Assignment 1 – Basic Calculator using Android Studio

Source Codes

MainActivity.java

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

    Button btnAdd = findViewById(R.id.btn_add);
    Button btnSub = findViewById(R.id.btn_sub);

    btnAdd.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            if(!validateInput()){
                switchToAdd();
            }
        }
    });

    btnSub.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            if(!validateInput()){
                switchToSub();
            }
        }
    });
}

private boolean validateInput(){
    EditText input1 = findViewById(R.id.input1);
    EditText input2 = findViewById(R.id.input2);

    boolean hasError = false;
    if (input1.length()==0) {
        hasError = true;
        input1.setError("Required!");
    }
    if (input2.length()==0) {
        hasError = true;
        input2.setError("Required!");
    }
    return hasError;
}

private void switchToAdd(){
    EditText input1 = findViewById(R.id.input1);
    EditText input2 = findViewById(R.id.input2);
    String text1 = input1.getText().toString();
    String text2 = input2.getText().toString();

    Intent intent = new Intent( packageContext: this, SubActivity1.class);
    intent.putExtra( name: "equation",  value: text1 + " + " + text2);
    intent.putExtra( name: "result",  value: Double.valueOf(text1) + Double.valueOf(text2));
    startActivity(intent);
}

private void switchToSub(){
    EditText input1 = findViewById(R.id.input1);
    EditText input2 = findViewById(R.id.input2);
    String text1 = input1.getText().toString();
    String text2 = input2.getText().toString();

    Intent intent = new Intent( packageContext: this, SubActivity2.class);
    intent.putExtra( name: "equation",  value: text1 + " - " + text2);
    intent.putExtra( name: "result",  value: Double.valueOf(text1) - Double.valueOf(text2));
    startActivity(intent);
}
```

Both 'EditText' boxes are set for input types 'numberSigned|numberDecimal'. Other than empty inputs are not accepted.

Two buttons load other two activities based on the clicked button. Calculation is done is the main activity. Then equation and result are passed to the corresponding view to display.

SubActivity1.java

```java
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_sub1);

    TextView textEquation = findViewById(R.id.textEquationAdd);
    TextView textResult = findViewById(R.id.textResultAdd);

    String equation = getIntent().getStringExtra( name: "equation");
    Double result = getIntent().getDoubleExtra( name: "result", defaultValue: 0);
    String formattedRes = result.toString();
    formattedRes = formattedRes.contains(".") ? formattedRes.replaceAll( regex: "0*$", replacement: "").replaceAll( regex: "\\.$", replacement: "") : formattedRes;
    textEquation.setText(equation);
    textResult.setText("= "+ formattedRes);
}
```

SubActivity2.java

```java
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_sub2);

    TextView textEquation = findViewById(R.id.textEquationSub);
    TextView textResult = findViewById(R.id.textResultSub);

    String equation = getIntent().getStringExtra( name: "equation");
    Double result = getIntent().getDoubleExtra( name: "result", defaultValue: 0);
    String formattedRes = result.toString();
    formattedRes = formattedRes.contains(".") ? formattedRes.replaceAll( regex: "0*$", replacement: "").replaceAll( regex: "\\.$", replacement: "") : formattedRes;
    textEquation.setText(equation);
    textResult.setText("= "+ formattedRes);
}
```

Both sub activities display the passed equation and result.

Screenshots