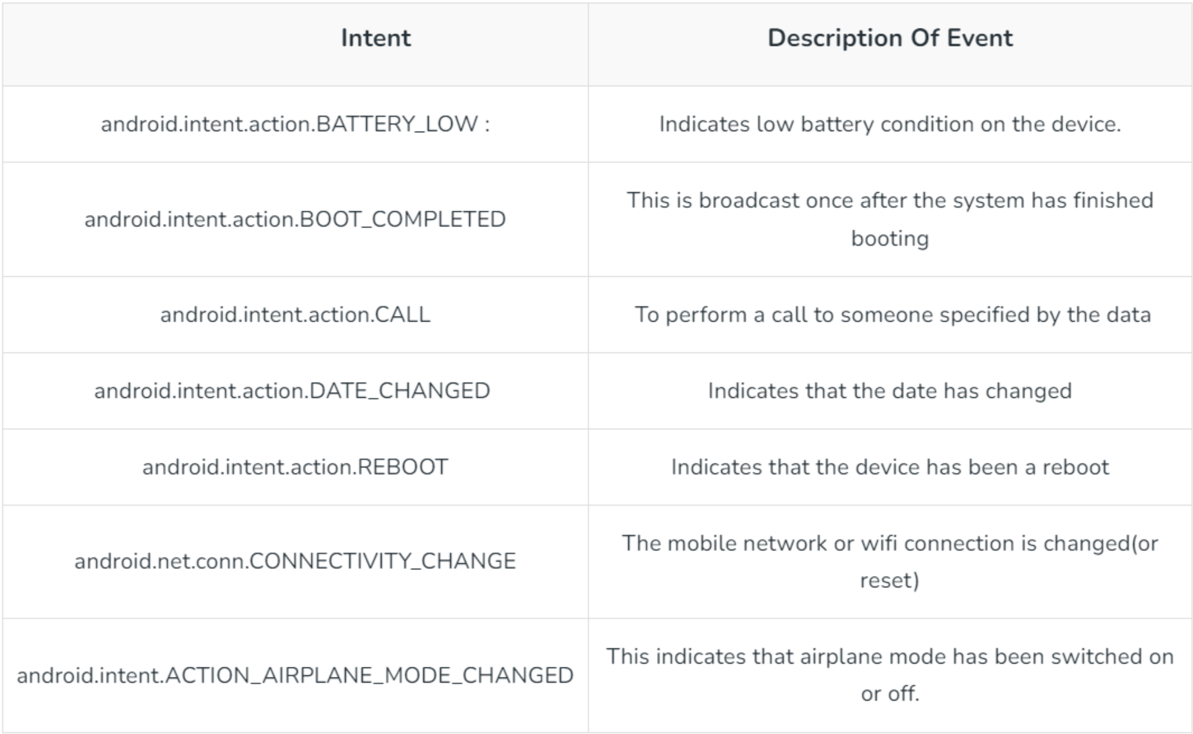
Broadcast Receiver in Android With Example

Broadcast in android is the system-wide events that can occur when the device starts, when a message is received on the device or when incoming calls are received, or when a device goes to airplane mode, etc. Broadcast Receivers are used to respond to these system-wide events. Broadcast Receivers allow us to register for the system and application events, and when that event happens, then the register receivers get notified. There are mainly two types of Broadcast Receivers:

- **Static Broadcast Receivers:** These types of Receivers are declared in the manifest file and works even if the app is closed.
- **Dynamic Broadcast Receivers:** These types of receivers work only if the app is active or minimized.

Since from API Level 26, most of the broadcast can only be caught by the dynamic receiver, so we have implemented dynamic receivers in our sample project given below. There are some static fields defined in the Intent class which can be used to broadcast different events. We have taken a change of airplane mode as a broadcast event, but there are many events for which broadcast register can be used. Following are some of the important system-wide generated intents:-



Intent	Description Of Event
android.intent.action.BATTERY_LOW :	Indicates low battery condition on the device.
android.intent.action.BOOT_COMPLETED	This is broadcast once after the system has finished booting
android.intent.action.CALL	To perform a call to someone specified by the data
android.intent.action.DATE_CHANGED	Indicates that the date has changed
android.intent.action.REBOOT	Indicates that the device has been a reboot
android.net.conn.CONNECTIVITY_CHANGE	The mobile network or wifi connection is changed(or reset)
android.intent.ACTION_AIRPLANE_MODE_CHANGED	This indicates that airplane mode has been switched on or off.

Hello world!

res – layout - activity_main.xml:

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/hello_world"
        android:textSize="20sp" />
</LinearLayout>
```

Java - MainActivity.Java:

```
package com.example.myapplication_bs3;

import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;

public class MainActivity extends Activity {

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


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

}
```

res – menu - main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/action_settings" android:orderInCategory="100"
        android:title="@string/action_settings"
        app:showAsAction="never" />
</menu>
```

Values - strings.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item android:id="@+id/action_settings" android:orderInCategory="100"
        android:title="@string/action_settings"
        app:showAsAction="never" />
</menu>
```

Java - IncomingCallReceiver.java

```
package com.example.myapplication_bs3;

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

public class IncommingCallReceiver extends BroadcastReceiver{
    Context context;

    @Override
    public void onReceive(Context context, Intent intent){
        try{
            String state =
intent.getStringExtra(TelephonyManager.EXTRA_STATE);

            if(state.equals(TelephonyManager.EXTRA_STATE_RINGING)){
                Toast.makeText(context, "Phone Is Ringing",
Toast.LENGTH_LONG).show();
            }

            if(state.equals(TelephonyManager.EXTRA_STATE_OFFHOOK)){
                Toast.makeText(context, "Call Recieved",
Toast.LENGTH_LONG).show();
            }

            if (state.equals(TelephonyManager.EXTRA_STATE_IDLE)){
                Toast.makeText(context, "Phone Is Idle",
Toast.LENGTH_LONG).show();
            }
        }
        catch(Exception e){e.printStackTrace();}
    }

}
```

AndroidManifest.xml

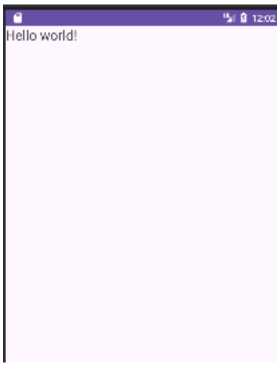
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <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.MyApplication_BS3"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

Output:



Hello world!