



MOBILE APPLICATION DEVELOPMENT

Lab 8



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BSCS-VII

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Activity 1 MAD Lib Story using Database.

Layout

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        app:srcCompat="@drawable/cover" />
```

```

<TextView
    android:id="@+id/textView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:padding="10dp"
    android:text="Welcome to Mad Libs! I will ask you to fill in words to complete the story until you are done filling in all the missing words. That's part of the fun. Click below to get started..."
    android:textColor="@color/black"
    android:textSize="18sp" />

<Button
    android:id="@+id/btnst"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="right"
    android:onClick="start"
    android:text="GET STARTED!"
    android:textColor="@color/black"
    android:textSize="30sp"
    android:textStyle="bold"
    android:backgroundTint="#808080"
    />
</LinearLayout>

```

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView 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"
    android:fillViewport="true"
    tools:context=".story">
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    >
    <TextView
        android:id="@+id/textView4"
        android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_weight="0"
        android:text="Your Mad Lib Story"
        android:textSize="36sp"
        android:textStyle="bold" />

<TextView
    android:id="@+id/textView5"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="0"
    android:text="TextView"
    android:textSize="30sp" />

<Button
    android:id="@+id/button2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="0"
    android:onClick="another"
    android:text="MAKE ANOTHER STORY"
    android:textSize="24sp"
    app:backgroundTint="#808080" />
</LinearLayout>
</ScrollView>

```

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    tools:context=".words">

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Fill in words to complete the story"
        android:textSize="40sp"
    >

```

```

    />

    <TextView
        android:id="@+id/leftwords"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:layout_gravity="center"
        android:text="TextView"
        android:layout_marginTop="30dp"
    />

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    >
    <EditText
        android:id="@+id/edittext"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="noun"
        android:layout_marginRight="20dp"
        android:layout_marginLeft="20dp"
    />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="OK"
        android:onClick="Ok"
        android:textColor="@color/black"
        android:backgroundTint="#808080"
    />

</LinearLayout>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"

```

```
        android:textSize="20sp"
        android:id="@+id/word"
        android:text="please type a/an noun"
    />
```

```
</LinearLayout>
```

Logic Code

```
package com.example.midlabs;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

public class DBHelper extends SQLiteOpenHelper {

    public DBHelper(@Nullable Context context, @Nullable String name, @Nullable SQLiteDatabase.CursorFactory factory, int version) {
        super(context, "story.db", factory, 1);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS info");
        onCreate(db);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        String query="CREATE TABLE info (Number Text,story Text);";
        db.execSQL(query);
    }

    public void insert(String number,String story){
        ContentValues values=new ContentValues();
        values.put("Number",number);
        values.put("story",story);
        SQLiteDatabase db=getWritableDatabase();
        db.insert("info",null,values);
        db.close();
    }
}
```

```

    }
    public String print(String number){
        String string="";
        SQLiteDatabase db=getWritableDatabase();
        String query="SELECT * FROM info WHERE Number='"+number+"'";
        Cursor c=db.rawQuery(query,null);
        c.moveToFirst();

        while (!c.isAfterLast()){
            if(c.getString(c.getColumnIndex("Number"))!=null)
                string+=c.getString(c.getColumnIndex("story"));

            c.moveToNext();
            break;
        }
        db.close();
        return string;
    }
}

```

```

package com.example.midlabs;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void start(View view){
        Intent intent=new Intent(this,words.class);
        startActivity(intent);
    }
}

```

```
}
```

```
package com.example.midlabs;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.TextView;

import org.w3c.dom.Text;

public class story extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_story);
        Intent intent=getIntent();
        String story=intent.getStringExtra("story");
        TextView txt=(TextView)findViewById(R.id.textView5);
        txt.setText(story);

    }
    public void another(View view){
        finish();
    }
}
```

```
package com.example.midlabs;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.text.TextUtils;
import android.util.Log;
import android.view.View;
```



```

import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

import java.util.ArrayList;
import java.util.List;
import java.util.Random;
import java.util.Scanner;
import java.util.regex.Matcher;
import java.util.regex.Pattern;

public class words extends AppCompatActivity {

    TextView leftwords,placingwords;
    EditText editText;
    ArrayList<String> matches;
    String story;

    int counter,index;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_words);
        Log.i("come","sd");
        leftwords=(TextView)findViewById(R.id.leftwords);
        placingwords=(TextView)findViewById(R.id.word);
        editText=(EditText) findViewById(R.id.edittext);
        //insert text
        DBHelper db=new DBHelper(this,null,null,1);
        db.insert("0","One of the most <adjective> characters in fiction is named
\n" +
        "\"Tarzan of the <plural-noun> .\" Tarzan was raised by a/an\n" +
        "<noun> and lives in the <adjective> jungle in the\n" +
        "heart of darkest <place> . He spends most of his time\n" +
        "eating <plural-noun> and swinging from tree to <noun> .\n" +
        "Whenever he gets angry, he beats on his chest and says,\n" +
        "\" <funny-
noise> !\" This is his war cry. Tarzan always dresses in\n" +
        "<adjective> shorts made from the skin of a/an <noun>\n" +
        "and his best friend is a/an <adjective> chimpanzee named\n" +
        "Cheetah. He is supposed to be able to speak to elephants and\n"
+
        "\"<plural-noun> . In the movies, Tarzan is played by <person's-
name> .\n");

```

```

        db.insert("1","I wannabe a <job> when I grow up.\n" +
            "Just like my dad.\n" +
            "Life is <adjective> like that!\n");

        db.insert("2","Our American universities offer students many <adjective>\n" +
            "courses that will prepare them to become professional <plural-noun> .\n" +
            "You can get a degree as a Bachelor of <plural-noun> or take a\n" +
            "regular liberal <plural-noun> course. Or, if you want to become\n" +
            "a/an <adjective> engineer, you can study <adjective> mathematics\n" +
            "and differential <plural-noun> . Then, after <number> years, if\n" +
            "you want to continue your studies you can write a/an <noun> and\n" +
            "become a Doctor of <plural-noun> . \n" +
            "\n" +
            "When you get out into the <adjective> world, if you have a diploma\n" +
            "from a university, you will be able to get a job easily as a/an <job-title> \n" +
            "or even a/an <job-title> . If you don't have a diploma, you may have to take\n" +
            "a job as a <noun> . \n" +
            "\n" +
            "Remember, it's important that you study hard in high school so you are able\n" +
            "to do well on your college entrance <plural-noun> . It is true that \"a little\n" +
            "learning is a/an <adjective> thing.\"");
        db.insert("3","<Male-Name> has announced that his <adjective>\n" +
            "clothing store in the heart of downtown <CITY> is having\n" +
            "a/an <adjective> sale of all merchandise, including\n" +
            "<unusual-adjective> suits and slightly irregular <plural-noun>\n" +
            "available. Men's cable-knit <plural-noun> , only $15.99.\n" +
            "Hand-woven Italian <plural-noun> , 1/2-price. Double-breasted cashmere <plural-noun> , $50.00. Genuine imported\n" +
            "<Color!> <adjective> shoes, <Exciting-adjective> handkerchiefs,\n" +
            "and women's embroidered <plural-noun> , all at rock-bottom prices.\n" +

```

```

        "This is a chance to get some really <Interesting-
Adjective> bargains.\n");

        db.insert("4","Here's how you dance the Monstrosity. Stand with your feet
together.\n" +
        "Now, move your left foot <aDvErB> to the side. Now stamp your\n"
+
        "right foot <NUMBER> times and put your hands on your partner's\n"
" +
        "<Plural-
Noun> . Next, you both <verb> slowly to the right and bend\n" +
        "your <body-part> backward. For the next eight counts,\n" +
        "both of you <verb> <adverb> to the left. Next, you and\n" +
        "your partner stand back to back and wiggle your <pluRAL-
nOUN> and\n" +
        "slap your <plural-
noun> together. Don't forget to keep stamping\n" +
        "your right foot. Now, face your partner again, put your <plural-
noun>\n" +
        "together and shout, \" <FUNNY-
noise> !\" Now, <verb> backward\n" +
        "and repeat the whole thing <Number> times. If you feel that you
can't\n" +
        "learn this dance, you can always <verB> the next one out.");
    //Read files
    Random rand=new Random();
    int number=rand.nextInt(5);
    story=db.print(""+number);

// read entire file
    Log.i("val",story);

    Pattern pattern = Pattern.compile("\\<(.*)\\>");
    Matcher matcher = pattern.matcher(story);

    matches = new ArrayList<String>();
    while(matcher.find())
        matches.add(matcher.group());

    counter=matches.size();
    index=0;
    leftwords.setText(counter + "words(s) left");

```

```

        String w=matches.get(index);
        w=w.replace("<","");
        w=w.replace(">","");
        placingwords.setText("please type a/an "+w);
        editText.setHint(w);
        Log.i("dic",matches.toString());
    }

    public void Ok(View view){
        if(TextUtils.isEmpty(editText.getText().toString()))
        {
            editText.setError("Empty field");
            return;
        }

        Toast.makeText(this,"Great keep going",Toast.LENGTH_LONG).show();
        leftwords.setText(--counter +"words(s) left");
        String w=matches.get(index);
        story = story.replaceFirst(w, editText.getText().toString());

        if(counter==0)
        {
            Intent intent=new Intent(this,story.class);
            intent.putExtra("story",story);
            startActivity(intent);
        }

        Log.i("story",story);
        w=matches.get(++index);
        w=w.replace("<","");
        w=w.replace(">","");
        placingwords.setText("please type a/an "+w);
        editText.setHint(w);
        editText.setText("");
    }
}

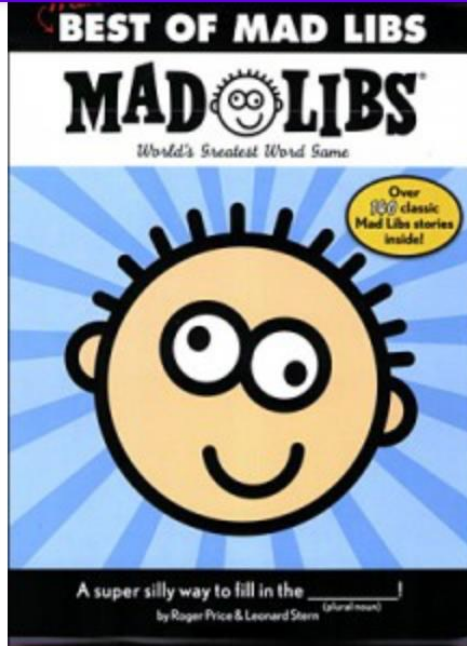
```

Output

4:03



Mid Labs



Welcome to Mad Libs! I will ask you to fill in words to complete the story until you are done filling in all the missing words. That's part of the fun. Click below to get started...

GET STARTED!



4:03



Mid Labs

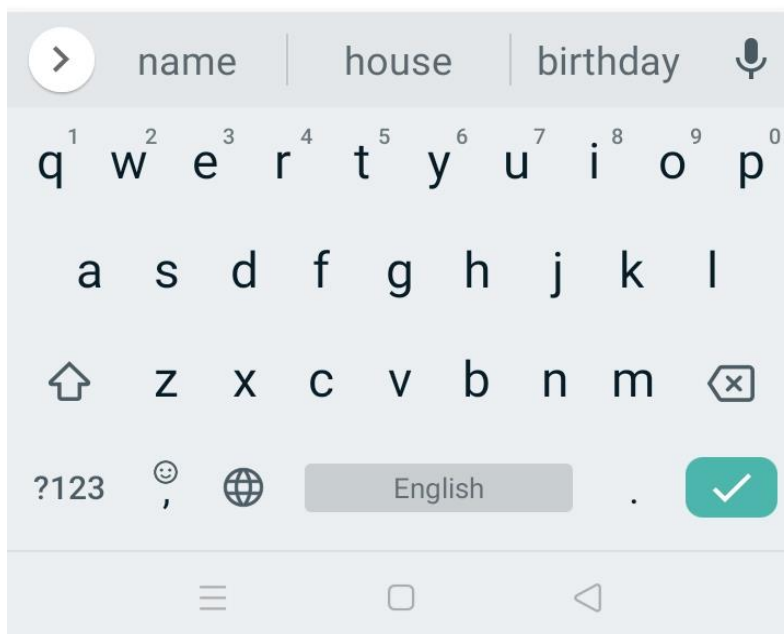
Fill in words to complete the story

12 words(s) left

brother's

OK

please type a/an Plural-Noun



4:04



Mid Labs

Your Mad Lib Story

Here's how you dance the Monstrosity. Stand with your feet together.

Now, move your left foot Hi to the side. Now stamp your

right foot 09 times and put your hands on your partner's

brother's . Next, you both hi slowly to the right and bend

your nose backward. For the next eight counts, both of you walk now to the left. Next, you and your partner stand back to

.....



Activity 2:Add Contacts in Database

Layout

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    tools:context=".MainActivity"
    android:padding="30dp"
    >

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginTop="100dp"
        >

        <TextView

            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="0.5"
            android:text="Name" />

        <EditText
            android:id="@+id/text1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            />

    </LinearLayout>

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:orientation="horizontal"

        >

<TextView

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="0.5"
        android:text="Phone" />

<EditText
        android:id="@+id/text2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        />

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

        >

<TextView

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="0.5"
        android:text="Street" />

<EditText
        android:id="@+id/text3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        />
```

```
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"

    >

<TextView

    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="0.5"
    android:text="Email" />

<EditText
    android:id="@+id/text4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    />

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"

    >

<TextView

    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="0.5"
    android:text="City/State/Zip" />

<EditText
    android:id="@+id/text5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
```

```

/>

</LinearLayout>

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Save Contact"
    android:layout_gravity="center"
    android:backgroundTint="@color/teal_700"
    android:onClick="save"
    ></Button>
</LinearLayout>

```

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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"
    android:orientation="vertical"
    tools:context=".database">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:gravity="center"
        android:text="SIBA Database"
        android:textSize="30sp"></TextView>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name : "
        android:id="@+id/name"
        android:padding="30dp"
        ></TextView>

</LinearLayout>

```

Logic Code

```
package com.example.addressbook;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class database extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_database);
        Intent intent=getIntent();
        String name=intent.getStringExtra("name");

        TextView text=findViewById(R.id.name);
        DBHelper db=new DBHelper(this,null,null,1);

        text.setText(db.print(name));

    }
}
```

```
package com.example.addressbook;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    DBHelper db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

```

        db=new DBHelper(this,null,null,1);

    }
    public void save(View view){

        EditText Name=findViewById(R.id.text1);
        EditText Phone=findViewById(R.id.text2);
        EditText street=findViewById(R.id.text3);
        EditText Email=findViewById(R.id.text4);
        EditText city=findViewById(R.id.text5);
        db.insert(Name.getText().toString(),Phone.getText().toString(),
                street.getText().toString(),Email.getText().toString(),city.getText().toString());

        Intent intent=new Intent(this,database.class);
        intent.putExtra("name",Name.getText().toString());
        startActivity(intent);
    }
}

```

SQLiteOpenHelper Class:

```

package com.example.addressbook;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.Nullable;

public class DBHelper extends SQLiteOpenHelper {

    public DBHelper(@Nullable Context context, @Nullable String name, @Nullable SQLiteDatabase.CursorFactory factory, int version) {
        super(context, "SIBA.db", factory, 1);
    }

    @Override

```

```

public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
    db.execSQL("DROP TABLE IF EXISTS info");
    onCreate(db);

}

@Override
public void onCreate(SQLiteDatabase db) {
    String query="CREATE TABLE info (Name TEXT,Phone TEXT,Street TEXT,Email TEXT,City Text);";
    db.execSQL(query);

}

public void insert(String Name,String Phone,String Street,String Email,String City){
    ContentValues values=new ContentValues();
    values.put("Name",Name);
    values.put("Phone",Phone);
    values.put("Street",Street);
    values.put("City",Name);
    values.put("Email",Email);
    SQLiteDatabase db=getWritableDatabase();
    db.insert("info",null,values);
    db.close();

}

public String print(String name){
    String string="";
    SQLiteDatabase db=getWritableDatabase();
    String query="SELECT * FROM info WHERE Name='"+name+"'";
    Cursor c=db.rawQuery(query,null);
    c.moveToFirst();

    while (!c.isAfterLast()){
        if(c.getString(c.getColumnIndex("Name"))!=null)
            string+=c.getString(c.getColumnIndex("Name"));

        c.moveToNext();
        break;
    }
    db.close();
}

```

```
        return string;  
    }  
}
```

Output

11:53



AddressBook

Name

Phone

Street

Email

City/State/Zip

SAVE CONTACT



11:53



AddressBook

SIBA Database

Daniyal



Activity 3:Create stop watch

Layout

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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"
    android:background="@drawable/watch"
    >
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="00:00:00"
    android:textSize="70sp"
    android:id="@+id/txt"
    android:layout_centerInParent="true"

    >>/TextView>
<com.google.android.material.button.MaterialButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Start"
    android:id="@+id/start"
    android:textAllCaps="false"
    android:layout_marginBottom="100dp"
    android:layout_alignParentBottom="true"
    android:layout_marginLeft="40dp"
    android:padding="15dp"
    android:textColor="@color/black"
    android:textSize="20sp"
    android:backgroundTint="#808080"
    android:onClick="Start"
    >>/com.google.android.material.button.MaterialButton>

<com.google.android.material.button.MaterialButton
    android:layout_width="wrap_content"
```

```

        android:id="@+id/stop"
        android:layout_height="wrap_content"
        android:text="Stop"
        android:onClick="Stop"
        android:textAllCaps="false"
        android:layout_marginBottom="100dp"
        android:layout_alignParentBottom="true"
        android:layout_marginLeft="150dp"
        android:padding="15dp"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:backgroundTint="#808080"
    ></com.google.android.material.button.MaterialButton>

    <com.google.android.material.button.MaterialButton
        android:id="@+id/reset"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Reset"
        android:textAllCaps="false"
        android:layout_marginBottom="100dp"
        android:layout_alignParentBottom="true"
        android:layout_marginLeft="260dp"
        android:padding="15dp"
        android:textColor="@color/black"
        android:textSize="20sp"
        android:onClick="Reset"
        android:backgroundTint="#808080"
    ></com.google.android.material.button.MaterialButton>

</RelativeLayout>

```

Logic Code

```

package com.example.stopwatch;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.os.Handler;
import android.view.View;

```

```
import android.widget.TextView;

import java.util.Locale;

public class MainActivity extends AppCompatActivity {

    private int seconds = 0;

    // Is the stopwatch running?
    private boolean running;

    private boolean wasRunning;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        if (savedInstanceState != null) {

            seconds
                = savedInstanceState
                    .getInt("seconds");
            running
                = savedInstanceState
                    .getBoolean("running");
            wasRunning
                = savedInstanceState
                    .getBoolean("wasRunning");
        }
        runTimer();
    }

    @Override
    protected void onSaveInstanceState(@NonNull Bundle savedInstanceState) {
        super.onSaveInstanceState(savedInstanceState);
        savedInstanceState
            .putInt("seconds", seconds);
        savedInstanceState
            .putBoolean("running", running);
        savedInstanceState
            .putBoolean("wasRunning", wasRunning);
    }
}
```

```

@Override
protected void onPause() {
    super.onPause();
    wasRunning = running;
    running = false;
}

@Override
protected void onResume() {
    super.onResume();
    if (wasRunning) {
        running = true;
    }
}

public void Start(View view)
{
    running = true;
}

public void Stop(View view)
{
    running = false;
}

public void Reset(View view)
{
    running = false;
    seconds = 0;
}

private void runTimer() {

    // Get the text view.
    final TextView timeView
        = (TextView) findViewById(
            R.id.txt);

    // Creates a new Handler
    final Handler handler
        = new Handler();
    handler.post(new Runnable() {
        @Override
        public void run() {

            int hours = seconds / 3600;

```

```

int minutes = (seconds % 3600) / 60;
int secs = seconds % 60;

// Format the seconds into hours, minutes,
// and seconds.
String time
    = String
        .format(Locale.getDefault(),
            "%d:%02d:%02d", hours,
            minutes, secs);

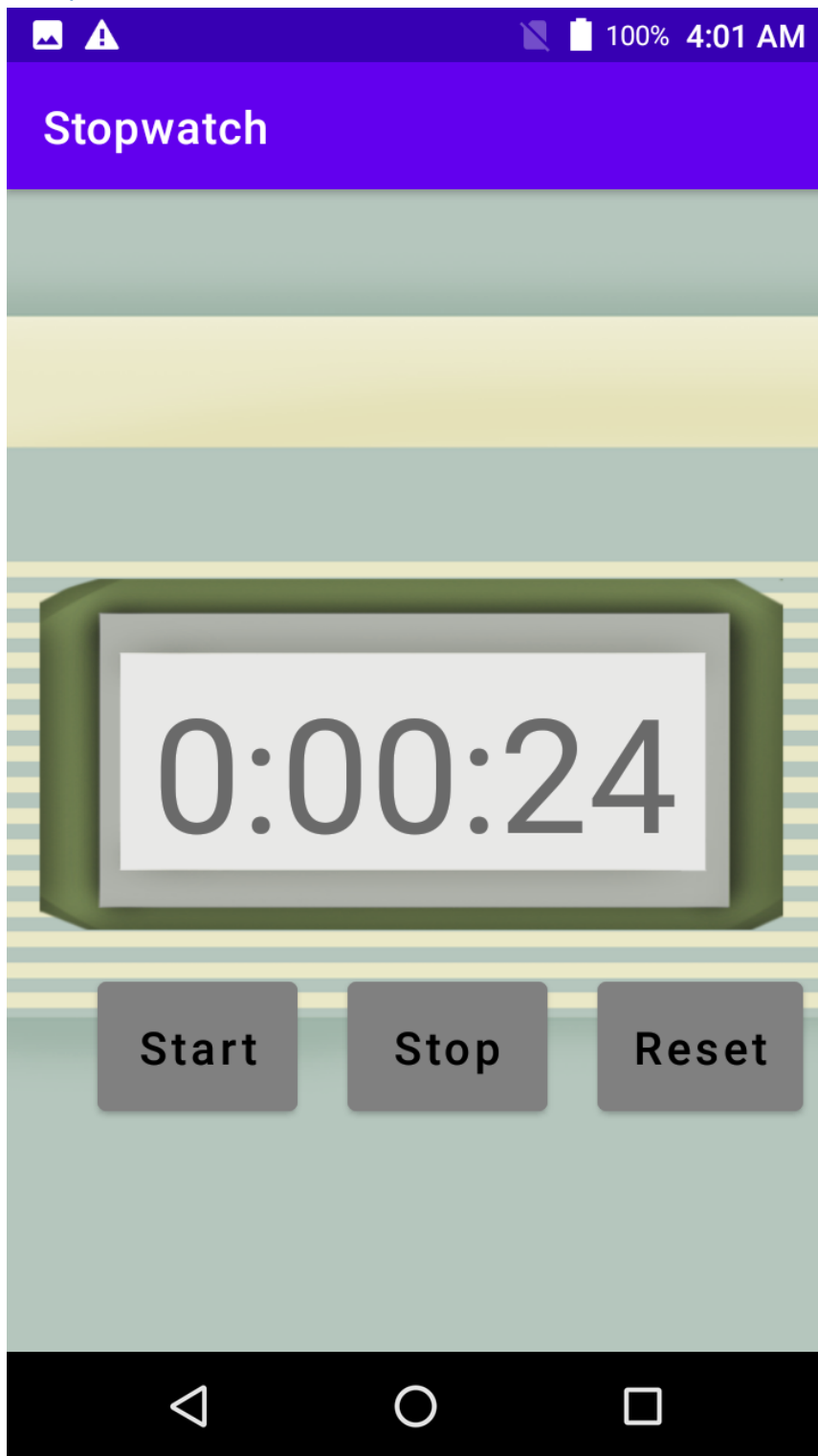
// Set the text view text.
timeView.setText(time);

// If running is true, increment the
// seconds variable.
if (running) {
    seconds++;
}

// Post the code again
// with a delay of 1 second.
handler.postDelayed(this, 1000);
    }
});
}
}

```

Output



Activity 4 Animation Rotation

Layout

```
<?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">

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_marginStart="140dp"
        android:layout_marginLeft="140dp"
        android:layout_marginTop="50dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:srcCompat="@drawable/im" />

    <Button
        android:id="@+id/button2"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginTop="84dp"
        android:onClick="toggle"
        android:text="toggle rotate"
        android:textColor="#330505"
        android:textSize="16sp"
        app:backgroundTint="#BFB7B7"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Logic Code

```
package com.example.rotateanimation;
```

```

import androidx.appcompat.app.AppCompatActivity;

import android.content.SharedPreferences;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {
    int counter=0;
    Boolean check;
    ImageView img;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        SharedPreferences pref=getSharedPreferences("c",MODE_PRIVATE);
        img=findViewById(R.id.imageView);

        check=true;
        counter=pref.getInt("counter",0);

        img.setRotation(counter);

    }

    public void toggle(View view) {
        SharedPreferences pref=getSharedPreferences("c",MODE_PRIVATE);
        SharedPreferences.Editor editor=pref.edit();

        if(check) {
            editor.putInt("counter",counter);
            editor.commit();
            check = false;
        }
        else
            check=true;

        Thread thread=new Thread(new Runnable() {
            @Override
            public void run() {
                while(check){
                    counter+=20;
                    if(counter==360)
                        counter=0;
                }
            }
        });
    }
}

```

```
        img.setRotation(counter);
        try {
            Thread.sleep(50);
        } catch (InterruptedException e) {
            e.printStackTrace();
        }
    }
}

});
thread.start();

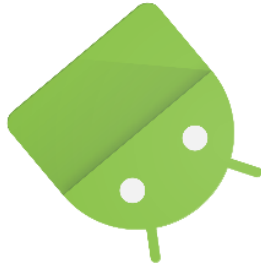
}
}
```

Output



100% 4:00 AM

RotateAnimation



TOGGLE ROTATE

