**</u>
Step 1: Create a MyService java file:
Choose the "app" folder and create a new file by selecting "New", then "Service" and entering a name.
You can choose any filename you like, for example "MyService.java".

Step 2: Create a resource directory
To create a menu, you need to create raw folder so create one inside the "raw" folder by selecting it
and choosing "File", "New", then "Folder" and entering "raw" as the name and type as raw.

Step 3: Add an audio file:
Add the audio file under "raw" directory.

activity_main.xml:
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity">

  <ImageView
    android:id="@+id/playerImage"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:srcCompat="@drawable/download__1_"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toTopOf="@+id/playBtn"/>

  <ImageView
    android:id="@+id/playBtn"
    android:layout_width="108dp"
    android:layout_height="95dp"
    app:srcCompat="@drawable/download_play"
    android:onClick="changePlay"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toStartOf="@+id/stopBtn"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/playerImage"/>

  <ImageView
    android:id="@+id/stopBtn"
    android:layout_width="103dp"
    android:layout_height="99dp"
```

```
        app:srcCompat="@drawable/download_stop"
        android:onClick="changePlay"
        app:layout_constraintStart_toEndOf="@+id/playBtn"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/playerImage"
        app:layout_constraintBottom_toBottomOf="parent"/>

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

MainActivity.java:
```java
package com.example.musicplayerservices;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void changePlay(View view){
        if(view == findViewById(R.id.playBtn)){
            startService(new Intent(this,MyService.class));
        }
        else if(view==findViewById(R.id.stopBtn)){
            stopService(new Intent(this,MyService.class));
        }
    }
}
```

MyService.java:
```java
package com.example.musicplayerservices;

import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;
import android.provider.Settings;

public class MyService extends Service {

    MediaPlayer mp;

    @Override
    public IBinder onBind(Intent intent) {
```

```
      return null;
   }
   public int onStartCommand(Intent intent, int flags, int startId) {
      mp = MediaPlayer.create(this,R.raw.ringtone);
      mp.setLooping(true);
      mp.start();
      return START_STICKY;
   }
   public void onDestroy(){
      super.onDestroy();
      mp.stop();
   }

}
```

Output:

Experiment – 11

Aim: Design an application to check the airplane mode is enabled or not using broadcast receivers.

<u>Solution:</u>
Create a AeroplaneModeChangedEx java file:
Choose the "app" folder and create a new java file by selecting "New", then "Java Class" and entering a name. You can choose any filename you like, for example "AeroplaneModeChangedEx.java".

activity_main.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=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Airplane Mode Disabled"
        android:textStyle="bold"
        android:textColor="#00FF00"
        android:textAlignment="center"
        android:textSize="50dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:gravity="center_horizontal" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java:

```java
package com.example.airplanemodechangedbr;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    AeroplaneModeChangedEx receiver;
```

```java
    TextView text;
    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        text = findViewById(R.id.textView);
    }

    @Override
    protected void onStart() {
        super.onStart();
        receiver = new AeroplaneModeChangedEx(text);
        registerReceiver(receiver,new IntentFilter(Intent.ACTION_AIRPLANE_MODE_CHANGED));
    }

    @Override
    protected void onStop() {
        super.onStop();
        unregisterReceiver(receiver);
    }
}
```

AeroplaneModeChangedEx.java:
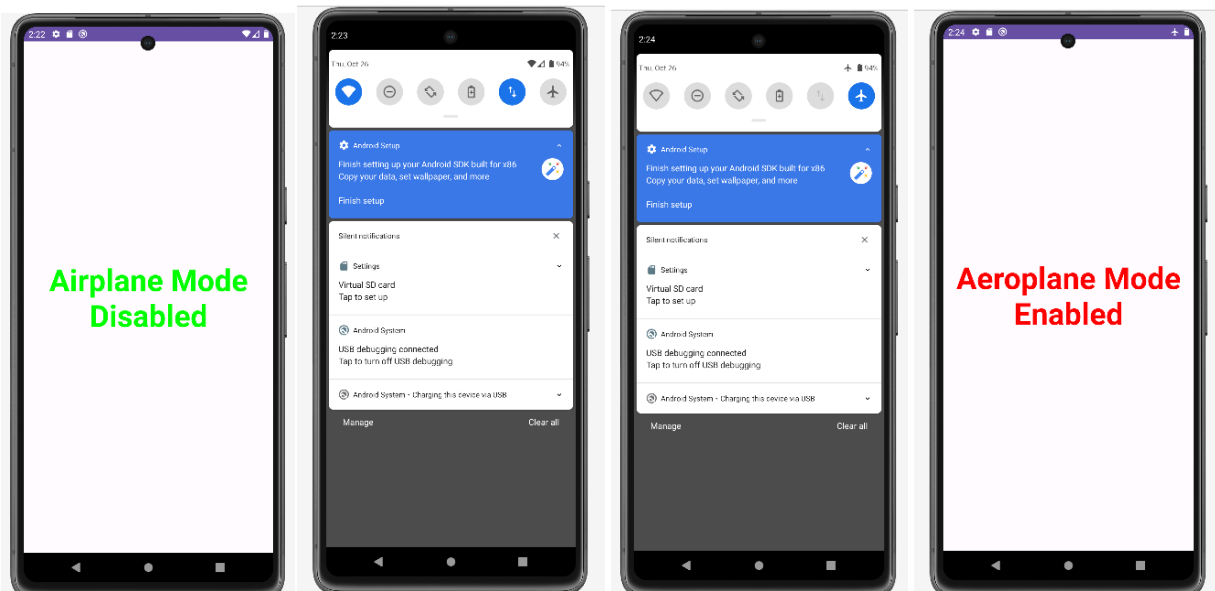
```java
package com.example.airplanemodechangedbr;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.graphics.Color;
import android.widget.TextView;

public class AeroplaneModeChangedEx extends BroadcastReceiver {
    TextView tview;
    AeroplaneModeChangedEx(TextView tv){
        tview = tv;
    }
    @Override
    public void onReceive(Context context, Intent intent) {
        Boolean isAirplaneModeEnabled = intent.getBooleanExtra("state",false);
        if(isAirplaneModeEnabled){
            tview.setText("Aeroplane Mode Enabled");
            tview.setTextColor(Color.parseColor("#FF0000"));
        }
        else {
            tview.setText("Aeroplane Mode Disabled");
            tview.setTextColor(Color.parseColor("#00FF00"));
        }
    }
```

}

Experiment – 12
Aim: Design an application to monitor the battery level using broadcast receivers.

Solution:
Create a BatteryReceiver java file:
Choose the "app" folder and create a new java file by selecting "New", then "Java Class" and entering a name. You can choose any filename you like, for example "BatteryReceiver.java".

activity_main.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=".MainActivity">

    <TextView
        android:id="@+id/batteryText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="50dp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/checkBtn"
        app:layout_constraintBottom_toTopOf="@+id/progressBar"/>

    <Button
        android:id="@+id/checkBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Check Battery Percentage"
        android:onClick="checkBatteryPercentage"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toTopOf="@+id/batteryText"/>

    <ProgressBar
        android:id="@+id/progressBar"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:minHeight="100dp"
        android:minWidth="200dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/batteryText"
```

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

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

MainActivity.java:

```java
package com.example.broadcastrecieverex;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.view.View;
import android.widget.ProgressBar;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    TextView tv;
    ProgressBar progress;
    BatteryReceiver BR;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv = findViewById(R.id.batteryText);
        progress = findViewById(R.id.progressBar);

    }
    public void checkBatteryPercentage(View view){
        BR = new BatteryReceiver(tv,progress);
        registerReceiver(BR,new IntentFilter(Intent.ACTION_BATTERY_CHANGED));
    }

    @Override
    protected void onStop() {
        super.onStop();
        unregisterReceiver(BR);
    }
}
```

BatteryReceiver.java:

```java
package com.example.broadcastrecieverex;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.res.ColorStateList;
import android.graphics.Color;
```
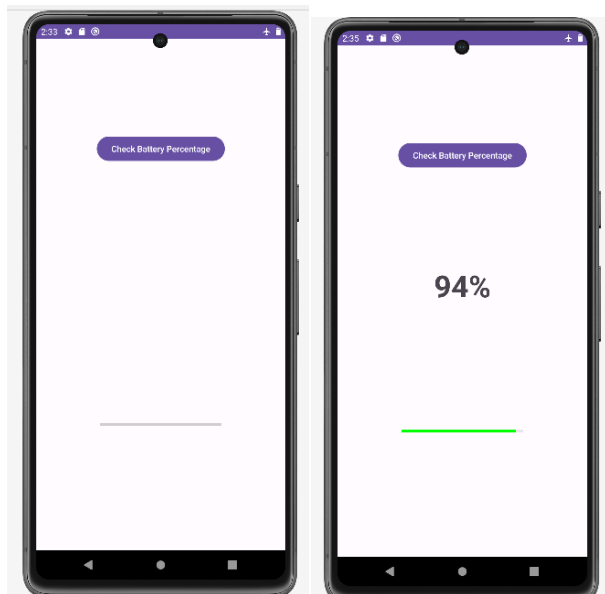
```java
import android.os.Build;
import android.widget.ProgressBar;
import android.widget.TextView;

import androidx.annotation.RequiresApi;

public class BatteryReceiver extends BroadcastReceiver {
    TextView tview;
    ProgressBar prg;
    BatteryReceiver(TextView tv, ProgressBar progressBar){
        tview = tv;
        prg = progressBar;
    }
    @RequiresApi(api = Build.VERSION_CODES.LOLLIPOP)
    @Override
    public void onReceive(Context context, Intent intent) {
        int per = intent.getIntExtra("level",0);
        if(per>=50) {
            tview.setText(per + "%");
            prg.setProgress(per);
            prg.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
        }
        else if(per<50 && per>=20){
            tview.setText(per + "%");
            prg.setProgress(per);
            prg.setProgressTintList(ColorStateList.valueOf(Color.YELLOW));
        } else if (per<20 && per>0) {
            tview.setText(per + "%");
            prg.setProgress(per);
            prg.setProgressTintList(ColorStateList.valueOf(Color.RED));
        }
    }
}
```
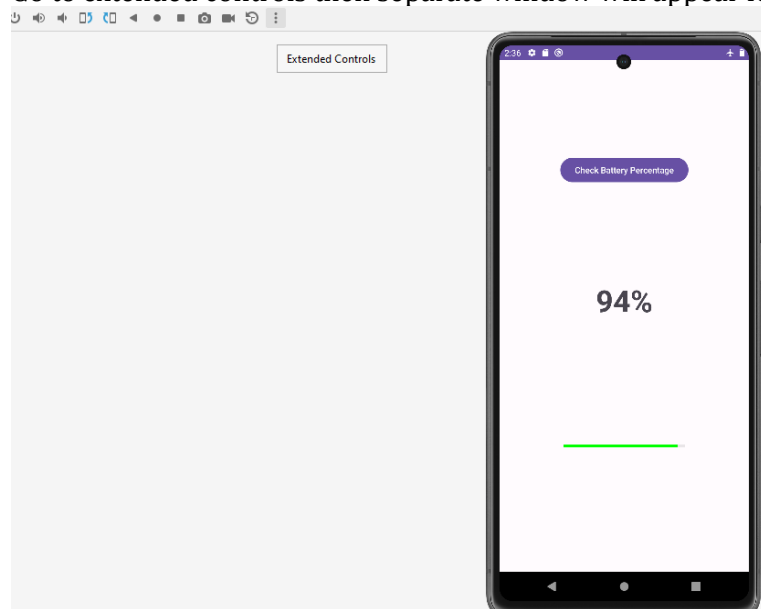
Output:

Go to extended controls then separate window will appear for the controls

Change the Battery level