**НЕГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ ЧАСТНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ**

**«МОСКОВСКИЙ ФИНАНСОВО-ПРОМЫШЛЕННЫЙ УНИВЕРСИТЕТ «СИНЕРГИЯ»**

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| **Факультет/Институт** |  | Информационных технологий |
|  |  | (наименование факультета/ Института) |
| **Направление/специальность** |  | Информационные системы и технологии |
| **подготовки:** |  | (код и наименование направления /специальности подготовки) |
| **Форма обучения:** |  | очная |
|  |  | (очная, очно-заочная, заочная) |
|  |  |  |

**Лабораторный практикум № 5**

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| --- | --- | --- | --- | --- |
| **по дисциплине** |  | Программирование под Android | | |
|  | | |  | (наименование дисциплины) |

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|  |  | (ФИО) |  | (подпись) |
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**5 (Секундомер с сохранением)**

MainActivity.java

package com.example.qwer;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.os.Handler;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
  
import java.io.BufferedReader;  
import java.io.BufferedWriter;  
import java.io.File;  
import java.io.FileReader;  
import java.io.FileWriter;  
import java.io.IOException;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView timerTextView;  
 private Button startButton, stopButton, resetButton, saveButton;  
 private Handler handler = new Handler();  
 private long startTime = 0L;  
 private boolean isRunning = false;  
 private Runnable runnable;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 timerTextView = findViewById(R.id.*timerTextView*);  
 startButton = findViewById(R.id.*startButton*);  
 stopButton = findViewById(R.id.*stopButton*);  
 resetButton = findViewById(R.id.*resetButton*);  
 saveButton = findViewById(R.id.*saveButton*);  
  
 startButton.setOnClickListener(v -> startTimer());  
 stopButton.setOnClickListener(v -> stopTimer());  
 resetButton.setOnClickListener(v -> resetTimer());  
 saveButton.setOnClickListener(v -> saveTime());  
 }  
  
 private void startTimer() {  
 if (!isRunning) {  
 startTime = System.*currentTimeMillis*();  
 isRunning = true;  
 handler.postDelayed(runnable = new Runnable() {  
 @Override  
 public void run() {  
 long elapsedTime = System.*currentTimeMillis*() - startTime;  
 timerTextView.setText(formatTime(elapsedTime));  
 handler.postDelayed(this, 1000);  
 }  
 }, 0);  
 }  
 }  
  
 private void stopTimer() {  
 if (isRunning) {  
 isRunning = false;  
 handler.removeCallbacks(runnable);  
 }  
 }  
  
 private void resetTimer() {  
 stopTimer();  
 timerTextView.setText("00:00");  
 }  
  
 private void saveTime() {  
 String time = timerTextView.getText().toString();  
 File file = new File(getExternalFilesDir(null), "timer\_history.txt");  
 try (BufferedWriter writer = new BufferedWriter(new FileWriter(file, true))) {  
 writer.write(time + "\n");  
 } catch (IOException e) {  
 e.printStackTrace();  
 }  
 }  
  
 private String formatTime(long millis) {  
 int seconds = (int) (millis / 1000) % 60;  
 int minutes = (int) ((millis / (1000 \* 60)) % 60);  
 return String.*format*("%02d:%02d", minutes, seconds);  
 }  
}

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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="/"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <TextView  
 android:id="@+id/timerTextView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="00:00"  
 android:textSize="48sp"  
 android:layout\_centerInParent="true" />  
  
 <Button  
 android:id="@+id/startButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Start"  
 android:layout\_below="@id/timerTextView"  
 android:layout\_centerHorizontal="true" />  
  
 <Button  
 android:id="@+id/stopButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Stop"  
 android:layout\_below="@id/timerTextView"  
 android:layout\_toRightOf="@id/startButton" />  
  
 <Button  
 android:id="@+id/resetButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Reset"  
 android:layout\_below="@id/timerTextView"  
 android:layout\_toRightOf="@id/stopButton" />  
  
 <Button  
 android:id="@+id/saveButton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Save"  
 android:layout\_below="@id/timerTextView"  
 android:layout\_toRightOf="@id/resetButton" />  
 </RelativeLayout>  
  
</androidx.constraintlayout.widget.ConstraintLayout>

AndroidManifest.xml

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools">  
 <uses-permission android:name="android.permission.WRITE\_EXTERNAL\_STORAGE" />  
  
 <application  
 android:allowBackup="true"  
 android:dataExtractionRules="@xml/data\_extraction\_rules"  
 android:fullBackupContent="@xml/backup\_rules"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/Theme.Qwer"  
 tools:targetApi="31">  
 <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>

