

Assignment #1 20 pts.	A201/A505 Object Oriented Programming (Visual Basic .Net)	Due Date: Submit Assign 1, and Labs (1, 2, 3, 4) on or before Sept 5, 2016 8:00am
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Part 1:

Write an algorithm for the following problems: (You do not need to write a program for these problems, just an algorithm!)

1) We want to know how many cubic feet are in a rectangular solid of a given Height, Width, and Length. (Hint , the Height, Width and Length are inputs to problem, and the cubic feet is the output, and number of cubic feet is equal to Length times Width times Height)

2) User enters an integer and the program tells the user if number is odd or even. (Hint read about the MOD operator)

3) A problem that will convert a number of total seconds to the equivalent number of minutes and seconds both. (Hint, read about the Division (/ and \), and MOD operators)

4) A problem where the user enters a positive number less than 10, make sure you test for this. If the number is less than 10 then the factorial of that number is calculated. If you enter 5, then 5! is equal to 120. $5! = 5*4*3*2*1$.

5) For problems 1 and 2 above design a possible graphical user interface (GUI). Use the VB form designer to design the GUI. After your design is complete, capture the screen using (ALT key and PRTSCR key pressed at the same time), then load MS-WORD and paste the screen captures in the document, and submit it.

Part 2:

To learn the art and science of algorithm design and program implementation:

This assignment consists of 3 small programs which are designed to encourage the use of the following constructs: (Feel free to work on this part with others in class)

- Variables (integer, char, double)
- Constants (const)
- Arithmetic operators (+, -, /, \, *, mod)
- Conditional operators (=, <=, >=, <>)
- Conditional Statement (if, if-else)

Step 1: Create a new >**Windows Application** for the following problems:

Step 2: **Algorithm design.** Write the pseudocode for each of the problems below. Then test your algorithm by performing a walk through on paper.

1) Write a program that converts Fahrenheit to Celsius. $C = (F - 32) / 1.8$	Test your programs with the following input: 32, 212, 0, 98.7
2) Write a program that converts Miles to Centimeters. 1 inch = 2.540 Centimeters 1 foot = 0.3048 Meter 1 yard = 0.9144 Meter 1 mile = 1.609 Kilometers	Test your programs with the following input: 1, 10.7, 11782
3) Write a program which accepts an integer (number of seconds) and converts it to the equivalent number of minutes and seconds.	Test your programs with the following input: 0, 59, 60, 61, 1782

Step 3: **Implementation.** Convert your algorithms to Visual Basic language (one at a time). Test your programs to ensure they work for all valid data.

Step 4: **Document your program** according to the programming style document provided.

Step 5: **Print** each program listing.

Step 6: **Run** each program, capture and print the output of each program.

Hand in the following:

- 1) Pseudocode for each program (typed as comments in the beginning of your program)
- 2) Source listing for each program (properly documented, see style guidelines)
- 3) Output for each program
- 4) Copy and Paste all the above in to a word document and put it in your drop box for the course. Also, make sure the formatting in the Word document is proper. You may have to use the landscape mode or reduce the font size to reduce warp around of your code.