

# Practical: 8

**AIM-** What is BroadcastReceiver? Difference between Service and BroadcastReceiver. Create an Alarm application by using service & BroadcastReceiver by following below instructions.

1. Create MainActivity according to below UI design.
2. Create AlarmBroadcastReceiver class
3. Create AlarmService Class
4. Add android.permission.SCHEDULE\_EXACT\_ALARM Permission in Manifest file.

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### 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">

    <androidx.core.widget.NestedScrollView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <androidx.constraintlayout.widget.ConstraintLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent">
            <TextView
                android:id="@+id/textView"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_margin="20dp"
                android:text="@string/app_name"
                android:textSize="20sp"
                app:layout_constraintStart_toStartOf="parent"
                app:layout_constraintTop_toTopOf="parent" />

            <com.google.android.material.card.MaterialCardView
                android:id="@+id/card"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_margin="20dp"
                app:cardElevation="20dp"
                app:layout_constraintEnd_toEndOf="parent"
                app:layout_constraintStart_toStartOf="parent"
                app:layout_constraintTop_toBottomOf="@+id/textView">

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:orientation="vertical">

                    <ImageView
```

```
android:id="@+id/imageView"  
android:layout_width="match_parent"  
android:layout_height="194dp"  
android:scaleType="fitXY"  
app:srcCompat="@drawable/image" />
```

```
<LinearLayout  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:orientation="vertical"  
    android:padding="16dp">
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="Create Alarm Time"  
    android:textAppearance="?attr/textAppearanceHeadline6" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="8dp"  
    android:text="Be pressing buttons,Alarm can be created And cancelled."  
    android:textAppearance="?attr/textAppearanceBody2" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="8dp"  
    android:text="Check Current Time By looking below real digital clock"  
    android:textAppearance="?attr/textAppearanceBody2" />
```

```
<TextClock  
    android:id="@+id/clocktime"  
    android:format12Hour="hh:mm:ss a MMM dd yyyy"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_gravity="center"  
    android:layout_margin="20dp"  
    android:padding="10dp"  
    android:textAlignment="center"/>
```

```
<com.google.android.material.button.MaterialButton  
    android:id="@+id/create"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="Create Alarm"
```

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```
        app:icon="@drawable/baseline_add_alarm_24"/>
    </LinearLayout>
</LinearLayout>

</com.google.android.material.card.MaterialCardView>

<com.google.android.material.card.MaterialCardView
    android:id="@+id/card2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="20dp"
    app:cardElevation="20dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/card">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">

        <ImageView
            android:id="@+id/imageView2"
            android:layout_width="match_parent"
            android:layout_height="194dp"
            android:scaleType="fitXY"
            app:srcCompat="@drawable/image"/>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="16dp">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Set Alarm Time:"
                android:layout_gravity="center"
                android:textAppearance="?attr/textAppearanceHeadline6"/>

            <TextClock
                android:id="@+id/clocktime2"
                android:format12Hour="hh:mm:ss a MMM dd yyyy"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
```

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```
        android:layout_margin="20dp"
        android:padding="10dp"
        android:textAlignment="center"/>

        <com.google.android.material.button.MaterialButton
            android:id="@+id/cancel"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Cancel Alarm"
            app:icon="@drawable/baseline_alarm_off_24"/>
    </LinearLayout>
</LinearLayout>

    </com.google.android.material.card.MaterialCardView>
</androidx.constraintlayout.widget.ConstraintLayout>
</androidx.core.widget.NestedScrollView>

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

### **MainActivity.kt :-**

```
package com.example.mad_practical_8_21012021012

import android.app.AlarmManager
import android.app.PendingIntent
import android.app.TimePickerDialog
import android.content.BroadcastReceiver
import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.View
import android.widget.Button
import android.widget.TextClock
import android.widget.TextView
import android.widget.Toast
import com.google.android.material.button.MaterialButton
import com.google.android.material.card.MaterialCardView
import java.text.SimpleDateFormat
import java.util.Calendar

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
```

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```
val addAlarm : MaterialButton = findViewById(R.id.create)
val card : MaterialCardView = findViewById(R.id.card2)

card.visibility = View.GONE

addAlarm.setOnClickListener {
    TimePickerDialog(this, {tp, hour, minute -> setAlarmTime(hour, minute) },
Calendar.getInstance().get(Calendar.HOUR), Calendar.getInstance().get(Calendar.MINUTE),
false).show()
    card.visibility = View.VISIBLE
}

val cancelAlarm : MaterialButton = findViewById(R.id.cancel)
cancelAlarm.setOnClickListener {
    stop()
    card.visibility = View.GONE
}

fun setAlarmTime(hour : Int, minute : Int){
    val alarmtime = Calendar.getInstance()
    val year = alarmtime.get(Calendar.YEAR)
    val month = alarmtime.get(Calendar.MONTH)
    val date = alarmtime.get(Calendar.DATE)
    alarmtime.set(year, month, date, hour, minute, 0)
    val textAlarmTime : TextClock = findViewById(R.id.clocktime2)
    textAlarmTime.text = SimpleDateFormat("hh:mm:ss a").format(alarmtime.time)
    setAlarm(alarmtime.timeInMillis, AlarmBroadcastReceiver.ALARMSTART)
    Toast.makeText(this, "Alarm Set", Toast.LENGTH_LONG).show()
}

fun stop() {
    setAlarm(-1, AlarmBroadcastReceiver.ALARMSTOP)
}

fun setAlarm(militime : Long, action : String) {
    val intentalarm = Intent(applicationContext, AlarmBroadcastReceiver::class.java)
    intentalarm.putExtra(AlarmBroadcastReceiver.ALARMKEY, action)
    val pendingintent = PendingIntent.getBroadcast(applicationContext, 4356, intentalarm,
PendingIntent.FLAG_UPDATE_CURRENT or PendingIntent.FLAG_IMMUTABLE)
    val alarmmanager = getSystemService(ALARM_SERVICE) as AlarmManager

    if (action == AlarmBroadcastReceiver.ALARMSTART) {
        alarmmanager.setExact(AlarmManager.RTC_WAKEUP, militime, pendingintent)
    }
    else if (action == AlarmBroadcastReceiver.ALARMSTOP) {
```

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```
        alarmmanager.cancel(pendingintent)
        sendBroadcast(intentalarm)
    }
}
```

### **AlarmService.kt :-**

```
package com.example.mad_practical_8_21012021012

import android.app.Service
import android.content.Intent
import android.media.MediaPlayer
import android.os.IBinder

class AlarmService : Service() {

    lateinit var player : MediaPlayer

    override fun onBind(intent: Intent): IBinder {
        TODO("Practical-8")
    }

    override fun onStartCommand(intent: Intent?, flags: Int, startId: Int): Int {
        if (intent != null) {
            player = MediaPlayer.create(this,R.raw.alarm)
            player.start()
        }

        return START_STICKY
    }

    override fun onDestroy() {
        player.stop()
        super.onDestroy()
    }
}
```

### **AlarmBroadcastReceiver.kt :-**

```
package com.example.mad_practical_8_21012021012
```

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```
import android.content.BroadcastReceiver
import android.content.Context
import android.content.Intent

class AlarmBroadcastReceiver : BroadcastReceiver() {

    companion object {
        val ALARMKEY = "KEY"
        val ALARMSTART = "START"
        val ALARMSTOP = "STOP"
    }

    override fun onReceive(context: Context, intent: Intent) {
        if (intent != null) {
            val data = intent.getStringExtra(ALARMKEY)

            if (data != null) {

                val intentservice = Intent(context, AlarmService::class.java)

                if (data == ALARMSTART) {
                    context.startService(intentservice)
                }
                else{
                    context.stopService(intentservice)
                }
            }
        }
    }
}
```

### **AndroidManifest.xml :-**

```
<uses-permission android:name="android.permission.SCHEDULE_EXACT_ALARM" />
<uses-permission android:name="android.permission.USE_EXACT_ALARM" />
```



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### Output :-

