Week 12: Create an alarm clock mobile application.

Android Application that creates Alarm Clock

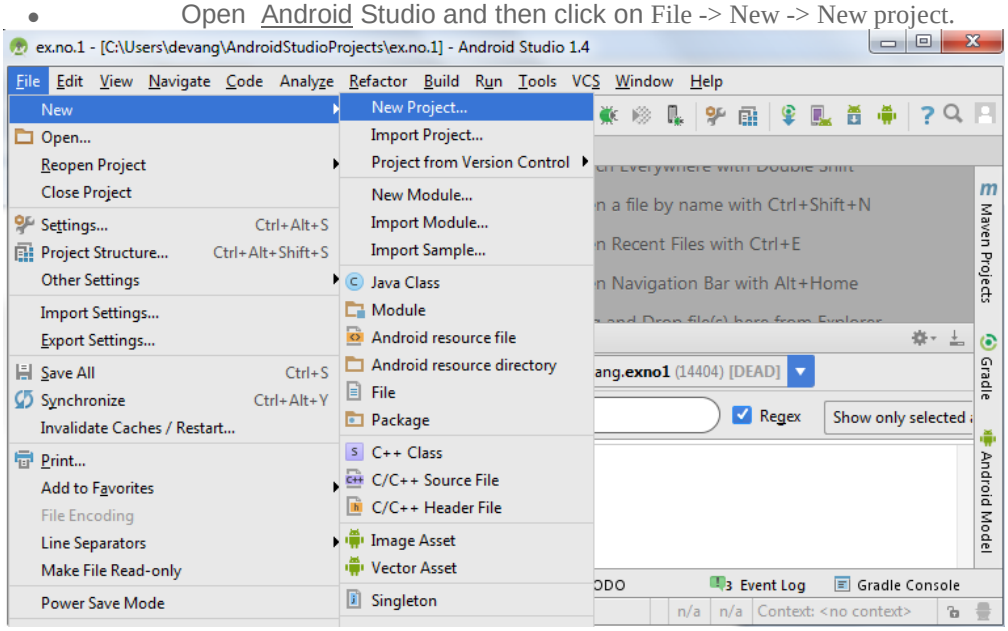
Aim:

To develop a Android Application that creates Alarm Clock.

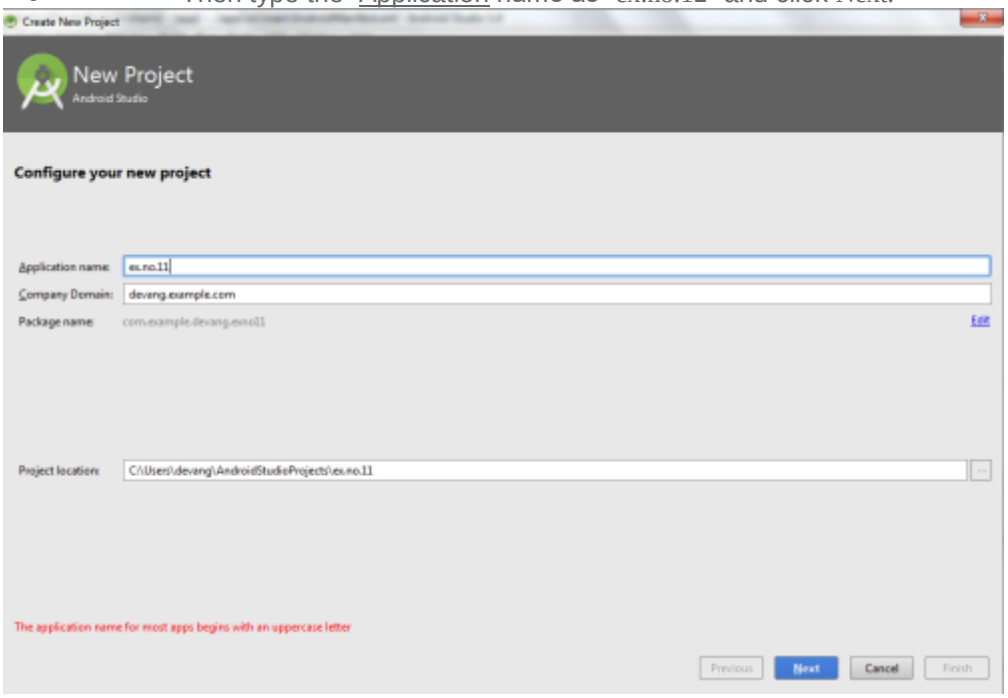
Procedure:

Creating a New project:

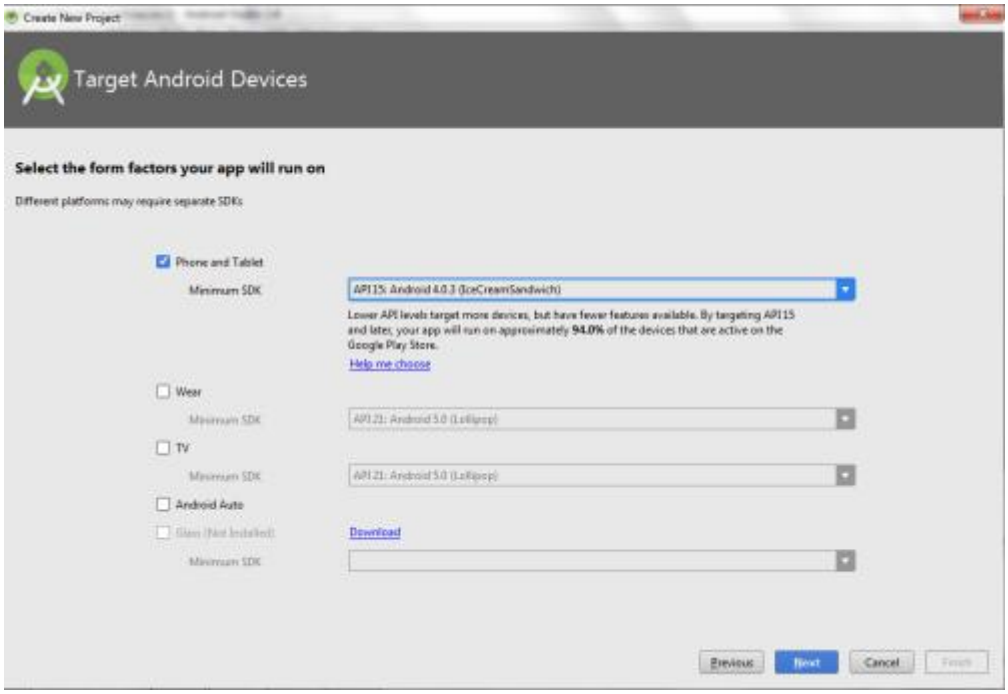
- Open Android Studio and then click on File -> New -> New project.



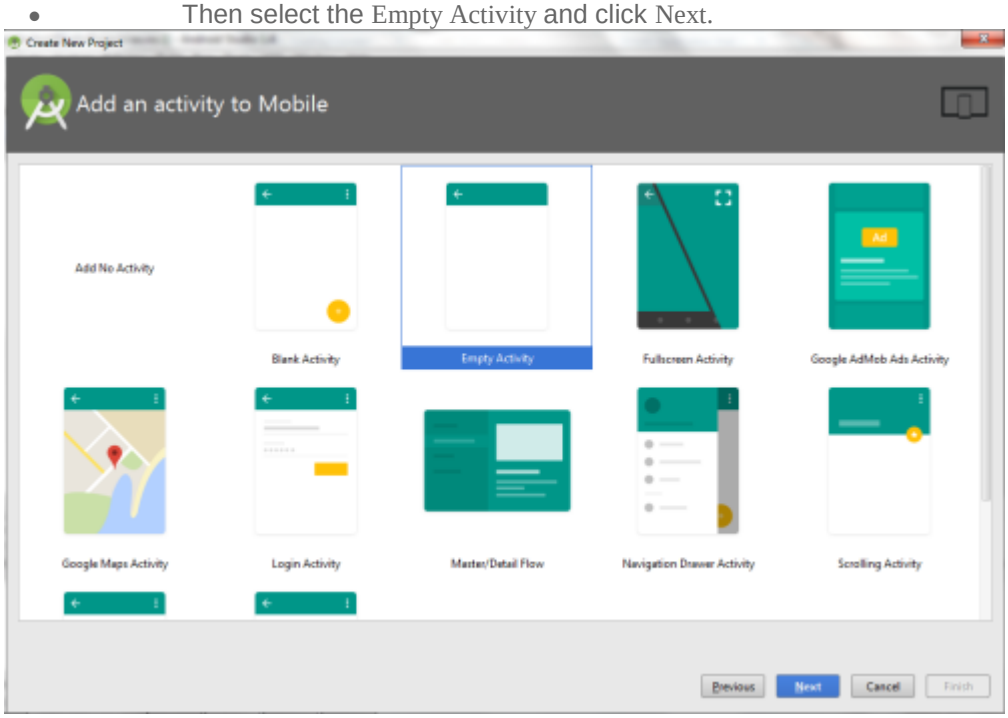
- Then type the Application name as "ex.no.12" and click Next.



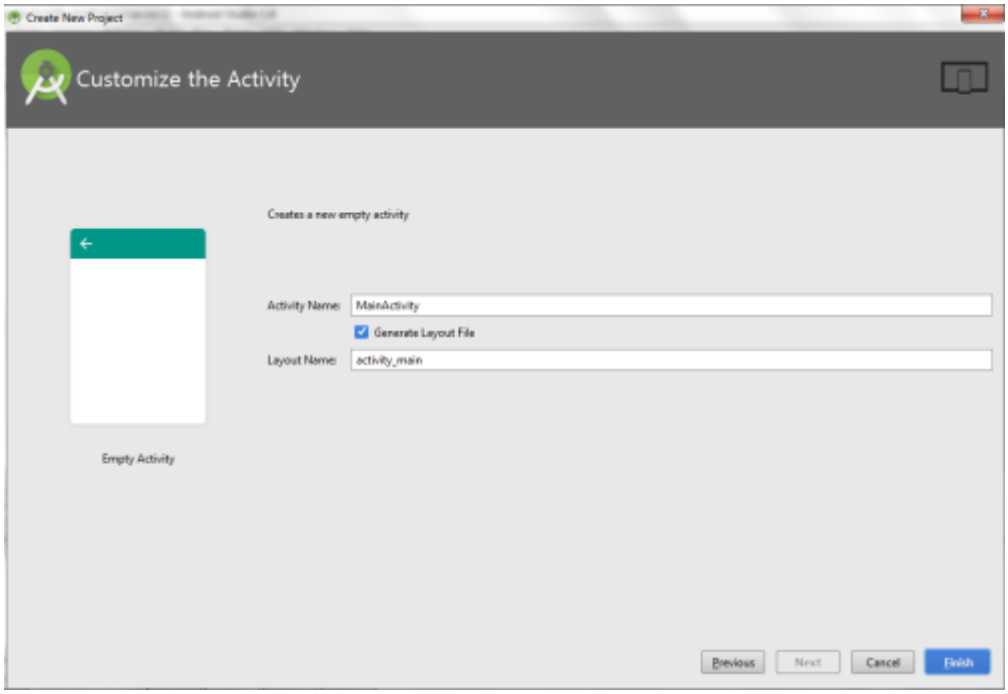
- Then select the Minimum SDK as shown below and click Next.



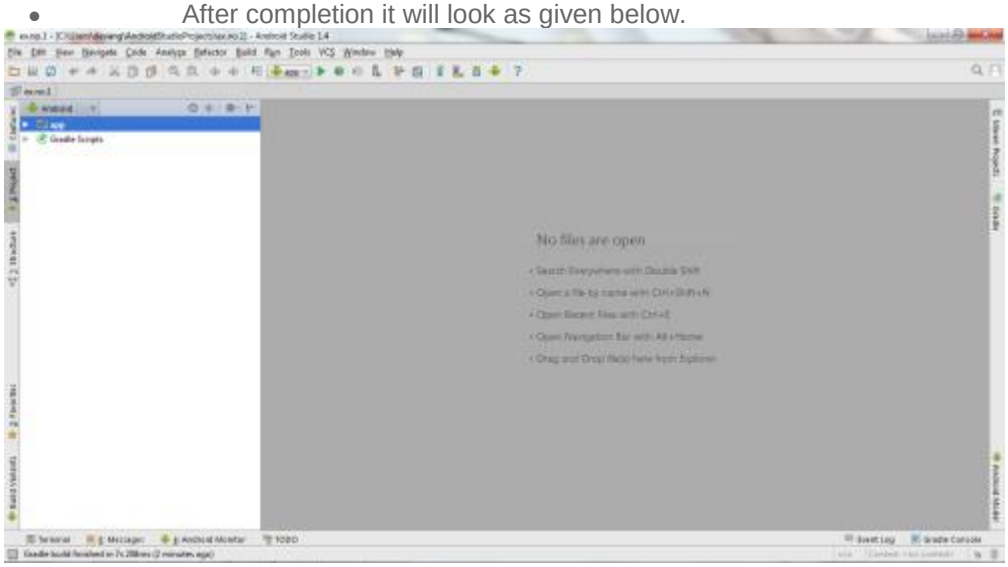
- Then select the Empty Activity and click Next.



- Finally click Finish.

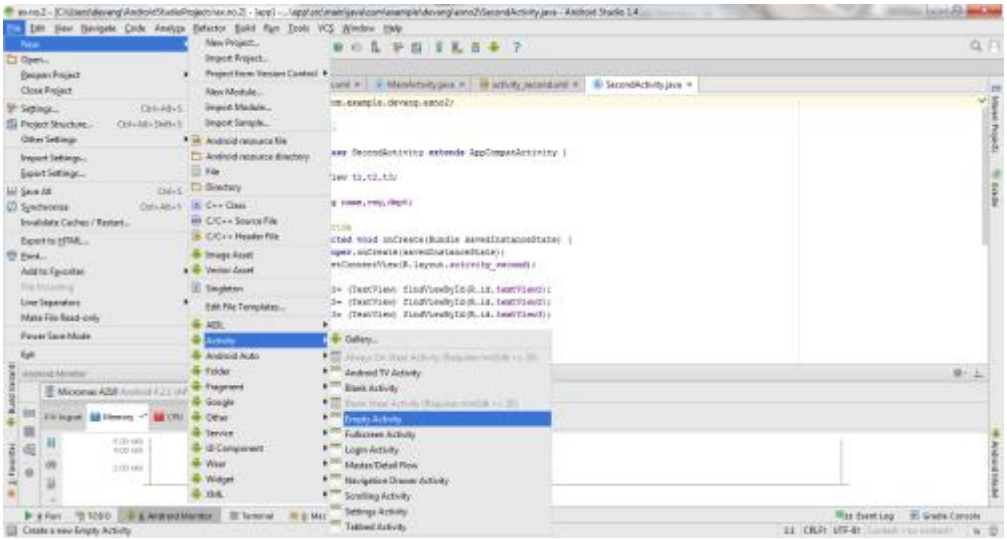


- It will take some time to build and load the project.
- After completion it will look as given below.

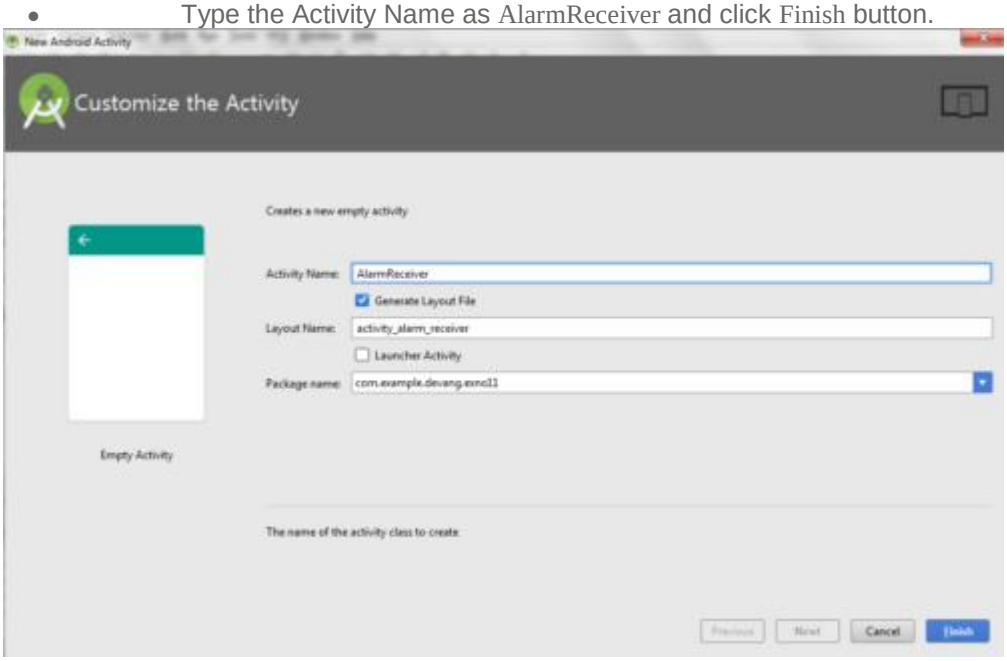


Creating Second Activity for the Android Application:

- Click on File -> New -> Activity -> Empty Activity.



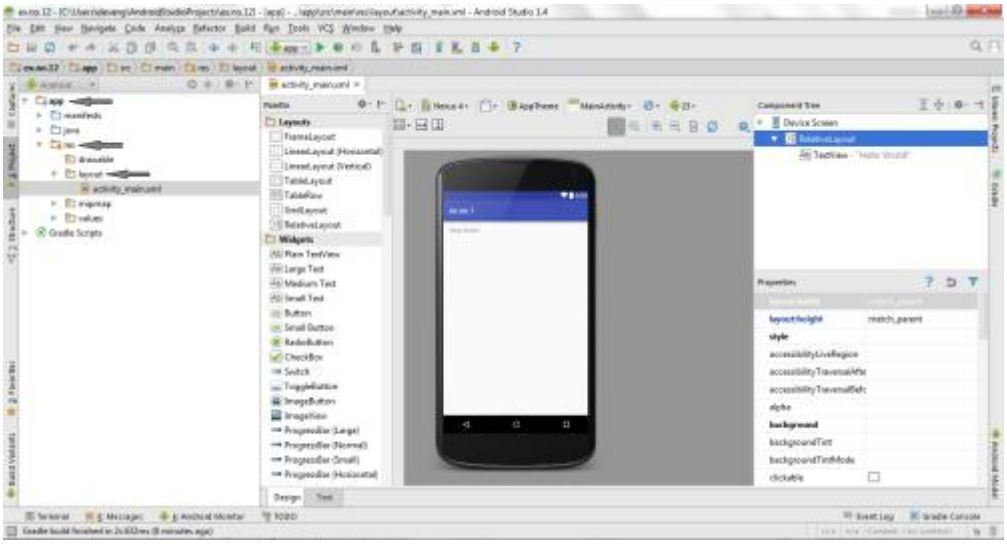
- Type the Activity Name as AlarmReceiver and click Finish button.



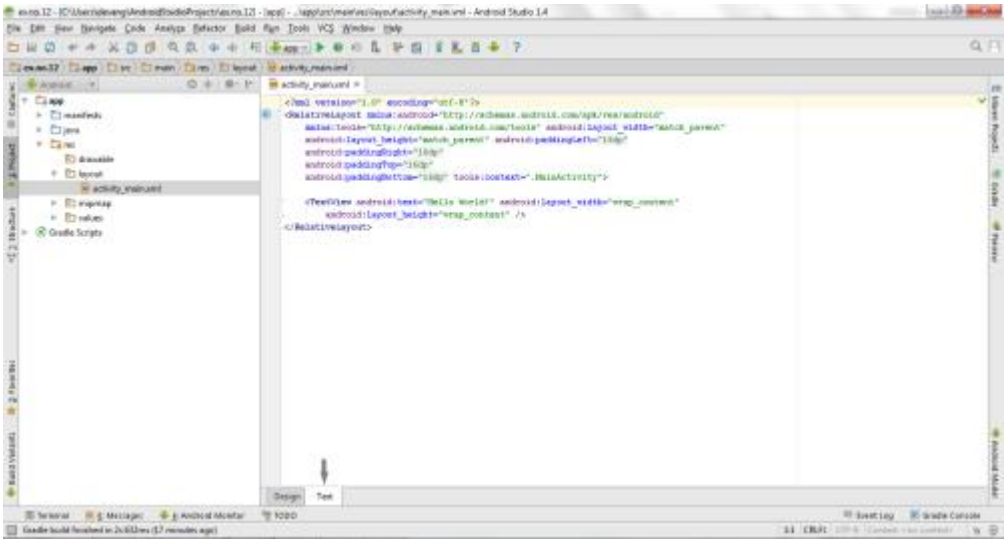
- Thus Second Activity For the application is created.

Designing layout for the Android Application:

- Click on app -> res -> layout -> activity_main.xml.



- Now click on Text as shown below.



- Then delete the code which is there and type the code as given below.

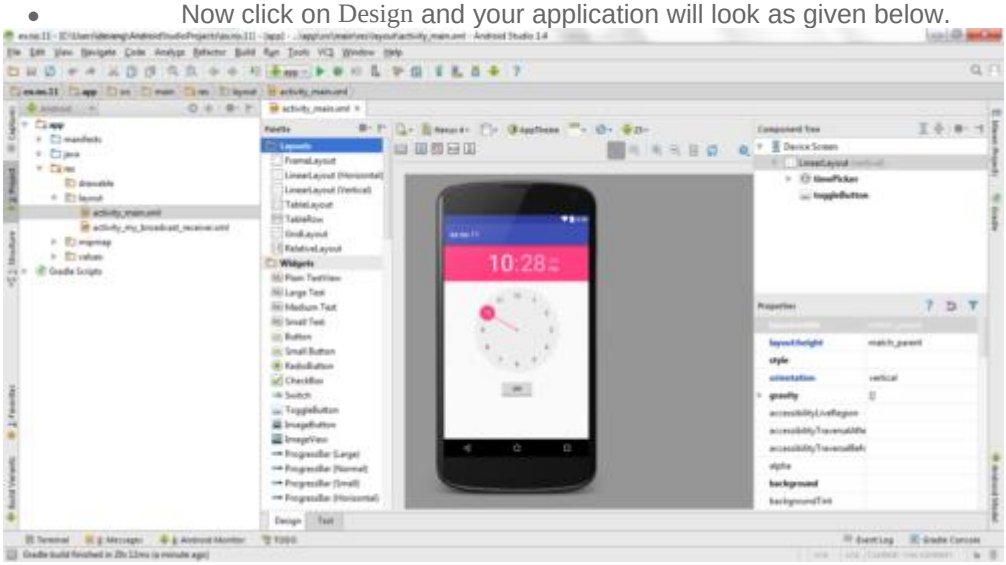
Code for Activity_main.xml:

?

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

    <TimePicker
        android:id="@+id/timePicker"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center" />

    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
        android:layout_gravity="center"
        android:layout_margin="20dp"
        android:checked="false"
        android:onClick="OnToggleClicked" />

</LinearLayout>
```

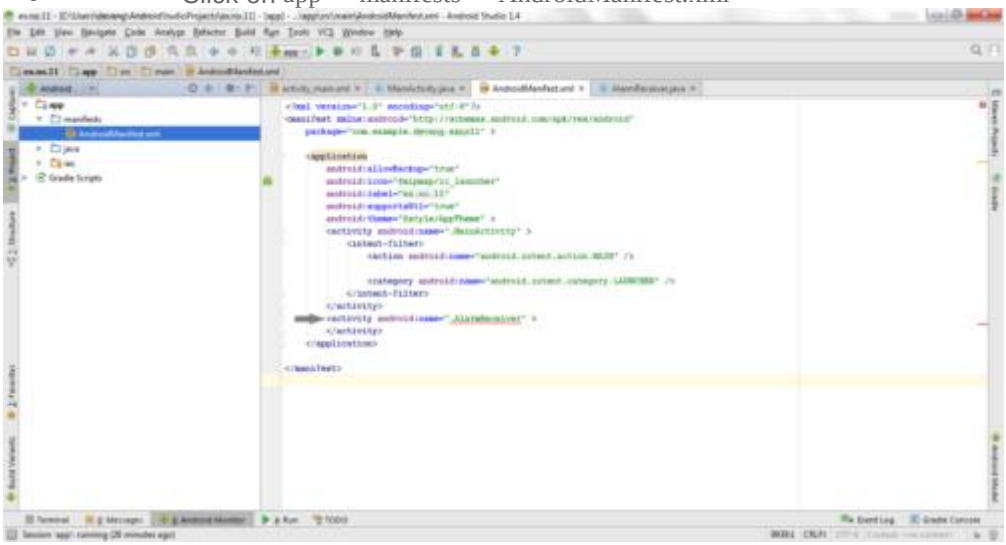
- Now click on Design and your application will look as given below.



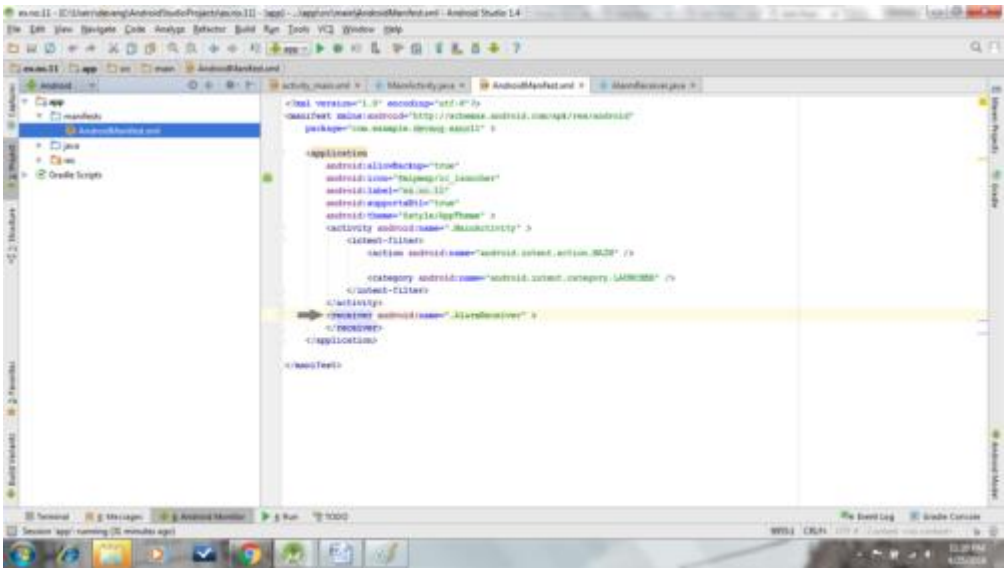
- So now the designing part is completed.

Changes in Manifest for the Android Application:

- Click on app -> manifests -> AndroidManifest.xml



- Now change the activity tag to receiver tag in the AndroidManifest.xml file as shown below



Code for AndroidManifest.xml:

?

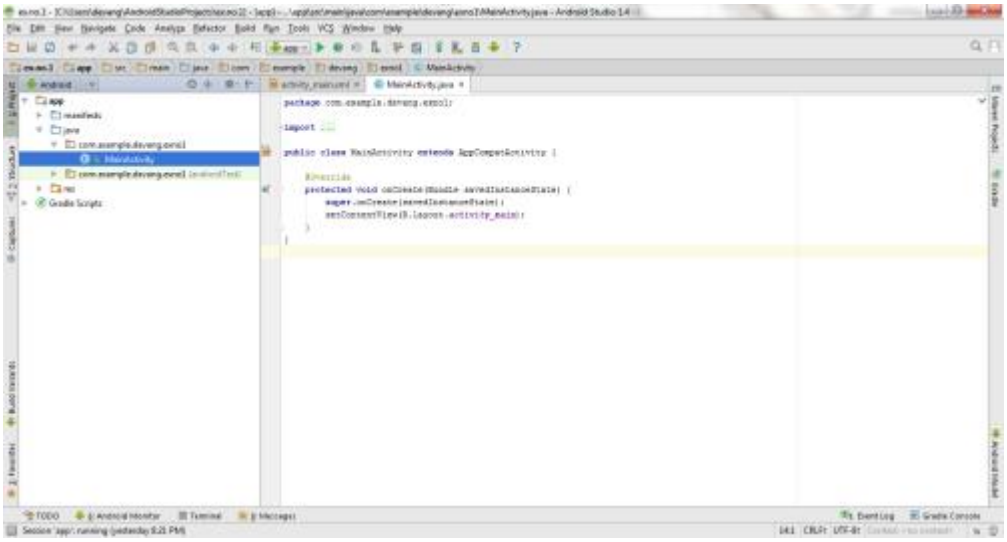
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.exno11" >

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        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>
        <receiver android:name=".AlarmReceiver" >
        </receiver>
    </application>

</manifest>
```

- So now the changes are done in the Manifest.

Java Coding for the Android Application:

Java Coding for Main Activity:

- Click on app -> java -> com.example.exno11 -> MainActivity.



- Then delete the code which is there and type the code as given below.

Code for MainActivity.java:

?

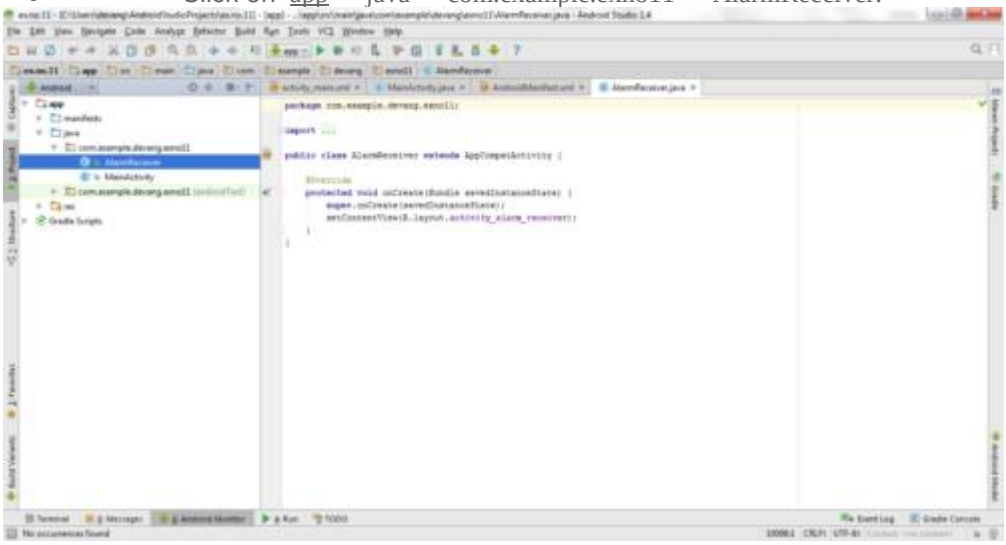
```
1  package com.example.exno11;
2
3  import android.app.AlarmManager;
4  import android.app.PendingIntent;
5  import android.content.Intent;
6  import android.os.Bundle;
7  import android.support.v7.app.AppCompatActivity;
8  import android.view.View;
9  import android.widget.TimePicker;
10 import android.widget.Toast;
11 import android.widget.ToggleButton;
12
13 import java.util.Calendar;
14
15 public class MainActivity extends AppCompatActivity
16 {
17     TimePicker alarmTimePicker;
18     PendingIntent pendingIntent;
19     AlarmManager alarmManager;
20
21     @Override
22     protected void onCreate(Bundle savedInstanceState)
23     {
24         super.onCreate(savedInstanceState);
25         setContentView(R.layout.activity_main);
26         alarmTimePicker = (TimePicker) findViewById(R.id.timePicker);
27         alarmManager = (AlarmManager) getSystemService(ALARM_SERVICE);
28     }
29     public void OnToggleClicked(View view)
30     {
31         long time;
32         if (((ToggleButton) view).isChecked())
33         {
34             Toast.makeText(MainActivity.this, "ALARM ON",
```

```
Toast.LENGTH_SHORT).show();
            Calendar calendar = Calendar.getInstance();
            calendar.set(Calendar.HOUR_OF_DAY,
alarmTimePicker.getCurrentHour());
            calendar.set(Calendar.MINUTE,
alarmTimePicker.getCurrentMinute());
            Intent intent = new Intent(this, AlarmReceiver.class);
            pendingIntent = PendingIntent.getBroadcast(this, 0, intent, 0);

            time=(calendar.getTimeInMillis()-
(calendar.getTimeInMillis()%60000));
            if(System.currentTimeMillis()>time)
            {
                if (calendar.AM_PM == 0)
                    time = time + (1000*60*60*12);
                else
                    time = time + (1000*60*60*24);
            }
            alarmManager.setRepeating(AlarmManager.RTC_WAKEUP, time, 10000,
pendingIntent);
        }
        else
        {
            alarmManager.cancel(pendingIntent);
            Toast.makeText(MainActivity.this, "ALARM OFF",
Toast.LENGTH_SHORT).show();
        }
    }
}
```

- So now the Coding part of Main Activity is completed.

Java Coding for Alarm Receiver:

- Click on app -> java -> com.example.exno11 -> AlarmReceiver.



- Then delete the code which is there and type the code as given below.

Code for AlarmReceiver.java:

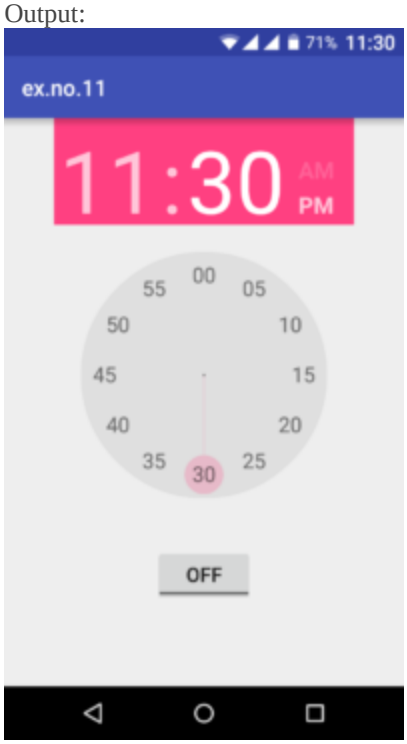
?

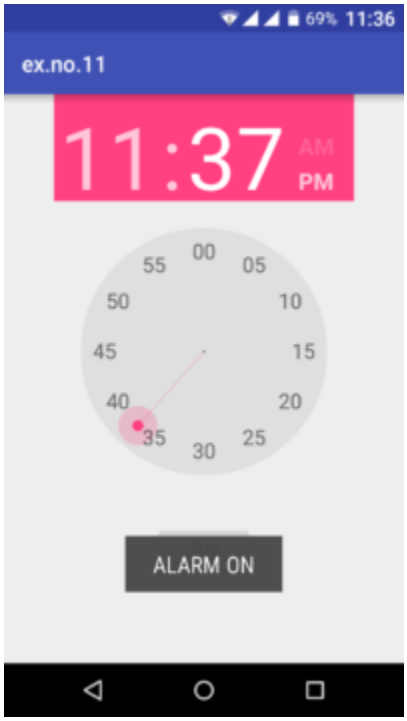
```
package com.example.exno11;
```

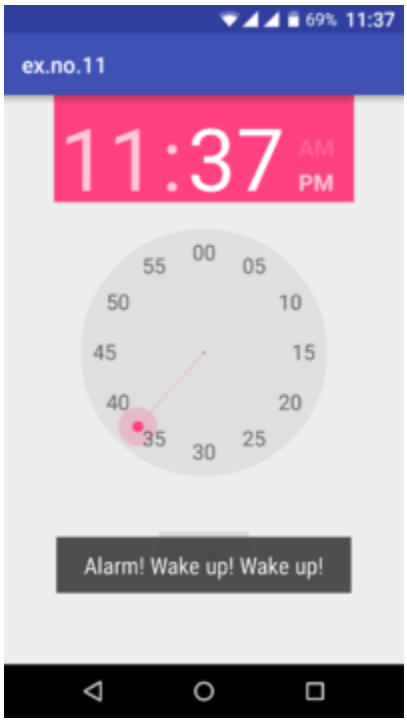
```
2
3  import android.content.BroadcastReceiver;
4  import android.content.Context;
5  import android.content.Intent;
6  import android.media.Ringtone;
7  import android.media.RingtoneManager;
8  import android.net.Uri;
9  import android.widget.Toast;
10
11 public class AlarmReceiver extends BroadcastReceiver
12 {
13     @Override
14     public void onReceive(Context context, Intent intent)
15     {
16         Toast.makeText(context, "Alarm! Wake up! Wake up!",
17 Toast.LENGTH_LONG).show();
18         Uri alarmUri =
19 RingtoneManager.getDefaultUri(RingtoneManager.TYPE_ALARM);
20         if (alarmUri == null)
21         {
22             alarmUri =
23 RingtoneManager.getDefaultUri(RingtoneManager.TYPE_NOTIFICATION);
24         }
25         Ringtone ringtone = RingtoneManager.getRingtone(context, alarmUri);
           ringtone.play();
     }
 }
```

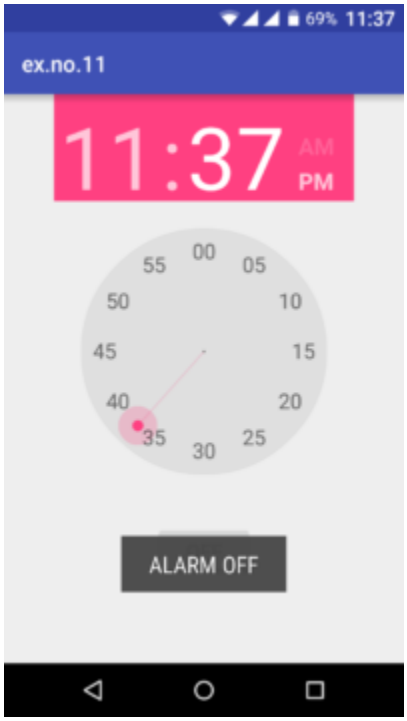
- So now the Coding part of Alarm Receiver is also completed.
- Now run the application to see the output.

Output:




69% 11:36
ex.no.11
11:37
AM
PM
00
05
10
15
20
25
30
35
40
45
50
55
ALARM ON


69% 11:37
ex.no.11
11:37
AM
PM
00
05
10
15
20
25
30
35
40
45
50
55
Alarm! Wake up! Wake up!



Result:

Thus Android Application that creates Alarm Clock is developed and executed successfully.