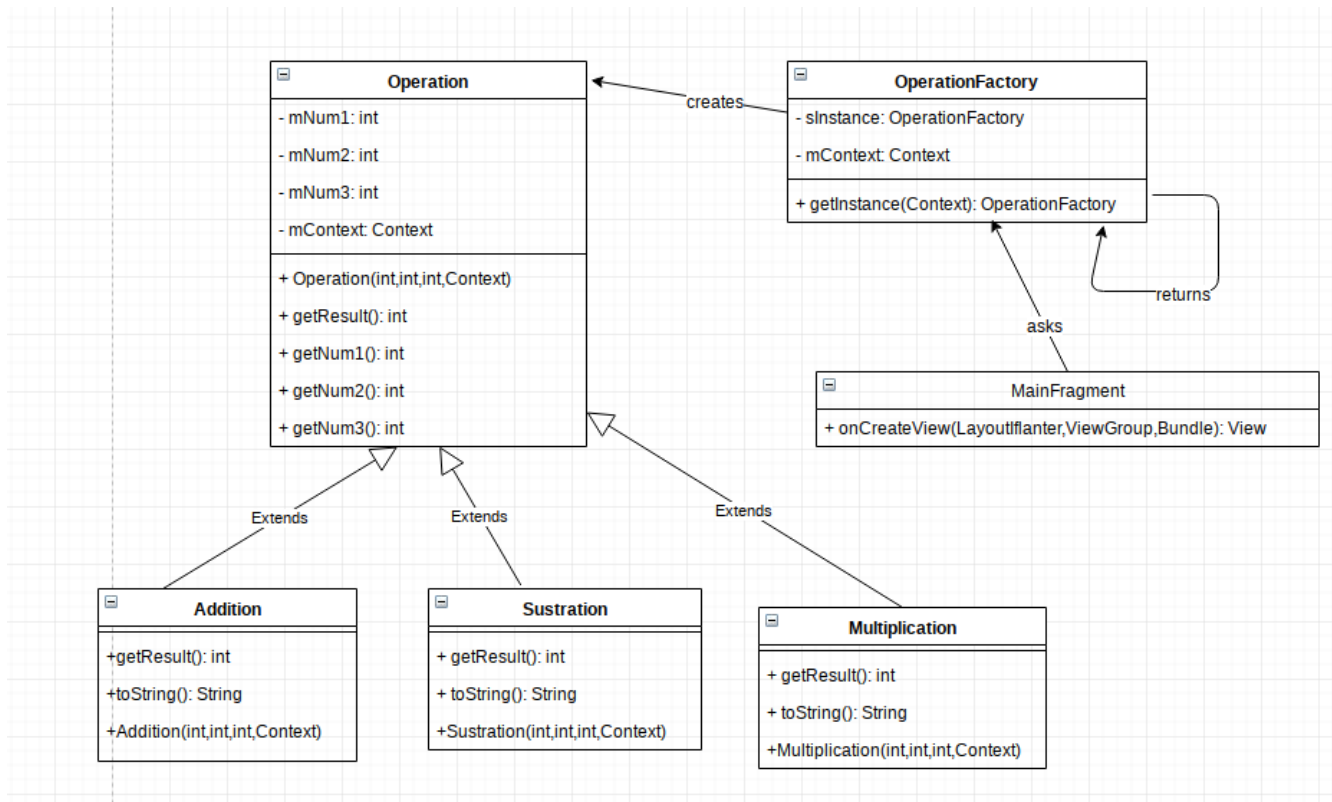


Nizar Sanchez (2018-6482)

Diagrama UML:



AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.segundoparcial">
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Operation.java

```
package com.example.segundoparcial.model;
import android.content.Context;
public abstract class Operation {
    private int mNum1;
    private int mNum2;
    private int mNum3;
    private Context mContext;
    public Operation(int num1, int num2, int num3, Context context) {
        mNum1 = num1;
        mNum2 = num2;
        mNum3 = num3;
        mContext=context;
    }
    protected abstract int getResult();
    protected int getNum1() {
        return mNum1;
    }
    protected int getNum2() {
        return mNum2;
    }
    protected int getNum3() {
        return mNum3;
    }
    protected Context getContext() {
        return mContext;
    }
}
```

Multiplication.xml

```
package com.example.segundoparcial.model;
import android.content.Context;
import androidx.annotation.NonNull;
import com.example.segundoparcial.R;
public class Multiplication extends Operation {
    public Multiplication(int num1, int num2, int num3, Context context) {
        super(num1, num2, num3,context);
    }
    @Override
    protected int getResult() {
        return getNum1()*getNum2()*getNum3();
    }
    @NonNull
    @Override
    public String toString() {
        return
getContext().getString(R.string.multiplication_result,String.valueOf(getResult()));
    }
}
```

Sustration.java

```
package com.example.segundoparcial.model;
import android.content.Context;
import androidx.annotation.NonNull;
import com.example.segundoparcial.R;
public class Sustration extends Operation {
    public Sustration(int num1, int num2, int num3, Context context) {
```

```

        super(num1, num2, num3, context);
    }
    @Override
    protected int getResult() {
        return getNum1() - getNum2() - getNum3();
    }
    @NonNull
    @Override
    public String toString() {
        return
getContext().getString(R.string.sustration_result, String.valueOf(getResult()));
    }
}

```

Addition.java

```

package com.example.segundoparcial.model;
import android.content.Context;
import androidx.annotation.NonNull;
import com.example.segundoparcial.R;
public class Addition extends Operation {
    public Addition(int num1, int num2, int num3, Context context) {
        super(num1, num2, num3, context);
    }
    @Override
    protected int getResult() {
        return getNum1() + getNum2() + getNum3();
    }
    @NonNull
    @Override
    public String toString() {
        return
getContext().getString(R.string.addition_result, String.valueOf(getResult()));
    }
}

```

MainActivity.java

```

package com.example.segundoparcial;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        FragmentManager fm = getSupportFragmentManager();
        Fragment fragment = fm.findFragmentById(R.id.fragment_container);
        if(fragment==null){
            fragment = new MainFragment();
            fm.beginTransaction()
                .add(R.id.fragment_container, fragment)
                .commit();
        }
    }
}

```

MainFragment.java

```

package com.example.segundoparcial;

```

```

import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import com.example.segundoparcial.model.Addition;
import com.example.segundoparcial.model.Multiplication;
import com.example.segundoparcial.model.Sustration;
import java.util.Calendar;
import java.util.GregorianCalendar;
public class MainFragment extends Fragment {
    private Button mCalculateButton;
    private Button mClearBtn;
    private EditText mNum1;
    private EditText mNum2;
    private EditText mNum3;
    private TextView mResultTxt;
    @Nullable
    @Override
    public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        View v= inflater.inflate(R.layout.fragment_main,null,false);
        mClearBtn = (Button) v.findViewById(R.id.btn_clear);
        mNum1 = (EditText) v.findViewById(R.id.etxt_num1);
        mNum2 = (EditText)v.findViewById(R.id.etxt_num2);
        mNum3= (EditText) v.findViewById(R.id.etxt_num3);
        mResultTxt = (TextView) v.findViewById(R.id.txt_result);
        mCalculateButton = v.findViewById(R.id.calculate_button);
        mCalculateButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String txtNum1 =mNum1.getText().toString();
                String txtNum2 = mNum2.getText().toString();
                String txtNum3= mNum3.getText().toString();
                String [] texts={txtNum1,txtNum2,txtNum3};
                if( areEmpty(texts)){
                    return;
                }
                int num1 = Integer.parseInt(txtNum1);
                int num2 = Integer.parseInt(txtNum2);
                int num3 = Integer.parseInt(txtNum3);
                Addition addition = (Addition)
OperationFactory.getInstance(getContext()).getOperation(num1,num2,num3,
OperationFactory.OperationType.ADDITION);
                Sustration sustration = (Sustration)
OperationFactory.getInstance(getContext()).getOperation(num1,num2,num3,
OperationFactory.OperationType.SUSTRATION);
                Multiplication multiplication = (Multiplication)
OperationFactory.getInstance(getContext()).getOperation(num1,num2,num3,
OperationFactory.OperationType.MULTIPLICATION);
                StringBuilder stringBuilder = new StringBuilder();
                stringBuilder.append(addition);

```

```

        stringBuilder.append("\n");
        stringBuilder.append(sustration);
        stringBuilder.append("\n");
        stringBuilder.append(multiplication);
        mResultTxt.setText(stringBuilder.toString());
    }
});
mClearBtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        clearAll();
    }
});
return v;
}
@Override
public void onCreate(@Nullable Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
}
private int add(int num1, int num2){
    return num1+num2;
}
private int subtract(int num1,int num2){
    return num1-num2;
}
private int multiply(int num1,int num2){
    return num1*num2;
}
private void updateOuput(int result){
    StringBuilder sb = new StringBuilder();
    sb.append(getResources().getString(R.string.display_result));
    sb.append(result);
    mResultTxt.setText(sb.toString()); // Seting text to result
}
private boolean areEmpty(String [] textNum){
    for (String text: textNum){
        if(text.equals("")){
            Toast.makeText(getContext(),R.string.field_empty,Toast.LENGTH_SHORT).show();
            return true;
        } else {
            continue;
        }
    }
    return false;
}
private void clearAll(){
    mNum1.setText("");
    mNum2.setText("");
    mNum3.setText("");
    mResultTxt.setText(R.string.result_default);
}
}
}

```

OperationFactory.xml

```

package com.example.segundoparcial;
import android.content.Context;
import com.example.segundoparcial.model.Addition;
import com.example.segundoparcial.model.Multiplication;

```

```

import com.example.segundoparcial.model.Operation;
import com.example.segundoparcial.model.Sustration;
public class OperationFactory {
    private static OperationFactory sInstance;
    private Context mContext;
    private OperationFactory(Context context){
        mContext = context;
    }
    public Operation getOperation(int n1, int n2, int n3, OperationType operationType){
        switch (operationType){
            case ADDITION:
                return new Addition(n1,n2,n3,mContext);
            case SUSTRATION:
                return new Sustration(n1,n2,n3,mContext);
            case MULTIPLICATION:
                return new Multiplication(n1,n2,n3,mContext);
            default:
                return null;
        }
    }
    public static OperationFactory getInstance(Context context){
        if(sInstance==null){
            sInstance= new OperationFactory(context);
        }
        return sInstance;
    }
    public enum OperationType{
        ADDITION,SUSTRATION,MULTIPLICATION
    }
}

```

activity_main.xml

```

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

```

fragment_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/fragment_container"
>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical">
        <EditText
            android:id="@+id/etxt_num1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:ems="10"
            android:hint="@string/give_number"
            android:inputType="numberSigned" />
        <EditText

```

```

        android:id="@+id/etxt_num2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="@string/give_number1"
        android:inputType="numberSigned" />
    <EditText
        android:id="@+id/etxt_num3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="@string/give_number1"
        android:inputType="number" />
    <Button
        android:id="@+id/calculate_button"
        android:text="@string/calculate_button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        />
    <Button
        android:id="@+id/btn_clear"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:drawableLeft="@drawable/clear"
        android:text="@string/clear_all" />
    <TextView
        android:id="@+id/txt_result"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:hint="@string/result_default" />
    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="numberSigned" />
</LinearLayout>
</FrameLayout>

```

strings.xml

<resources>

```

    <string name="app_name">Segundo Parcial</string>
    <string name="clear_all">Clear all</string>
    <string name="output_not_calculated">The output cannot be calculated</string>
    <string name="output_result1">Date of birth of the age</string>
    <string name="output_result2">is</string>
    <string name="output_default">The date will displayed here</string>
    <string name="result_default">The result will displayed here</string>
    <string name="give_number">Tap me and give me a number</string>
    <string name="give_number1">Tap me and give another number</string>
    <string name="field_empty">The fields MUST NOT be empty</string>
    <string name="display_result">Result: </string>
    <string name="addition_result">Addition: %1$s</string>
    <string name="sustration_result">Diference: %1$s</string>
    <string name="multiplication_result">Product: %1$s</string>
    <string name="calculate_button">CALCULATE!!</string>
</resources>

```