Programming Assignment #4: Loops

Program Problem: Suppose you save $200 each month into a savings account with the annual interest rate of 5%. Thus, the monthly interest rate is .05/12 = 0.00417. after the first month, the value in the account becomes

$$200 * (1 + 0.00417) = 200.83$$

After the second month, the value in the account becomes

$$(200 + 200.83) * (1 + 0.00417) = 402.50$$

After the third month, the value in the account becomes

$$(200 + 402.50) * (1 + 0.00417) = 605.01$$

and so on. **Write** a program that prompt the user to enter an amount (e.g. 200), and the annual interest rate (e.g. 5), and the number of months (e.g. 5) then display the amount in the savings account after the given month. Remember, you should be checking that input is valid. This means that users that entered incorrect information are prompted that the input is not valid and are given the chance to correct the error. Be sure that your output is formatted as US dollars and is presented in a way that is easy for the user to understand.

Documentation: You must use a readable, logical, and coherent set of style and formatting rules. You are to stick to the "structured approach" in programming**.** Be sure to comment your code in addition to the required header. Each submission must have a block comment area that includes: Your first and last name, program exercise title, program due date, and the program description.

Submission Details: All submissions are electronic. When you turn in a programming assignment, you must send me a compilable and correctly working copy of the assigned program source code. I will, at my discretion, compile and run (on my own test input) the programs you submit electronically. This is a part of my grading procedure. Your program must work. That means it must compile correctly, run according to specifications, and give correct results. Generally, a program that works will receive at least 40-50 percent of full credit. The rubric used for scoring is visible to you so please review it before you submit your assignment. Submit your source file for this program this means you are giving me your **<lastnameLoops.java>** file not a link to an online compiler, text file, or executable file. In addition to your java file, include a word document that has screen snips for your test runs name that file **<lastnameLoopsTests.docx>.** *Your testing log needs to test the boundaries of your program. You should test your incorrect input statements work as designed and you should test each structure in your program. That should include being sure there are no infinite loops in your code or computations with negative numbers/letters etc.*

For full credit, your program must also meet the following criteria:

- Good design, including good algorithms.

- Good form, including documentation, and readability.

- Adequate testing, especially the testing of data boundaries and special cases.

You need to do a good job on all the criteria to receive an "A" on your program.