BAHRIA UNIVERSITY, (Karachi Campus)

*Department of Software Engineering*

**Open Ended Lab -1**

**Semester Fall 2023**

**Course Title:** Software Application & Mobile Devices **Course Code**: SEL-448

**Course Instructor:** Engr. Adnan Ur Rehman

**Class**: BSE-6(B)

**Lab Instructor:** Engr. Hamza **Name:**  Shoaib Akhter

**Max. Marks:** 12 Marks **Reg no:**  79290

**Time:** 1:30 hours **Date:**

# INSTRUCTIONS:

* Submit the task on LMS within given time.
* Include your name or enrollment number in the page footer.
* Your file name should be in the given format:

o [Class Section] [Complete Name] SMAD(OEL1) **i.e., BSE1C Usman Ali SMADOEL1 Question no 1**

**Scenario:** (CLO 4, Marks: 10)

You have been tasked to Implement an Android application using Android Studio and Java. The aim of the app is to provide users with a convenient tool for setting and managing alarms on their mobile devices. With the increasing reliance on alarms in our daily routines, this app will serve as a reliable wake-up assistant, ensuring users never miss important appointments or tasks.

# Tasks:

1. **User Interface Design:** Design an intuitive and user-friendly interface that allows users to easily set, edit, and delete alarms. Include features such as a digital or analog clock display, a list of

existing alarms, and options for customization such as alarm tone selection and snooze settings.

1. **Alarm Functionality:** Determine the core functionalities of the alarm system, including the

ability to set one-time or recurring alarms, specify the time and date for each alarm, and configure additional settings such as vibration or gradual volume increase.

1. **Install Using ADB or AVD:** Install the Implemented Application in your Android Device or Virtual Device.

Note: Provide all Screenshot (xml & .java) files of all Classes in Implemented Application in the Submission file in pdf format

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">  
  
 <!--Added Time picker just to pick the alarm time-->  
 <!--gravity is aligned to center-->  
 <TimePicker  
 android:id="@+id/timePicker"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_gravity="center" />  
  
 <!--Added Toggle Button to set the alarm on or off-->  
 <!--ByDefault toggleButton is set to false-->  
 <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" />  
  
 <!--"OnToggleClicked" method will be implemented in MainActivity.java -->  
  
</LinearLayout>

Theme.xml

<resources xmlns:tools="http://schemas.android.com/tools">  
 <!-- Base application theme. -->  
 <style name="Base.Theme.Assignment1" parent="Theme.Material3.DayNight.NoActionBar">  
 <!-- Customize your light theme here. -->  
 <!-- <item name="colorPrimary">@color/my\_light\_primary</item> -->  
 <item name="colorPrimary">@color/colorPrimary</item>  
 <item name="colorPrimaryDark">@color/colorPrimaryDark</item>  
 <item name="colorAccent">@color/colorAccent</item>  
 </style>  
  
 <style name="Theme.Assignment1" parent="Base.Theme.Assignment1" />  
</resources>

Color.xml

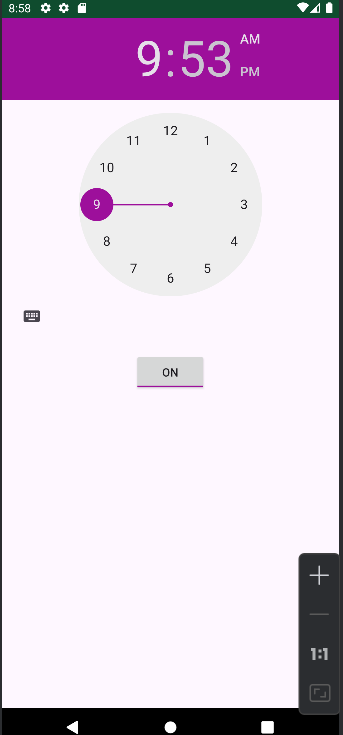
<?xml version="1.0" encoding="utf-8"?>  
<resources>  
 <color name="colorPrimary">#0F9D58</color>  
 <color name="colorPrimaryDark">#0F4C2E</color>  
 <color name="colorAccent">#9D0F9B</color>  
</resources>

AlarmReceiver.java

package com.example.assignment1;  
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.os.Build;  
import android.os.Vibrator;  
import android.widget.Toast;  
  
import androidx.annotation.RequiresApi;  
  
public class AlarmReceiver extends BroadcastReceiver {  
 @RequiresApi(api = Build.VERSION\_CODES.*Q*)  
 @Override  
 // implement onReceive() method  
 public void onReceive(Context context, Intent intent) {  
  
 // we will use vibrator first  
 Vibrator vibrator = (Vibrator) context.getSystemService(Context.*VIBRATOR\_SERVICE*);  
 vibrator.vibrate(4000);  
  
 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*);  
 }  
  
 // setting default ringtone  
 Ringtone ringtone = RingtoneManager.*getRingtone*(context, alarmUri);  
  
 // play ringtone  
 ringtone.play();  
 }  
}

MainActivity.java

package com.example.assignment1;  
  
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*);  
  
 }  
  
 // OnToggleClicked() method is implemented the time functionality  
 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 is called to get current time in hour and minute  
 calendar.set(Calendar.*HOUR\_OF\_DAY*, alarmTimePicker.getCurrentHour());  
 calendar.set(Calendar.*MINUTE*, alarmTimePicker.getCurrentMinute());  
  
 // using intent i have class AlarmReceiver class which inherits  
 // BroadcastReceiver  
 Intent intent = new Intent(this, AlarmReceiver.class);  
  
 // we call broadcast using pendingIntent  
 pendingIntent = PendingIntent.*getBroadcast*(this, 0, intent, 0);  
  
 time = (calendar.getTimeInMillis() - (calendar.getTimeInMillis() % 60000));  
 if (System.*currentTimeMillis*() > time) {  
 // setting time as AM and PM  
 if (Calendar.*AM\_PM* == 0)  
 time = time + (1000 \* 60 \* 60 \* 12);  
 else  
 time = time + (1000 \* 60 \* 60 \* 24);  
 }  
 // Alarm rings continuously until toggle button is turned off  
 alarmManager.setRepeating(AlarmManager.*RTC\_WAKEUP*, time, 10000, pendingIntent);  
 // alarmManager.set(AlarmManager.RTC\_WAKEUP, System.currentTimeMillis() + (time \* 1000), pendingIntent);  
 } else {  
 alarmManager.cancel(pendingIntent);  
 Toast.*makeText*(MainActivity.this, "ALARM OFF", Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
}

A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated

**TASK # 02:** Viva (CLO6, **Marks: 02)**