BSc (Hons) in Information Technology
Year 2 – Semester 2

Lab Exercise 05

IT2010 – Mobile Application Development

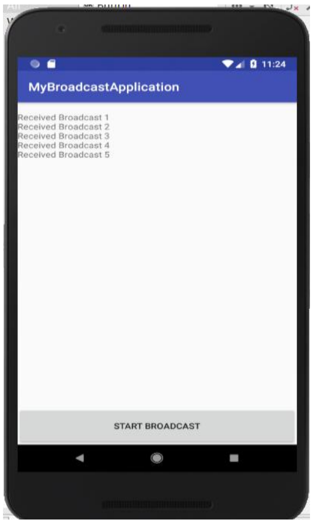
Semester 2, 2019

Requirement:

When the user taps on the button (Start Broadcast), a background service will start and start sending 5 broadcast messages. Each of the broadcast message contains a data of "Broadcast <message count>".

The same interface contains a textfield, which shows "Received <Broadcast message data>" text on receiving each of the broadcast messages sent from the background service.

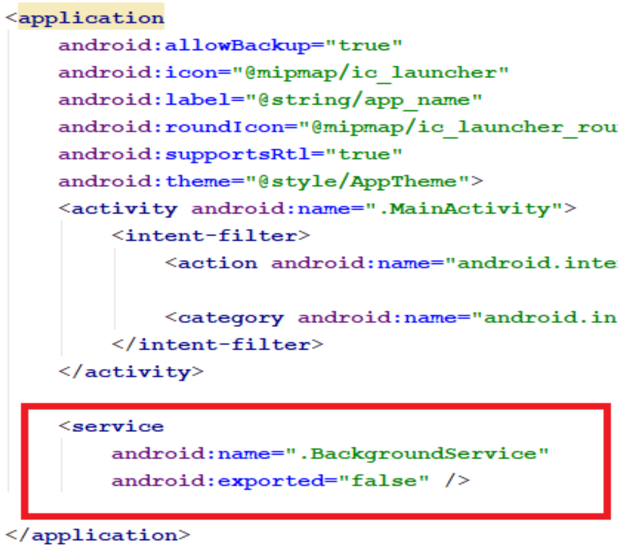
1. Create a new android project called "BroadcastProj".
2. Create the main activity UI with an empty text view and a button for having the following output.



```
Received Broadcast 1
Received Broadcast 2
Received Broadcast 3
Received Broadcast 4
Received Broadcast 5
```

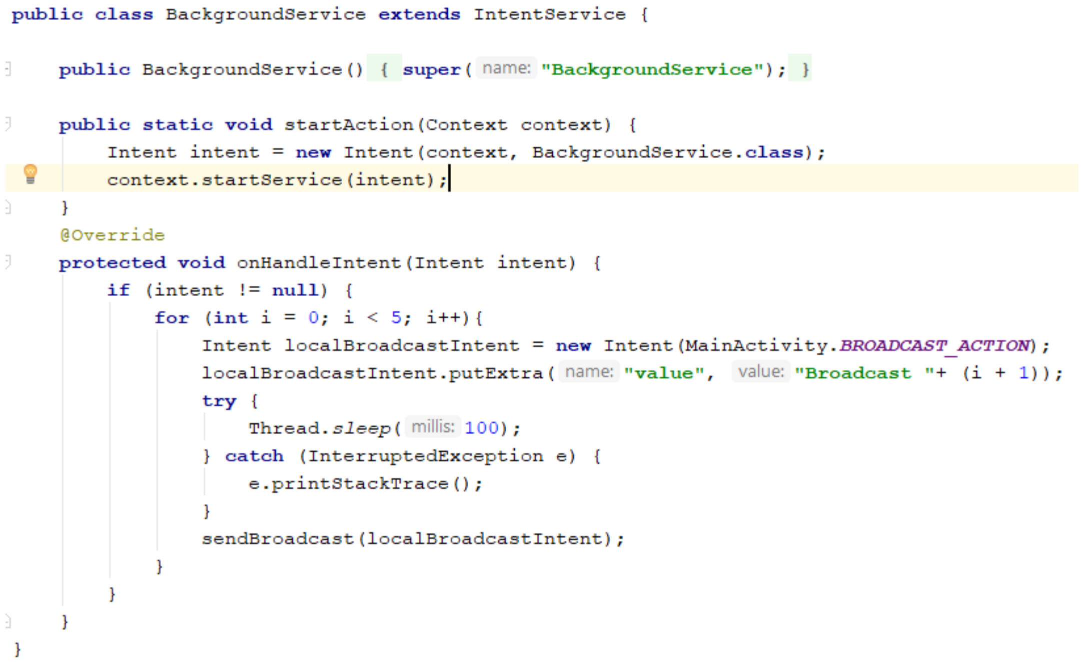
3. Declare a service in the Manifest file.

    (declare all services in your application's manifest file, just as you do for activities and other components.)



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

    <service
        android:name=".BackgroundService"
        android:exported="false" />
</application>
```

1. Initialize all the components in MainActivity within onCreate().
4. Create another empty activity called "BackgroundServices.java" and implement it as follows :

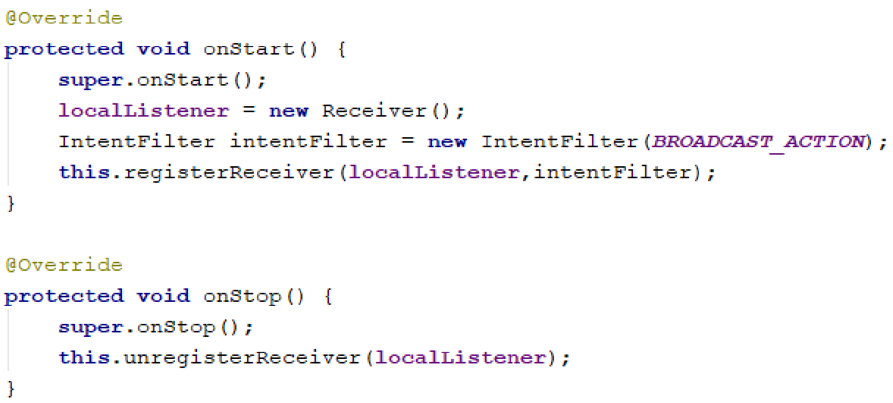


```
public class BackgroundService extends IntentService {

    public BackgroundService() { super( name: "BackgroundService"); }

    public static void startAction(Context context) {
        Intent intent = new Intent(context, BackgroundService.class);
        context.startService(intent);
    }
    @Override
    protected void onHandleIntent(Intent intent) {
        if (intent != null) {
            for (int i = 0; i < 5; i++){
                Intent localBroadcastIntent = new Intent(MainActivity.BROADCAST_ACTION);
                localBroadcastIntent.putExtra( name: "value",  value: "Broadcast "+ (i + 1));
                try {
                    Thread.sleep( millis: 100);
                } catch (InterruptedException e) {
                    e.printStackTrace();
                }
                sendBroadcast(localBroadcastIntent);
            }
        }
    }
}
```

And import the necessary classes (IntentService, Intent, Context)

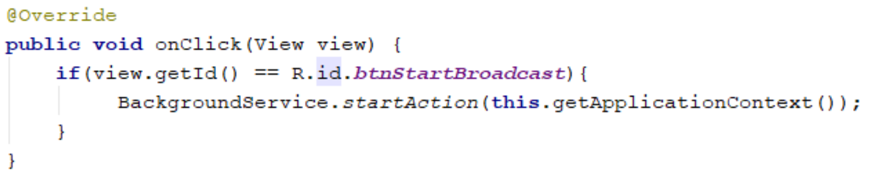
5. Implement the other methods in MainActivity class as follows:

- OnStart() to register the receiver and onStop() to unregister the receiver.



```
@Override
protected void onStart() {
    super.onStart();
    localListener = new Receiver();
    IntentFilter intentFilter = new IntentFilter(BROADCAST_ACTION);
    this.registerReceiver(localListener,intentFilter);
}

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

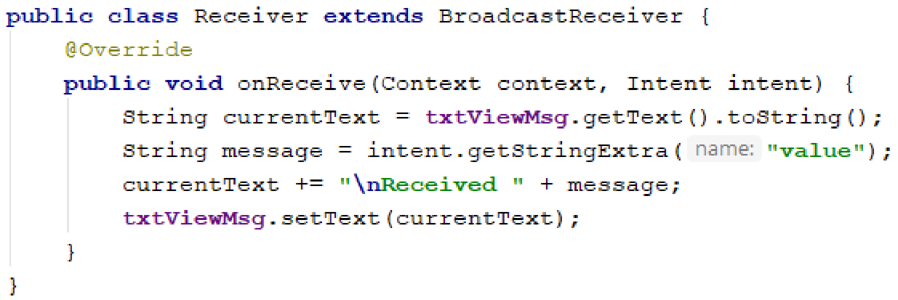
- StartBroadcast button click event:



```
@Override
public void onClick(View view) {
    if(view.getId() == R.id.btnStartBroadcast){
        BackgroundService.startAction(this.getApplicationContext());
    }
}
```

Now this will call to the method implemented before in BackgroundService class and start the service.

- Implement another class called "Receiver" inside the MainActivity class itself to receive the service generated from service class and display the output.



```
public class Receiver extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent) {
        String currentText = txtViewMsg.getText().toString();
        String message = intent.getStringExtra( name: "value");
        currentText += "\nReceived " + message;
        txtViewMsg.setText(currentText);
    }
}
```