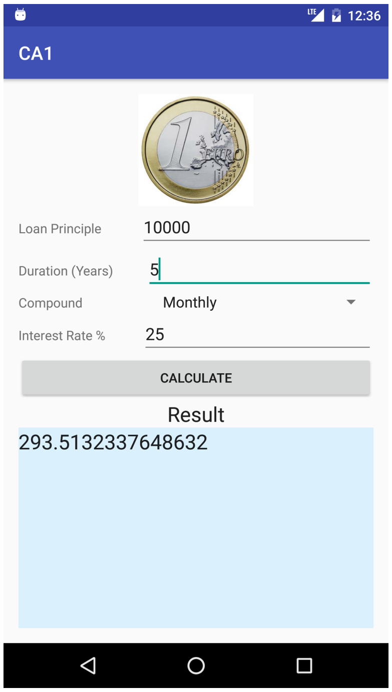
Programming Test

Directions

You may use the Internet to look up Android and Java documentation, but not to seek an answer to the whole assignment. Your internet usage is being monitored, and will be reviewed by myself on suspicion of plagiarism. This will be dealt with severely.

Assignment

Your assignment is to create a Loan Interest Calculator app for Android, Figure 1 illustrates how the user interface should be laid out. The principle, duration in years, and the interest rate are to be entered by the user from the Android keyboard.



Loan Principle 10000

Duration (Years) 5

Compound Monthly

Interest Rate % 25

Result

293.5132337648632

Figure 1: Example of completed application

The compound field is a Spinner field which allows the user to choose how to calculate the interest: monthly or yearly. Initially just implement the functionality for monthly calculation.

The formula for monthly calculation is given in Listing 1. You do not have to implement yearly calculation but you must provide the conditional logic for it and provide a message if the user attempts to perform the action.

Listing 1: Java formula for monthly payment

```
double monthlyPayment = (loanAmount*monthlyRate) /
   ↪ (1-Math.pow(1+monthlyRate, -termInMonths));
```

You must include all the elements shown in Figure 1. To achieve this result you may need nested layouts.

Validation

There must be validation such that when the button is pressed the program checks to ensure that all the fields are filled. If one, or more, of the fields is not filled a Toast should be displayed informing the user.

Exceptional Marks

To attain a high grade > 75% you must do the following:

Include a SeekBar (https://developer.android.com/reference/android/widget/SeekBar.html) which will serve as an alternate control for the interest rate, and will allow a rate of interest from 1% to 20%

Use String.format (https://developer.android.com/reference/java/lang/String.html#format(java.lang.String,java.lang.Object...)) to format the result of the calculation to 4 decimal places. Make further modifications to the output view so that the calculated result is clearer than in Figure 1.

Add a hint to each of the EditText fields as shown in Listing 2, however you should place the strings such as "Enter a Number" in the strings.xml file.

Listing 2: EditText with hint

```
        <EditText
                        ......
            android:id="@+id/principle"
            android:hint="Enter a Number"
            android:layout_weight="1" />
```

Expectations

- Methods should be commented lightly.
- Classes commented with @author tag.
- Class level comment of main activity should inform me what you have accomplished.

- Code should be well formatted.
- Use clear variable names both in the XML and Java.