Министерство образования и молодежной политики Свердловской области



ГАПОУ СО «Екатеринбургский колледж транспортного строительства»

# Отчет по программе «Практическое занятие 17.2»

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Группа: ПР-22

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2023

**Задание:**

Разработать приложение для расчета периметра треугольника, прямоугольника и круга. Выбор осуществляется из элемента «spinner». При последующих запусках выбранная фигура будет та, которая выбрана последней при предыдущем запуске приложения.

**Входные и выходные данные**

Login – String / строка

Password – String / строка

A – Double / число с плавающей запятой

B – Double / число с плавающей запятой

C – Double / число с плавающей запятой

alert – pop-up message / всплывающее сообщение

**Листинг программы (если есть)**

<?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=".SharedActivity">  
  
 <EditText  
 android:id="@+id/login"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="@string/your\_login"  
 android:inputType="text"  
 android:textSize="20sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.526"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.289" />  
  
 <EditText  
 android:id="@+id/pass"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="@string/your\_password"  
 android:inputType="textPassword"  
 android:textSize="20sp"  
 app:layout\_constraintTop\_toBottomOf="@+id/login" />  
  
 <Button  
 android:id="@+id/save"  
 android:layout\_width="match\_parent"  
 android:layout\_height="55dp"  
 android:layout\_margin="10dp"  
 android:background="@drawable/button"  
 android:onClick="handler"  
 android:text="@string/save"  
 android:textAllCaps="false"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <Button  
 android:id="@+id/load"  
 android:layout\_width="match\_parent"  
 android:layout\_height="55dp"  
 android:layout\_margin="10dp"  
 android:layout\_marginTop="274dp"  
 android:background="@drawable/button"  
 android:onClick="handler"  
 android:text="@string/load"  
 android:textAllCaps="false"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.0"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/save"  
 app:layout\_constraintVertical\_bias="0.0" />  
  
 <Button  
 android:id="@+id/next"  
 android:layout\_width="match\_parent"  
 android:layout\_height="55dp"  
 android:layout\_margin="10dp"  
 android:background="@drawable/button"  
 android:onClick="next"  
 android:text="@string/next"  
 android:textAllCaps="false"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.526"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/load"  
 app:layout\_constraintVertical\_bias="0.0" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**----------------------------------------------------------------------------------------------------**

<?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=".SpinnerActivity">  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="50dp"  
 android:layout\_height="50dp"  
 android:onClick="back"  
 android:background="@drawable/button"  
 android:text="@string/back\_button"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.045"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.023" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textColor="@color/black"  
 android:textSize="30sp"  
 android:text="@string/triangle"  
 app:layout\_constraintBottom\_toTopOf="@+id/a"  
  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.257"  
 app:layout\_constraintStart\_toEndOf="@+id/button"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.03" />  
  
 <ImageView  
 android:id="@+id/pic"  
 android:layout\_width="match\_parent"  
 android:layout\_height="100dp"  
 android:layout\_margin="10dp"  
 app:layout\_constraintBottom\_toTopOf="@+id/sp"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView" />  
  
 <EditText  
 android:id="@+id/a"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="@string/a"  
 android:imeOptions="actionNext"  
 android:inputType="text"  
 android:textColor="@color/black"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.157"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.698"  
 tools:ignore="TouchTargetSizeCheck" />  
  
 <EditText  
 android:id="@+id/b"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="@string/b"  
 android:imeOptions="actionNext"  
 android:inputType="text"  
 android:textColor="@color/black"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.842"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/a"  
 app:layout\_constraintVertical\_bias="0.0"  
 tools:ignore="TouchTargetSizeCheck" />  
  
 <EditText  
 android:id="@+id/c"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="@string/c"  
 android:imeOptions="actionNext"  
 android:inputType="text"  
 android:textColor="@color/black"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.526"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/b"  
 app:layout\_constraintVertical\_bias="0.0"  
 tools:ignore="TouchTargetSizeCheck" />  
  
 <Button  
 android:id="@+id/calc"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:background="@drawable/button"  
 android:onClick="calculate"  
 android:text="@string/calculate\_button"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.842"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/c"  
 app:layout\_constraintVertical\_bias="0.859" />  
  
 <Spinner  
 android:id="@+id/sp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:entries="@array/figures"  
 app:layout\_constraintBottom\_toTopOf="@+id/a"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.157"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView"  
 app:layout\_constraintVertical\_bias="1.0"  
 tools:ignore="TouchTargetSizeCheck" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Class:**

package com.example.prak17\_2\_spinner  
  
import android.content.Intent  
import android.content.SharedPreferences  
import android.os.Bundle  
import android.view.View  
import android.widget.Button  
import android.widget.EditText  
import androidx.appcompat.app.AlertDialog  
import androidx.appcompat.app.AppCompatActivity  
  
class SharedActivity : AppCompatActivity() {  
 lateinit var pref : SharedPreferences  
 lateinit var save : Button  
 lateinit var load : Button  
 lateinit var login : EditText  
 lateinit var password : EditText  
  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_shared*)  
 login = findViewById(R.id.*login*)  
 password = findViewById(R.id.*pass*)  
 save = findViewById(R.id.*save*)  
 load = findViewById(R.id.*load*)  
 }  
 fun handler(v: View) {  
 if(v.*id* == R.id.*save*) {  
 pref = getPreferences(*MODE\_PRIVATE*)  
 val ed = pref.edit()  
 ed.putString("login", login.getText().toString())  
 ed.putString("password", password.getText().toString())  
 ed.apply()  
 }  
 if(v.*id* == R.id.*load*)  
 {  
 var alert = AlertDialog.Builder(this)  
 .setTitle("????")  
 .setMessage("Занести данные?\nЕсли ничего не загрузилось, зарегестрируйтесь и нажмите svae")  
 .setPositiveButton("ок") **{** dialog, which **->** pref = getPreferences(*MODE\_PRIVATE*)  
 login.setText(pref.getString("login", ""));  
 password.setText(pref.getString("password", ""));**}** .setNegativeButton("отмена",null)  
 .create()  
 .show()  
  
 }  
 }  
  
 fun next(view: View) {  
 if(login.*text*.toString().*isNotEmpty*() && password.*text*.toString().*isNotEmpty*()) {  
 val intent = Intent(this, SpinnerActivity::class.*java*)  
 startActivity(intent)  
 }  
 else{  
 var alert = AlertDialog.Builder(this)  
 .setTitle("Ошибка")  
 .setMessage("Заполните все поля")  
 .setPositiveButton("ок",null)  
 .create()  
 .show()  
 }  
 }  
}

package com.example.prak17\_2\_spinner  
  
import android.content.Context  
import android.content.Intent  
import android.content.SharedPreferences  
import android.os.Bundle  
import android.view.View  
import android.widget.AdapterView  
import android.widget.ArrayAdapter  
import android.widget.EditText  
import android.widget.ImageView  
import android.widget.Spinner  
import android.widget.TextView  
import androidx.appcompat.app.AlertDialog  
import androidx.appcompat.app.AppCompatActivity  
class SpinnerActivity : AppCompatActivity() {  
 lateinit var a: EditText  
 lateinit var b: EditText  
 lateinit var c: EditText  
 lateinit var spin: Spinner  
 lateinit var textV: TextView  
 lateinit var adapter: ArrayAdapter<String>  
 lateinit var sharedPreferences: SharedPreferences  
 lateinit var pic: ImageView  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_spinner*)  
  
 sharedPreferences = getSharedPreferences("FigurePreferences", Context.*MODE\_PRIVATE*)  
  
 spin = findViewById(R.id.*sp*)  
 a = findViewById(R.id.*a*)  
 b = findViewById(R.id.*b*)  
 c = findViewById(R.id.*c*)  
 textV = findViewById(R.id.*textView*)  
 pic = findViewById(R.id.*pic*)  
  
 ArrayAdapter.createFromResource(  
 this,  
 R.array.*figures*,  
 android.R.layout.*simple\_spinner\_item* ).*also* **{** adapter **->** adapter.setDropDownViewResource(  
 android.R.layout.*simple\_spinner\_dropdown\_item* )  
 spin.*adapter* = adapter  
 **}** loadPreferences()  
  
 spin.*onItemSelectedListener* = object : AdapterView.OnItemSelectedListener {  
 override fun onItemSelected(parent: AdapterView<\*>?, view: View?, position: Int, id: Long) {  
 when (position) {  
 0 -> {  
 pic.setImageResource(R.drawable.*treyg*)  
 textV.setText("Треугольник")  
 a.*hint* = "Сторона a"  
 b.*hint* = "Сторона b"  
 c.*hint* = "Сторона c"  
 c.*visibility* = View.*VISIBLE* b.*visibility* = View.*VISIBLE* }  
 1 -> {  
 textV.setText("Прямоугольник")  
 pic.setImageResource(R.drawable.*bordertest*)  
 a.*hint* = "Сторона a"  
 b.*hint* = "Сторона b"  
 c.*visibility* = View.*GONE* b.*visibility* = View.*VISIBLE* }  
 2 -> {  
 pic.setImageResource(R.drawable.*kryg*)  
 textV.setText("Круг")  
 a.*hint* = "Радиус"  
 b.*visibility* = View.*GONE* c.*visibility* = View.*GONE* }  
 }  
 }  
  
 override fun onNothingSelected(parent: AdapterView<\*>?) {}  
 }  
 }  
  
 fun calculate(view: View) {  
 val a1: Double = a.*text*.toString().*toDoubleOrNull*() ?: 0.0  
 val b1: Double = b.*text*.toString().*toDoubleOrNull*() ?: 0.0  
 val c1: Double = if (c.*visibility* == View.*VISIBLE*) c.*text*.toString().*toDoubleOrNull*() ?: 0.0 else 0.0  
  
 val isValidFigure = when (spin.*selectedItemPosition*) {  
 0 -> a1 + b1 > c1 && a1 + c1 > b1 && b1 + c1 > a1  
 1 -> a1 > 0 && b1 > 0  
 2 -> a1 > 0  
 else -> false  
 }  
  
 if (!isValidFigure) {  
 AlertDialog.Builder(this)  
 .setTitle("Невозможно расчитать для этой фигуры")  
 .setMessage("Введенные размеры не образуют действительного ${spin.*selectedItem*}. Пожалуйста, проверьте значения.")  
 .setPositiveButton("OK", null)  
 .create()  
 .show()  
 return  
 }  
  
 val perimeter = when (spin.*selectedItemPosition*) {  
 0 -> a1 + b1 + c1  
 1 -> 2 \* (a1 + b1)  
 2 -> 2 \* Math.*PI* \* a1  
 else -> 0.0  
 }  
  
 val message = if (spin.*selectedItemPosition* == 2) {  
 "периметр: $perimeter\nПримечание: a - это радиус."  
 } else {  
 "периметр: $perimeter"  
 }  
  
 savePreferences(a1, b1, c1)  
  
 AlertDialog.Builder(this)  
 .setTitle("периметр:")  
 .setMessage(message)  
 .setPositiveButton("OK", null)  
 .create()  
 .show()  
 }  
  
 private fun savePreferences(a: Double, b: Double, c: Double) {  
 *with*(sharedPreferences.edit()) **{** putString("a", a.toString())  
 putString("b", b.toString())  
 putString("c", c.toString())  
 putInt("выбранная позиция", spin.*selectedItemPosition*)  
 apply()  
 **}** }  
  
 private fun loadPreferences() {  
 a.setText(sharedPreferences.getString("a", ""))  
 b.setText(sharedPreferences.getString("b", ""))  
 c.setText(sharedPreferences.getString("c", ""))  
 spin.setSelection(sharedPreferences.getInt("выбранная позиция", 0))  
 }  
  
 fun back(view: View) {  
 val intent = Intent(this, SharedActivity::class.*java*)  
 startActivity(intent)  
 }  
}

**Strings:**

<resources>  
 <string name="app\_name">prak17</string>  
 <string name="save">Save</string>  
 <string name="load">Load</string>  
 <string name="your\_password">your password</string>  
 <string name="your\_login">your login</string>  
 <string name="next">next</string>  
 <string name="triangle">треугольник</string>  
 <string name="back\_button">back</string>  
 <string name="a">a</string>  
 <string name="b">b</string>  
 <string name="c">c</string>  
 <string name="circle\_area">Pi\*r^2</string>  
 <string name="rectangle\_area">a\*b</string>  
 <string name="calculate\_button">Рассчитать</string>  
  
 <string-array name="figures">  
 <item>треугольник</item>  
 <item>прямоугольник</item>  
 <item>круг</item>  
 </string-array>  
</resources>

**Themes:**

<?xml version="1.0" encoding="utf-8"?>  
<resources>  
  
 <style name="Theme.Prak17\_2\_spinner" parent="Theme.AppCompat.Light.DarkActionBar" />  
</resources>

**Тестовые ситуации**

