**Core Portfolio #1 - Sequential Structure**

**Compound Interest**

When a bank account pas a compound interest, it pays interest not only on the principal amount that was deposited into the account, but also on the interest that has accumulated over time. Suppose you want to deposit some money into a saving account, and let the account earn compound interest for a certain number of years. The formula for calculating the balance of the account after a specified number of years is:

The terms in the formula are:

**F**  is the amount of money in the account after the specified number of years.

**P**  is the principal amount that was originally deposited into the account.

**r**  is the annual interest rate in decimal format, not %. Example 0.05 not 5%.

**n**  is the number of times per year that interest is compounded.

**t**  is the specified number of years.

Write a program that makes the calculation for you. The program should ask the user to input the following:

* The amount of principal originally deposited into the account.
* The annual interest rate paid by the account in % annually.
* The number of times per year that the interest is compounded (For example, if interest is compounded monthly, enter 12. If interest is compounded quarterly, enter 4.)
* The number of whole years the account will be left to earn interest.

Once the input data has been entered, the program should calculate and display the amount of money that will be in the account after the specified number of years.

NOTE: The user should enter the interest rate as a percentage. For example, 2 percent should be entered as 2, not .02. The program will then have to divide the input by 100 to move the decimal point to the correct position.

Here is a sample run:

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| Compound Interest App |

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This program is used to calculate the future investment value.

Enter investment amount: 6000

Enter annual interest rate in percentage: 2.1

Compound periods can be 1 for yearly, 2 for semi-annually, 4 for quarterly, or 12 for monthly

Enter number of compound periods (1, 2, 4, 12): 1

Enter number of years: 5

Future value is$6,657.02

Investment amount:$6,000

Annual Interest Rate:2.1%

Compounds per year:1

**Coding Requirements**

The following coding standards must be followed when developing your program:

* A C# comment block at the beginning of the source file describing the **purpose**, **input**, **output, author, last modified date** of the program such as shown below:

/\*

Purpose:    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Input:      \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Output:     \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Author:           Your full name

Last modified:    yyyy.MM.dd

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* Write only one statement per line.
* Use camelCase for local variable names.

Submission **Requirements**

* Submit a compressed (zip) copy of your Visual Studio 2019 project folder to Moodle on or before the due date.

**Marking Rubric**

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| **Mark** | **Description** |
| 5 | Excellent – program passes all test cases and coding follows best practices and class standards |
| 4 | Very Good – program passes all test cases, but coding does not follow best practices and class standards |
| 3 | Acceptable – coded all the requirements and program produce the expected results for some of the test cases |
| 2 | Needs Work – coded all the requirements but program fails to produce expected results |
| 1 | Unsatisfactory – coded less than 50% of the requirements |
| 0 | Not done. |