



Experiment 13: Battery Percentage

1.Design (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"
    android:background="@color/abb">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="78dp"
        android:layout_marginBottom="61dp"
        android:text="Battery Percentage"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/button"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.448"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.181" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="69dp"
        android:text="OKAY"
        app:layout_constraintBottom_toTopOf="@+id/progressBar"
        app:layout_constraintEnd_toEndOf="@+id/textView"
        app:layout_constraintStart_toStartOf="@+id/textView"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <ProgressBar
        android:id="@+id/progressBar"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="154dp"
        android:layout_height="8dp"
        android:layout_marginBottom="341dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="@+id/button"
        app:layout_constraintStart_toStartOf="@+id/button"
        app:layout_constraintTop_toBottomOf="@+id/button" />

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

2.JAVA File (MainActivity.java)

```
package com.example.newproject_0223;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {
    TextView textView;
    ProgressBar progressBar;
    Button button;
    NewJavaFile2 receiver;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textView=findViewById(R.id.textView);
        progressBar=findViewById(R.id.progressBar);
        button=findViewById(R.id.button);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                receiver=new NewJavaFile2(textView,progressBar);
                registerReceiver(receiver,new IntentFilter(Intent.ACTION_BATTERY_CHANGED));
            }
        });
    }

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

NewJavaFile2.java

```
package com.example.newproject_0223;

import android.annotation.SuppressLint;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.res.ColorStateList;
import android.graphics.Color;
import android.widget.ProgressBar;
import android.widget.TextView;

public class NewJavaFile2 extends BroadcastReceiver {
    TextView textView;
    ProgressBar progressBar;
    NewJavaFile2(TextView tv, ProgressBar pb) {
        textView=tv;
        progressBar=pb;
    }

    @SuppressLint("SetTextI18n")
    @Override
    public void onReceive(Context context, Intent intent) {
        // int percentage=intent.getByteExtra("level", (byte) 0);
        int percentage=intent.getIntExtra("level",0);
        if(percentage>=50) {
            textView.setText(percentage+"%");
            progressBar.setProgress(percentage);
            progressBar.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
        }
        else if(percentage<50 && percentage>=20) {
            textView.setText(percentage+"%");
            progressBar.setProgress(percentage);
            progressBar.setProgressBackgroundTintList(ColorStateList.valueOf(Color.YELLOW));
        }
        else if(percentage<20 && percentage>=0) {
            textView.setText(percentage+"%");
            progressBar.setProgress(percentage);
            progressBar.setProgressBackgroundTintList(ColorStateList.valueOf(Color.RED));
        }
    }
}
```

AndroidManifest.xml

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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.NewProject_0223"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true"
            android:icon="@mipmap/charging">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

3. Output in the Emulator



