Mr. Bellavia

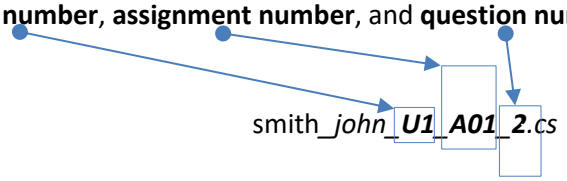
ASSIGNMENT 01

IMPORTANT: Before submission, make a copy of your **'Program.cs'** file for each question and then rename each file to the following:

File Names:

- *last_name_first name*_U1_A01_1.cs
- *last_name_first name*_U1_A01_2.cs
- *last_name_first name*_U1_A01_3.cs
- *last_name_first name*_U1_A01_4.cs
- *last_name_first name*_U1_A01_5.cs

Note: Along with last name and first name, make sure the end of the filename (i.e., before the **.cs**) has the **unit number**, **assignment number**, and **question number.** For example:



1. Implement the following formulas using appropriate variables (avoid truncation!):

i. Area of a triangle: $a = \frac{1}{2}bh$
- ***b*** and ***h*** are **inputted by the user**
- ***a*** should be calculated and outputted to **2 decimal places**

ii. Circumference of a circle: $c = 2\pi r$
- ***r*** is **inputted by the user**
- ***π*** should be calculated using the built-in **Math.PI** property (search on google)
- ***c*** should be calculated and outputted to **3 decimal places**

iii. Pythagorean Theorem: $c = \sqrt{a^2 + b^2}$
- ***a*** and ***b*** are **inputted by the user**
- ***c*** should be calculated and outputted to **2 decimal places**
- **Note:** Make use of the built-in **Math.Sqrt()** function (search on google)

Sample Input & Output:

```
--Area of triangle:
Please enter a value for 'b': 5
Please enter a value for 'h': 7
b = 5
h = 7
Area = 17.50
```

2. For each equation below, ask the user for appropriate values for each variable then calculate the answer (avoid truncation). Output the answer to the terminal.

For these two questions, all variables must be declared as **integers:**

a) $\frac{x^6}{5} + \frac{1}{w}$

b) $\sqrt{\frac{a}{b} + \frac{1}{c}}$

For these two questions, you can use **decimal** variables:

c) $\frac{1-\frac{1}{e}+f}{(g-2)*\left(\frac{h}{5}\right)}$

d) $\sqrt{\frac{\sqrt{1-\sin x}+3}{\cos y+(3-z)}}$

*****For the follow questions, only built-in string functions are allowed! (i.e. no loops or if-statements if you are an experienced programmer)**

3. Write a program that asks the user for a 5-word sentence. Output the first character of each word to the terminal.

4. Write a program that asks the user for a 5-word sentence. Create a new string that contains the same sentence written in reverse order. For example, if the user enters 'Hello there computer science world' then your new string should equal 'world science computer there Hello'. Output your new string to the terminal.

5. Write a program that asks the user for a **sentence.** Then ask the user to type a **word** from the sentence they just typed. Create a new string where all words left of this **word** are moved to the right and all words right of this **word** are moved to the left. For example, if the user enters the sentence 'hello there world, how are you today?', and enters the word 'how' from the sentence, then your new string should be 'are you today? how hello there world,'. Output your new string to the terminal.