NAME: SWETHA.V
REG NO: 185002112

EX NO: 07 Implement an application that implements Multi-threading.

DATE: 06/09/21

AIM:

To Implement an application that implements Multi-threading.

SOURCE CODE:

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" >
  <ImageView
     android:id="@+id/imageView"
     android:layout_width="250dp"
     android:layout_height="250dp"
     android:layout_margin="50dp"
     android:layout_gravity="center" />
  <Button
     android:id="@+id/button"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:layout_margin="10dp"
     android:layout_gravity="center"
     android:text="Load Image 1" />
  <Button
     android:id="@+id/button2"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:layout_margin="10dp"
     android:layout_gravity="center"
```

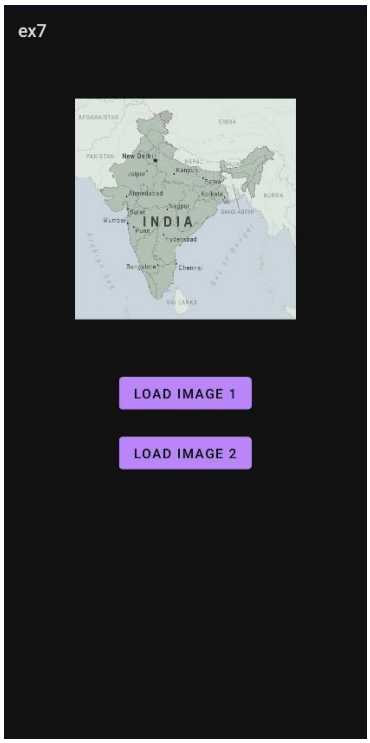
```
    android:text="Load image 2" />

</LinearLayout>
```

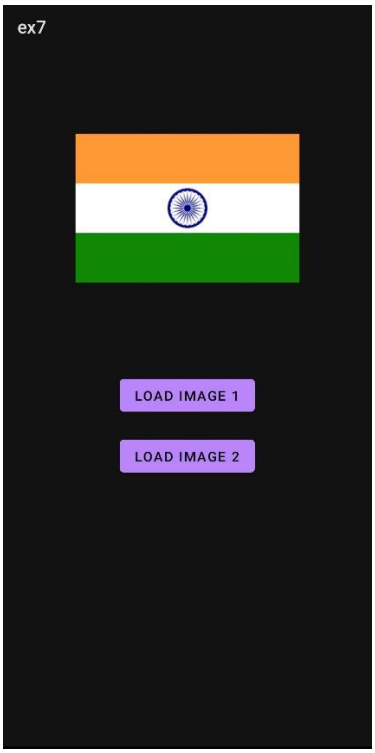
MainActivity.java

```
package com.example.ex7;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity
{
   ImageView img;
   Button bt1,bt2;
   @Override
   protected void onCreate(Bundle savedInstanceState)
   {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      bt1 = (Button)findViewById(R.id.button);
      bt2= (Button) findViewById(R.id.button2);
      img = (ImageView)findViewById(R.id.imageView);

      bt1.setOnClickListener(new View.OnClickListener()
      {
         @Override
         public void onClick(View v)
         {
            new Thread(new Runnable()
            {
               @Override
               public void run()
               {
                  img.post(new Runnable()
                  {
                     @Override
                     public void run()
                     {
                        img.setImageResource(R.drawable.india1);
                     }
                  });
               }
            }).start();
         } });
```

```
    bt2.setOnClickListener(new View.OnClickListener()
    {
       @Override
       public void onClick(View v)
       {
          new Thread(new Runnable()
          {
             @Override
             public void run()
             {
                img.post(new Runnable()
                {
                   @Override
                   public void run()
                   {
                      img.setImageResource(R.drawable.india2);
                   }
                });   }
          }).start();
       }
    });
}}
```

OUTPUT:





RESULT:

Thus an application that implements Multi-threading has been developed and executed.

NAME: SWETHA.V
REG NO: 185002112

EX NO: 08 Develop a native application that uses GPS location information

DATE: 13/09/21

AIM:

To develop a native application that uses GPS location information.

SOURCE CODE:

Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
android:id="@+id/relativeLayout1" android:layout_width="match_parent"
android:layout_height="match_parent">

   <Button

      android:id="@+id/show_Location"

      android:layout_width="wrap_content"

      android:layout_height="wrap_content"

      android:text="Show_Location" android:layout_centerVertical= "true"

      android:layout_centerHorizontal ="true"
      />
</RelativeLayout>
```

MainActivity.java:

```
package com.example.ex8;

import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import  android.widget.Toast;

public class MainActivity extends Activity {
   /** Called when the activity is first created. */
   Button btnShowLocation;
   GPStrace gps;
   @Override
   public void onCreate (Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btnShowLocation = (Button) findViewById(R.id.show_Location);
        btnShowLocation.setOnClickListener(v -> {

            // TODO Auto-generated method stub
            gps = new GPStrace(MainActivity.this);
            if (gps.canGetLocation()) {
                double latitude = gps.getLatitude();

                double longitude = gps.getLongitude();

                Toast.makeText(getApplicationContext(), "Your Location is \nLat: " + latitude +
"\nLong: " + longitude, Toast.LENGTH_LONG).show();
            } else {
                gps.showSettingAlert();
            }
        });
    }
}
```

GPSTrace.java

```
package com.example.ex8;

import android.Manifest;
import android.app.AlertDialog;
import android.app.Service;
import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.os.IBinder;
import android.provider.Settings;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

public class GPStrace extends Service implements LocationListener {

    private final Context context;
    boolean isGPSEnabled = false;

    boolean canGetLocation = false;
```

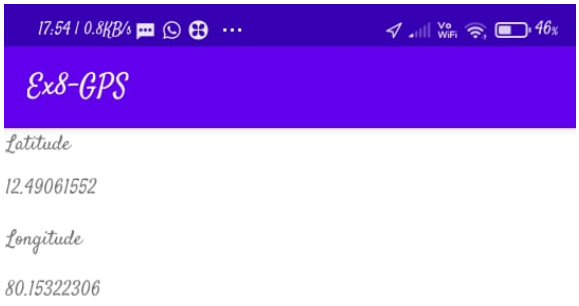
```
   boolean isNetworkEnabled = false;
   Location location;
   double latitude;
   double longitude;
   private static final long

         MIN_DISTANCE_CHANGE_FOR_UPDATES = 10;
   private static final long MIN_TIME_BW_UPDATES = 1000 * 60 * 1;

   protected LocationManager locationManager;
   private Location TODO;
   public GPStrace(Context context) {
      this.context = context;
      getLocation();
   }
   public Location getLocation() {
      try {
         locationManager = (LocationManager)
               context.getSystemService(LOCATION_SERVICE);
         isGPSEnabled =
locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);

         isNetworkEnabled =
locationManager.isProviderEnabled(LocationManager.NETWORK_PROVIDER);
         if (!isGPSEnabled && !isNetworkEnabled) {

         } else {
            this.canGetLocation = true;
            if (isNetworkEnabled) {
               if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
                  // TODO: Consider calling
                  //    ActivityCompat#requestPermissions
                  // here to request the missing permissions, and then overriding
                  //   public void onRequestPermissionsResult(int requestCode, String[]
permissions,
                  //                                          int[] grantResults)
                  // to handle the case where the user grants the permission. See the
documentation
                  // for ActivityCompat#requestPermissions for more details.
                  return TODO;
               }
```

```
locationManager.requestLocationUpdates(LocationManager.NETWORK_PROVIDER,
MIN_TIME_BW_UPDATES, MIN_DISTANCE_CHANGE_FOR_UPDATES, this);
            }
            if (locationManager != null) {
               location =
locationManager.getLastKnownLocation(LocationManager.NETWORK_PROVIDER);
if (location != null) {
                  latitude = location.getLatitude();
                  longitude = location.getLongitude();
               }
            }
         }
         if (isGPSEnabled) {

            if (location == null) {
               locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,
MIN_TIME_BW_UPDATES, MIN_DISTANCE_CHANGE_FOR_UPDATES, this);
               if (location != null) {
                  latitude = location.getLatitude();
                  longitude = location.getLongitude();
               }
            }
         }
      }
      catch (Exception e) {
         e.printStackTrace();
      }
      return location;
   }
   public void stopUsingGPS() {

      if (locationManager != null) {

         locationManager.removeUpdates(GPStrace.this);
      }
   }
   public double getLatitude() {
      if (location != null) {

         latitude = location.getLatitude();
      }
      return latitude;
   }
   public double getLongitude() {
      if (location != null) {
```

```
            longitude = location.getLatitude();
        }
        return longitude;
    }
    public boolean canGetLocation() {

        return this.canGetLocation;
    }
    public void showSettingAlert () {

        AlertDialog.Builder alertDialog = new AlertDialog.Builder(context);

        alertDialog.setTitle("GPS is settings");
        alertDialog.setMessage("GPS is not enabled.Do you want to go to setting menu?");
        alertDialog.setPositiveButton("settings", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialogInterface, int which) {

                Intent intent = new Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);
                context.startActivity(intent);
            }
        });
        alertDialog.setNegativeButton("cancel", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialogInterface, int which) {
                // TODO Auto-generated method stub
                DialogInterface dialog = null;
                dialog.cancel();
            }
        });
        alertDialog.show();
    }
    @Override
    public void onLocationChanged (Location Location)

    {
// TODO Auto-generated method stub
    }    @Override

    public void onProviderDisabled (String provider)
    {// TODO Auto-generated method stub
    }
    @Override

    public void onProviderEnabled (String provider){
```

```
// TODO Auto-generated method stub

    }
    @Override

    public void onStatusChanged (String provider,int status, Bundle extras){

// TODO Auto-generated method stub
    }
    @Override

    public IBinder onBind (Intent intent){

// TODO Auto-generated method stub return null;
        return null;
    }
}
```

OUTPUT:



RESULT:

Thus a native application that uses GPS location information has been developed and executed.

NAME: SWETHA.V
REG NO: 185002112

EX NO: 09 Develop a Android Application that writes data to the SD Card.

DATE: 24/10/21

AIM:

To develop a Android Application that writes data to the SD Card.

SOURCE CODE:

MainActivity.java:

```
package com.example.ex09;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import java.io.BufferedReader;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.InputStreamReader;

public class MainActivity extends AppCompatActivity
{
   EditText e1;
   Button write,read,clear;
   @Override
   protected void onCreate(Bundle savedInstanceState){
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      e1= (EditText) findViewById(R.id.editText);
      write= (Button) findViewById(R.id.button);
      read= (Button) findViewById(R.id.button2);
      clear= (Button) findViewById(R.id.button3);
      write.setOnClickListener(new View.OnClickListener()
      {@Override
      public void onClick(View v)
      {
         String message=e1.getText().toString();
         try{
            File f=new File("/SD Card/myfile.txt");
            f.createNewFile();
            FileOutputStream fout=new FileOutputStream(f);
```

```
            fout.write(message.getBytes());
            fout.close();
            Toast.makeText(getBaseContext(),"Data Written in
SDCARD",Toast.LENGTH_LONG).show();
         }
         catch (Exception e)
         {
            Toast.makeText(getBaseContext(),e.getMessage(),Toast.LENGTH_LONG).show();
         }
      }
      });
      read.setOnClickListener(new View.OnClickListener()
      {
         @Override
         public void onClick(View v)
         {
            String message;
            String buf = "";
            try
            {
               File f = new File("/SD Card/myfile.txt");
               FileInputStream fin = new FileInputStream(f);
               BufferedReader br = new BufferedReader(new InputStreamReader(fin));
               while ((message = br.readLine()) != null)
               {
                  buf += message;
               }
               e1.setText(buf);
               br.close();
               fin.close();
               Toast.makeText(getBaseContext(),"Data Received from
SDCARD",Toast.LENGTH_LONG).show();
            }
            catch (Exception e)
            {
               Toast.makeText(getBaseContext(), e.getMessage(),
Toast.LENGTH_LONG).show();
            }
         } });
      clear.setOnClickListener(new View.OnClickListener()
      {
         @Override
         public void onClick(View v)
         {
            e1.setText("");
         }
```

```
    });
  }}
```

AndroidManifest.xml:

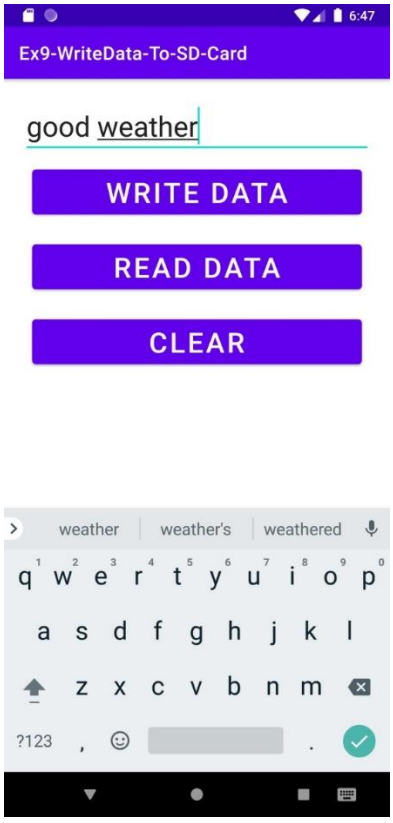
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
  package="com.example.ex09">

  <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"
/>
  <uses-permission android:name="android.permission.INTERNET "></uses-permission>
  <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/Theme.Ex09">
    <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>
```

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:layout_margin="20dp"
  android:orientation="vertical">
<EditText
android:id="@+id/editText"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:singleLine="true"
android:textSize="30dp" />
<Button
android:id="@+id/button"
```

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:text="Write Data"
android:textSize="30dp" />
<Button
android:id="@+id/button2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:text="Read data"
android:textSize="30dp" />
<Button
android:id="@+id/button3"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_margin="10dp"
android:text="Clear"
android:textSize="30dp" />
   </LinearLayout>
```

OUTPUT:



NAME: SWETHA.V
REG NO: 185002112

RESULT:

Thus Android Application that writes data to the SD Card is developed and executed successfully.

NAME: SWETHA.V
REG NO: 185002112

EX NO: 10 Implement an application that creates an alert upon receiving a message.

DATE: 20/09/21

AIM:

To Implement an application that creates an alert upon receiving a message.

SOURCE CODE:

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:layout_margin="10dp"
   android:orientation="vertical">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Message"
      android:textSize="30sp" />
   <EditText
      android:id="@+id/editText"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:singleLine="true"
      android:textSize="30sp" />
   <Button
      android:id="@+id/button"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_margin="30dp"
      android:layout_gravity="center"
      android:text="Notify"
      android:textSize="30sp"/>
</LinearLayout>
```

MainActivity.java:

```
package com.example.ex10;

import android.app.Notification;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Intent;
```

```
import android.os.Bundle;

import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity
{
   Button notify;
   EditText e;
   @Override
   protected void onCreate(Bundle savedInstanceState)
   {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      notify= (Button) findViewById(R.id.button);
      e= (EditText) findViewById(R.id.editText);

      notify.setOnClickListener(new View.OnClickListener()
      {
         @Override
         public void onClick(View v)
         {
            Intent intent = new Intent(MainActivity.this, SecondActivity.class);
            PendingIntent pending = PendingIntent.getActivity(MainActivity.this, 0, intent, 0);
            Notification noti = new
Notification.Builder(MainActivity.this).setContentTitle("New
Message").setContentText(e.getText().toString()).setSmallIcon(R.mipmap.ic_launcher).setC
ontentIntent(pending).build();
            NotificationManager manager = (NotificationManager)
getSystemService(NOTIFICATION_SERVICE);
            noti.flags |= Notification.FLAG_AUTO_CANCEL;
            manager.notify(1, noti);
         }
      });
   }
}
```

SecondActivity.java:

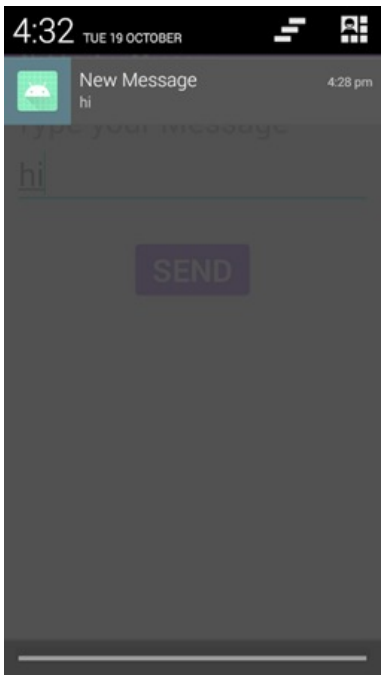
```
package com.example.ex10;
import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;
public class SecondActivity extends AppCompatActivity {
   @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);
    }
}
```

activity_second.java:

```
<?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:layout_margin="10dp"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="hi"
        android:textSize="30sp" />
</LinearLayout>
```

OUTPUT:



RESULT:

Thus an application that creates an alert upon receiving a message has been developed and executed successfully.

NAME: SWETHA.V
REG NO: 185002112

EX NO: 11 Write a mobile application that creates an alarm clock.

DATE: 4/10/21

AIM:

To Implement a mobile application that creates an alarm clock.

SOURCE CODE:

AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   package="com.example.ex11">

   <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/Theme.Ex11">
      <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>
      <receiver android:name=".AlarmReceiver" >
      </receiver>
   </application>

</manifest>
```

Activity_main:

```
<?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>
```

MainActivity.java:

```
package com.example.ex11;

import android.app.AlarmManager;
import android.app.PendingIntent;
import android.content.Intent;
import android.os.Bundle;

import android.view.View;
import android.widget.TimePicker;
import android.widget.Toast;
import android.widget.ToggleButton;

import androidx.appcompat.app.AppCompatActivity;

import java.util.Calendar;

public class MainActivity extends AppCompatActivity
{
    TimePicker alarmTimePicker;
    PendingIntent pendingIntent;
    AlarmManager alarmManager;

    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        alarmTimePicker = (TimePicker) findViewById(R.id.timePicker);
        alarmManager = (AlarmManager) getSystemService(ALARM_SERVICE);
```

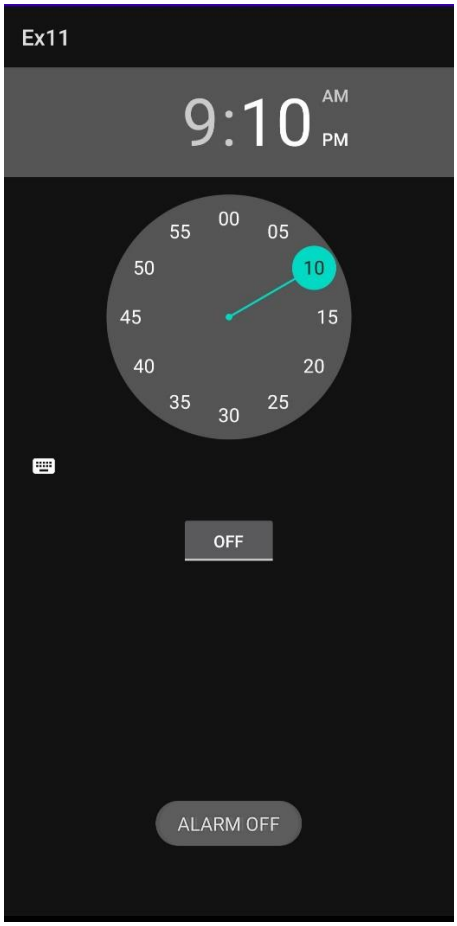
```
    }
    public void OnToggleClicked(View view)
    {
        long time;
        if (((ToggleButton) view).isChecked())
        {
            Toast.makeText(MainActivity.this, "ALARM ON", Toast.LENGTH_SHORT).show();
            Calendar calendar = Calendar.getInstance();
            calendar.set(Calendar.HOUR_OF_DAY, 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();
        }
    }
}
```

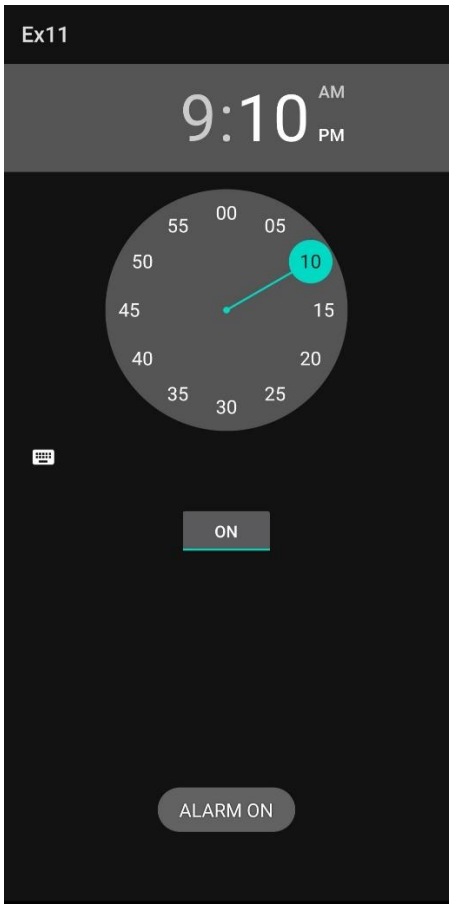
AlarmReceiver.java

```
package com.example.ex11;

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.media.Ringtone;
import android.media.RingtoneManager;
import android.net.Uri;
import android.widget.Toast;

public class AlarmReceiver extends BroadcastReceiver
{
```

```
    @Override
    public void onReceive(Context context, Intent intent)
    {
        Toast.makeText(context, "Alarm! Wake up! Wake up!",
Toast.LENGTH_LONG).show();
        Uri alarmUri = RingtoneManager.getDefaultUri(RingtoneManager.TYPE_ALARM);
        if (alarmUri == null)
        {
            alarmUri =
RingtoneManager.getDefaultUri(RingtoneManager.TYPE_NOTIFICATION);
        }
        Ringtone ringtone = RingtoneManager.getRingtone(context, alarmUri);
        ringtone.play();
    }
}
```

OUTPUT:





RESULT:

Thus an application that creates an alarm clock has been developed and executed successfully.