Conventional Course Fall 2021
COMP-111 (Section 04) Programming Principles I
Programming Assignment 2

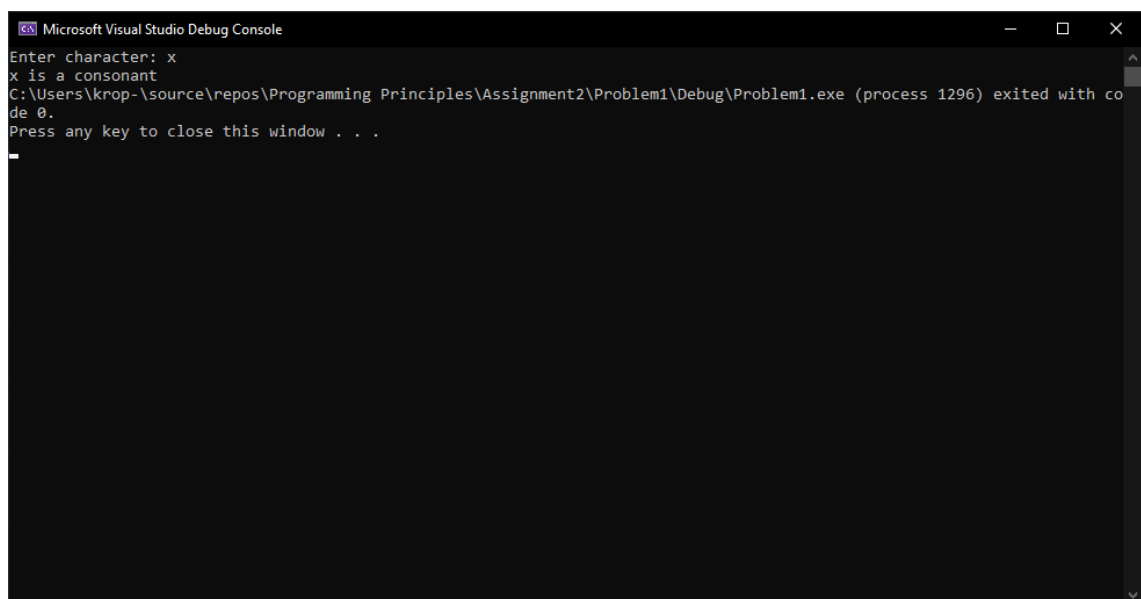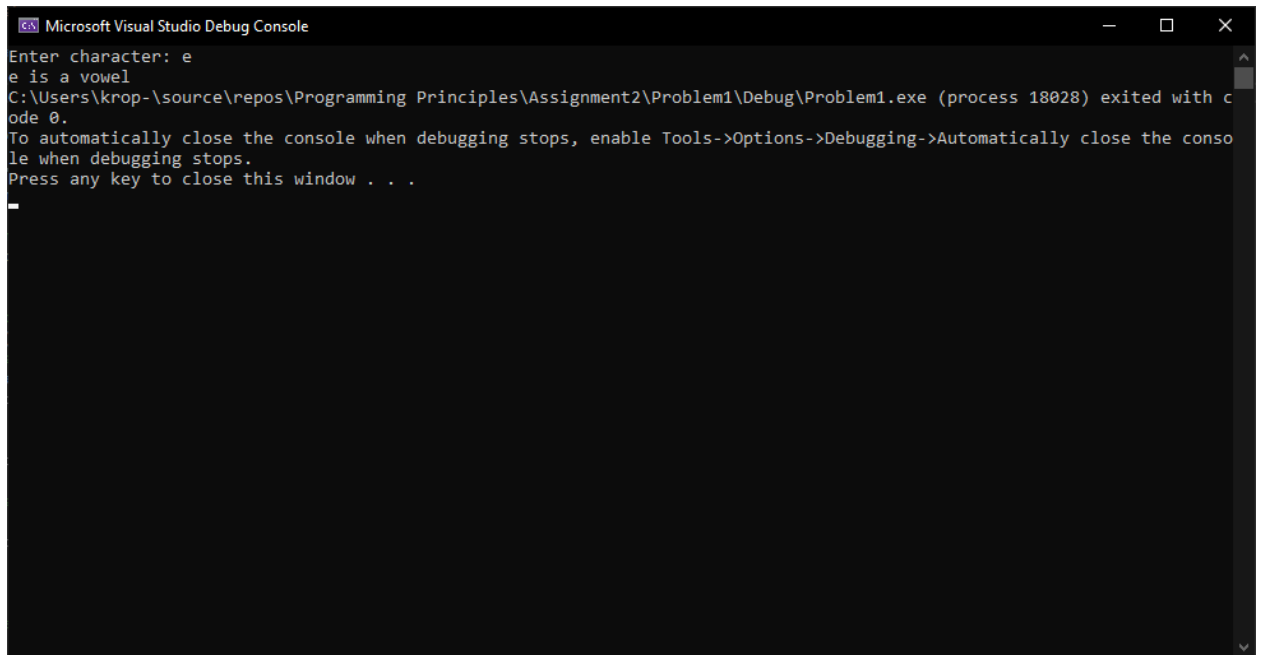*Made by Ivan Kosiakov (U214N1534)*

Problems

Problem 1

Words are built from vowels (a,e,i,o,u) and consonants (the rest letters except y). The letter y sometimes acts as a consonant and sometimes it acts as a vowel. Write a program that reads a character and returns whether or not is a vowel or consonant. If the user enters a nonalphabetic character, the program will display an error message.

Here is a sample run:
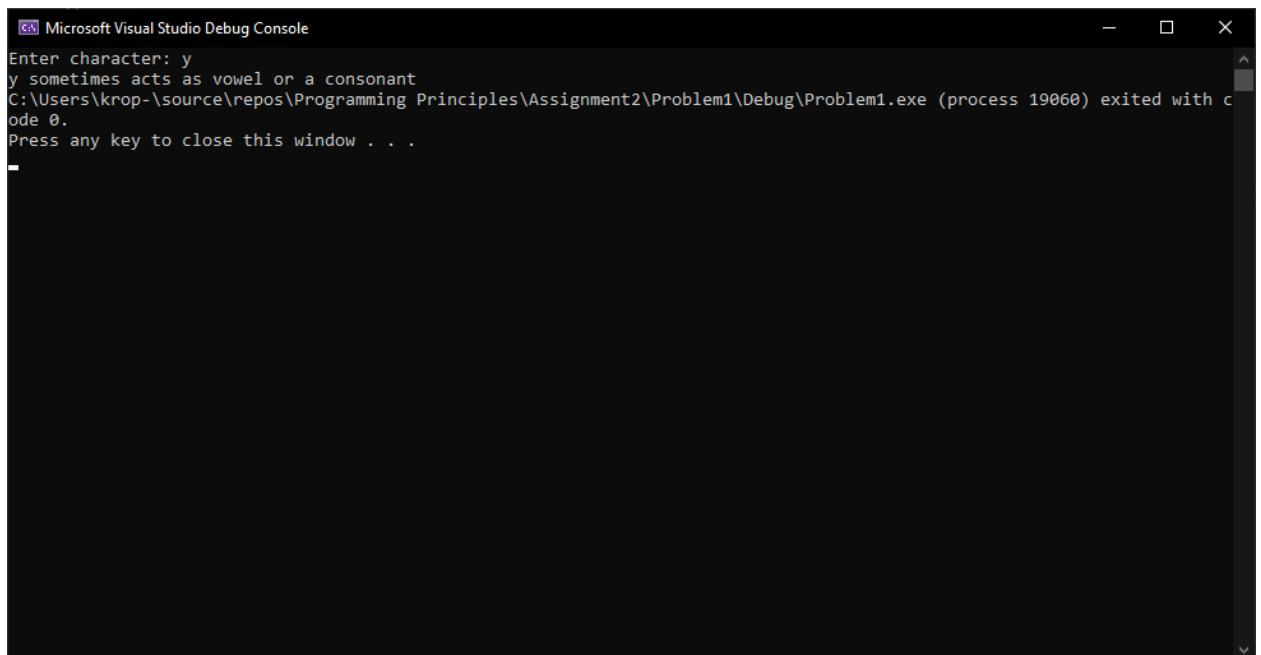
```
Enter character: x
x is a consonant
```



```
Enter character: x
x is a consonant
C:\Users\krop-\source\repos\Programming Principles\Assignment2\Problem1\Debug\Problem1.exe (process 1296) exited with co
de 0.
Press any key to close this window . . .
```

Pic. 1.Try to enter a constant. Code compiled successfully.

Pic. 2.Try to enter a vowel. Code compiled successfully.

Pic. 3.Try to enter an "y". Code compiled successfully.

Pic. 4.Try to enter uppercase letter. Program shows an error.

Pic. 5. Try to enter number. Program shows an error.

Problem 2

Write a program that prompts the user to enter the width w and height h of a rectangle, along with a point (x,y). Your program is going to check if the point is within the rectangle centered at (0,0) with width w and height h. Hint: a point is in the rectangle if its horizontal distance to (0,0) is less or equal to w/2 and its vertical distance to (0,0) is less or equal to h/2.
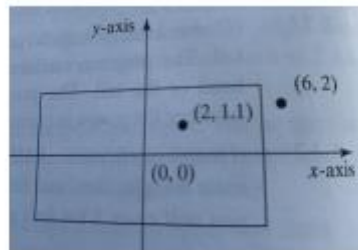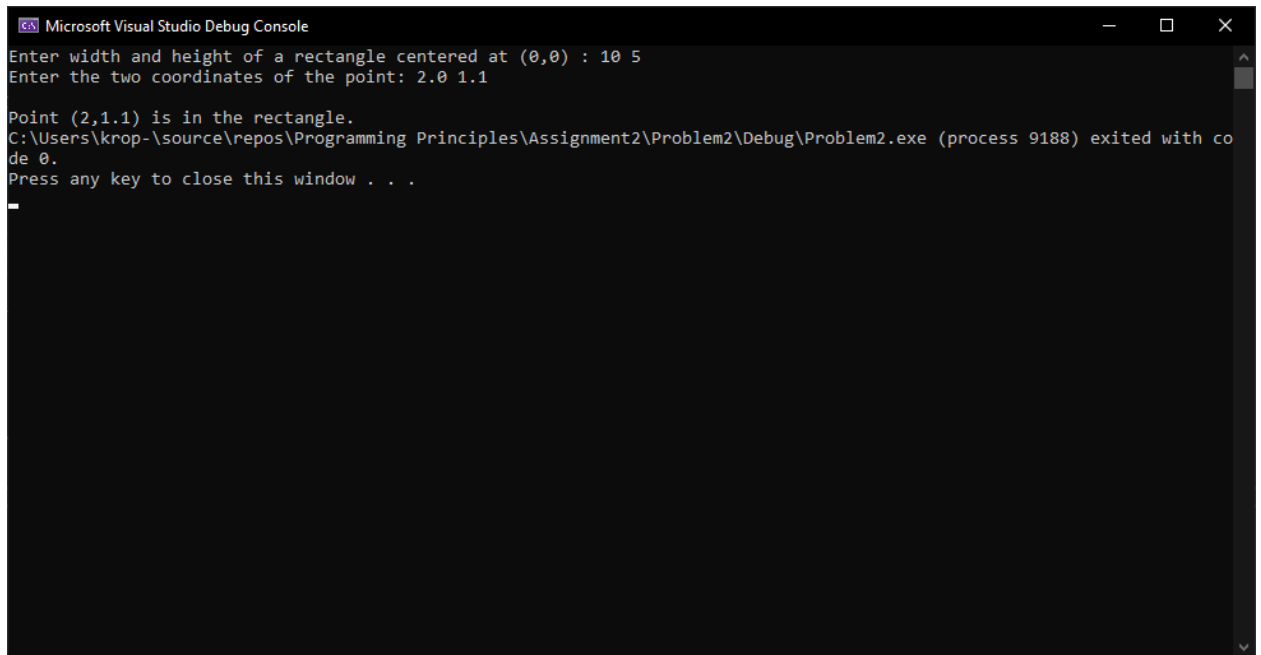

Here is a sample run:

Enter width and height of a rectangle centered at (0,0) : *10 5*
Enter the two coordinates of the point: *2.0 1.1*

Point (2.0,1.1) is in the rectangle.
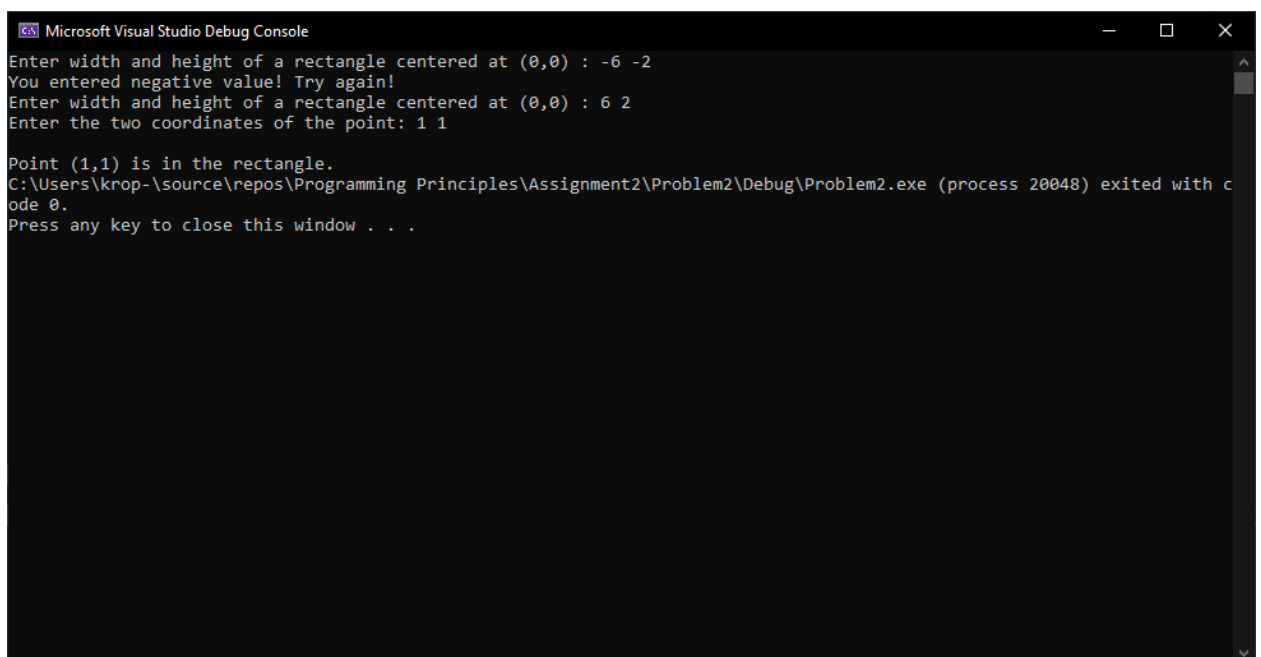
Here is another sample run:

Enter width and height of a rectangle centered at (0,0): *10 5*
Enter the two coordinates of the point: *6 2*
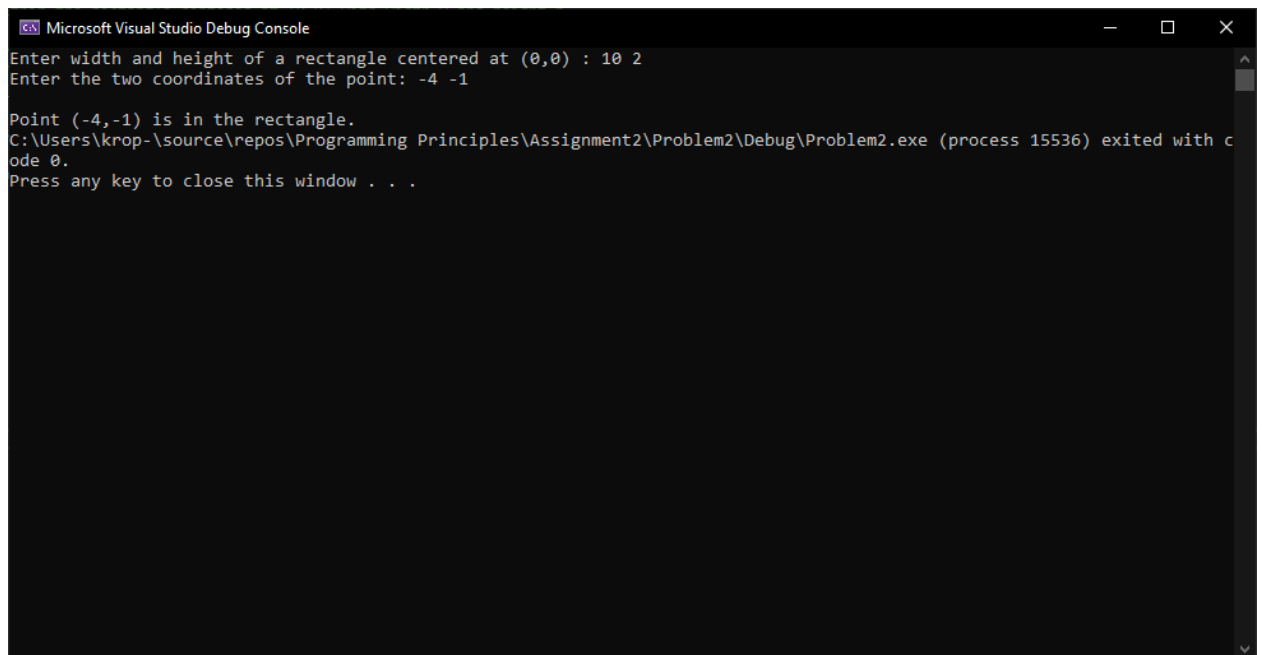
Point (6,2) is not the rectangle.

Pic. 1.Try to enter integer numbers. Code compiled successfully.

Pic. 2.Try to enter negative values for rectangle. Program asks for re-entering a value. Code compiled successfully.

Pic. 3.Try to enter negative values for coordinates of point. Code compiled successfully.

Problem 3

Write a program that prompts the user to enter three numbers and displays them in an ascending order and also in a descending order. Here is a sample run:
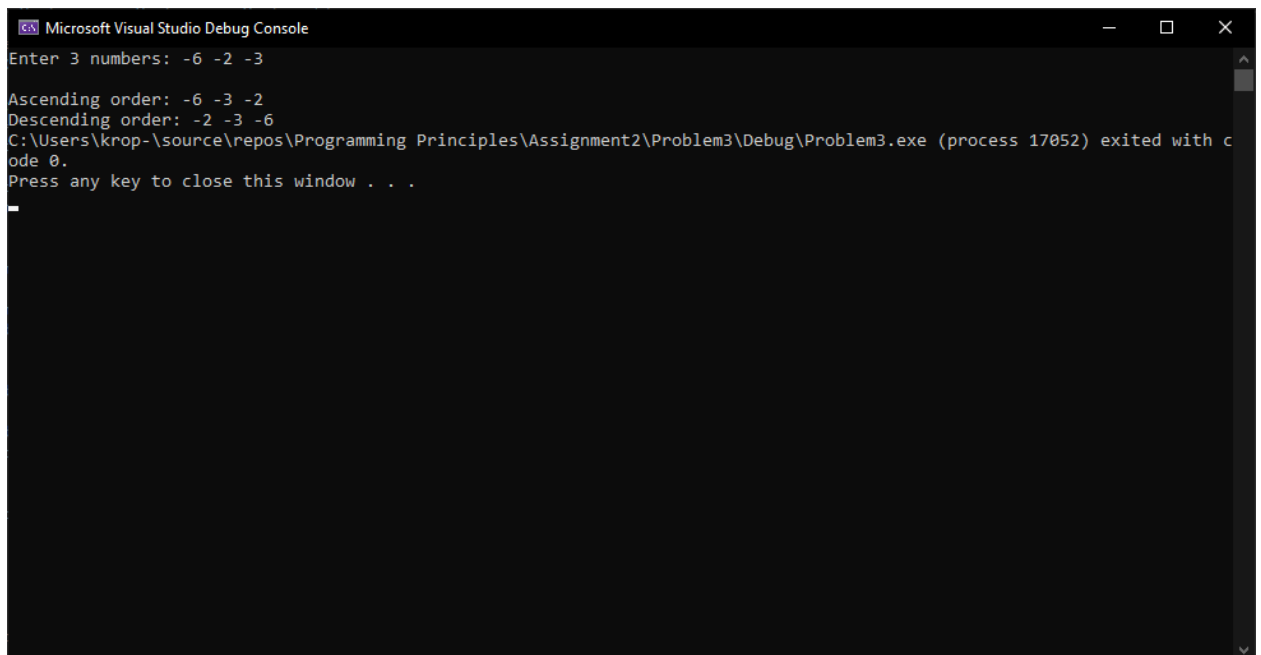
Enter 3 numbers: *4 -2 3*

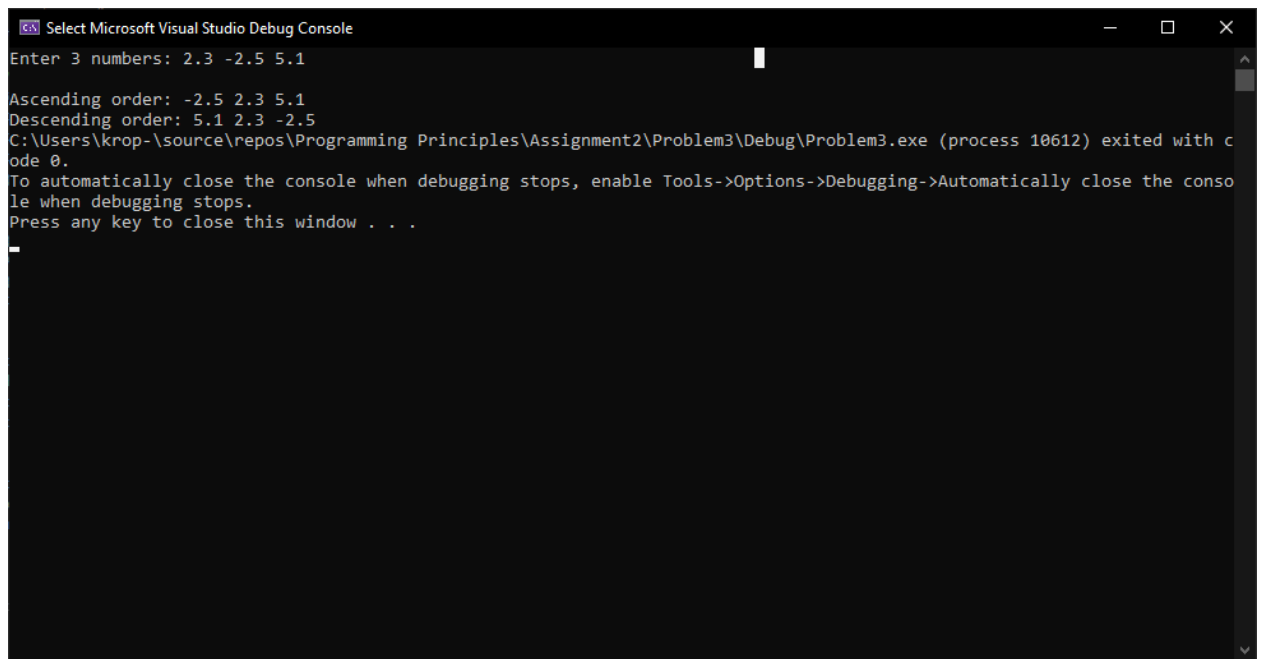Ascending order: -2 3 4
Descending order: 4 3 -2

Pic. 1.Try to enter integer numbers. Code compiled successfully.

Pic. 2.Try to enter negative numbers. Code compiled successfully.

```
Select Microsoft Visual Studio Debug Console                          —  □  ×
Enter 3 numbers: 2.3 -2.5 5.1

Ascending order: -2.5 2.3 5.1
Descending order: 5.1 2.3 -2.5
C:\Users\krop-\source\repos\Programming Principles\Assignment2\Problem3\Debug\Problem3.exe (process 10612) exited with c
ode 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Pic. 3.Try to enter double numbers. Code compiled successfully.
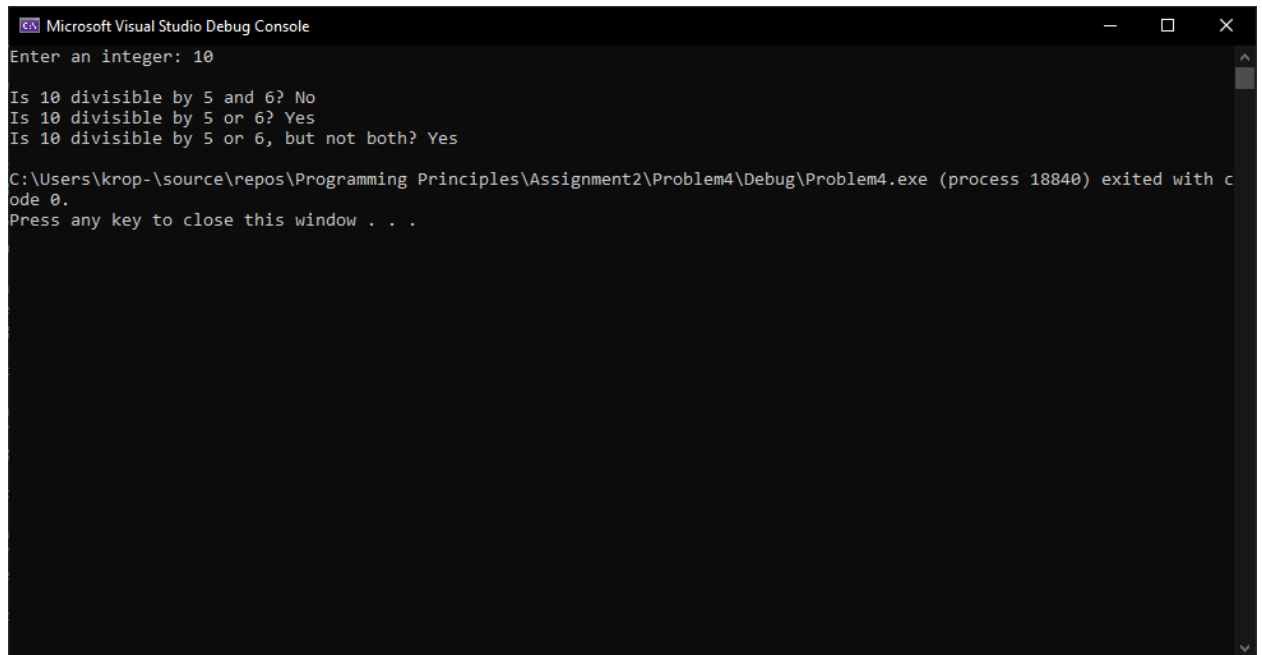
Problem 4

Write a program that prompts the user to enter an integer and determines whether or not it is divisible by 5 and 6, whether it is divisible by 5 or 6, and whether it is divisible by 5 or 6 but not both.
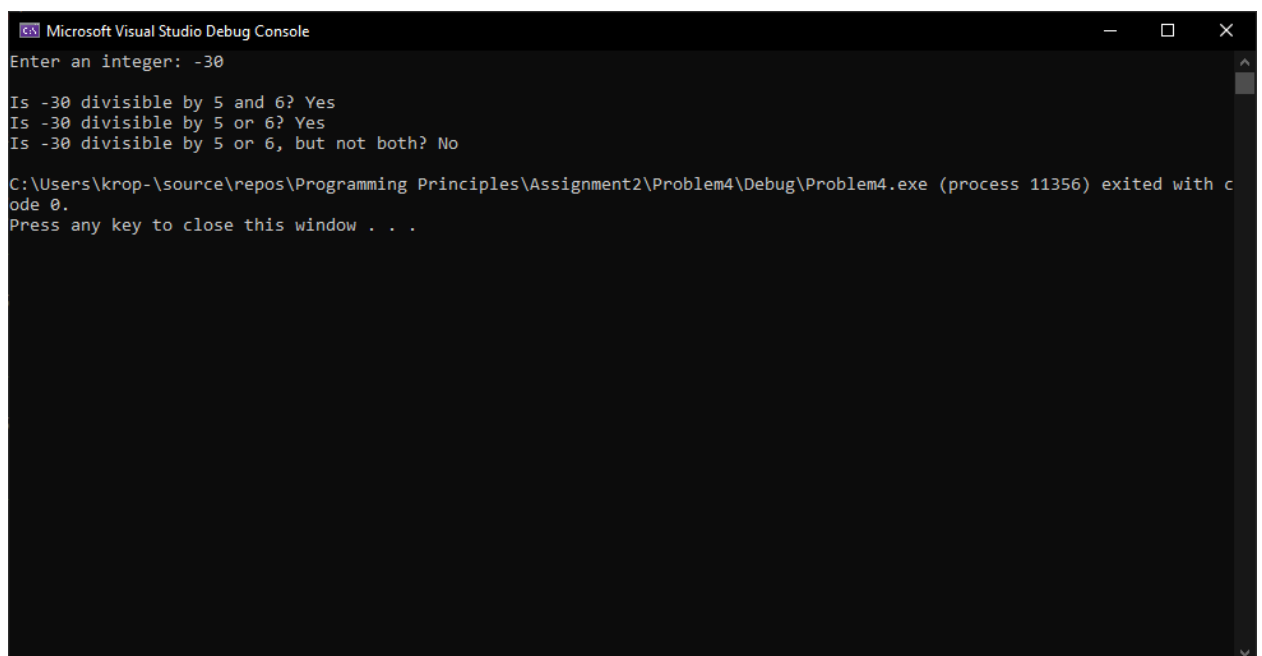
Here is a sample run:

```
Enter an integer: 10

Is 10 divisible by 5 and 6? No
Is 10 divisible by 5 or 6? Yes
Is 10 divisible by 5 or 6, but not both? Yes
```

Pic. 1.Try to enter integer number. Code compiled successfully.

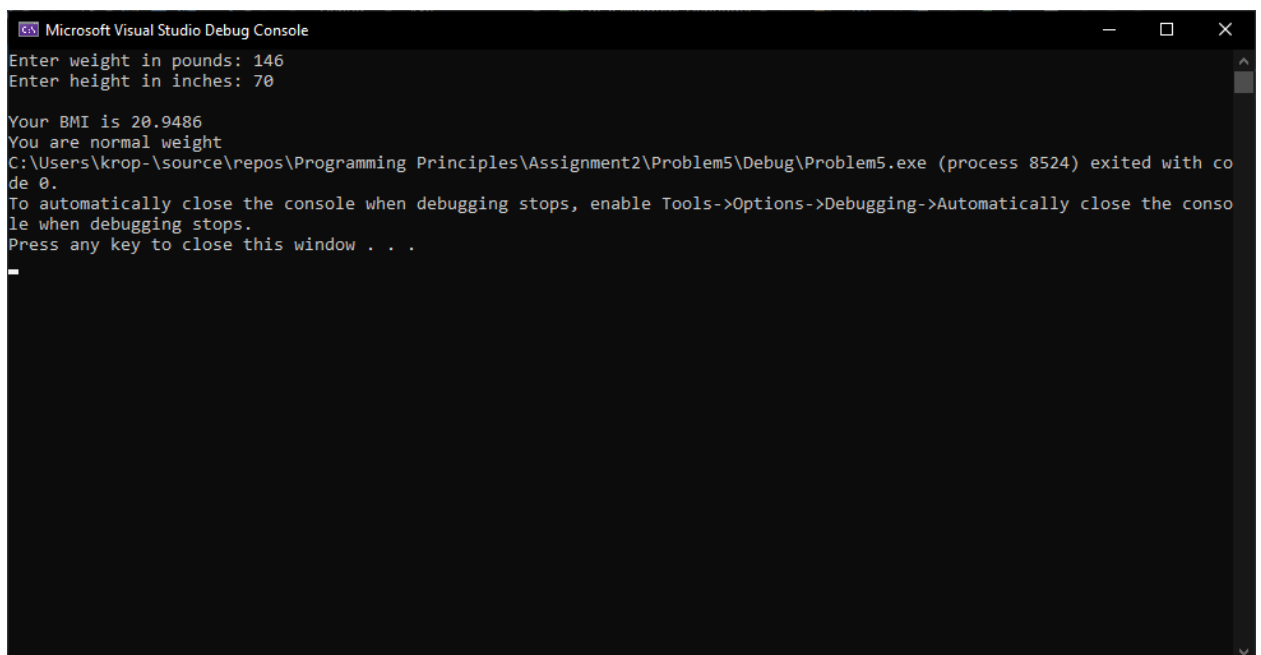Pic. 2.Try to enter negative number. Code compiled successfully.

Problem 5

Rewrite the Body Mass Index problem from Programming Assignment 1 so that it will also display the interpretation of the calculated BMI as follows:

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 and Above	Obese

Here is a sample run:

```
Enter weight in pounds: 146
Enter height in inches: 70

Your BMI is 20.9486
You are normal weight
```
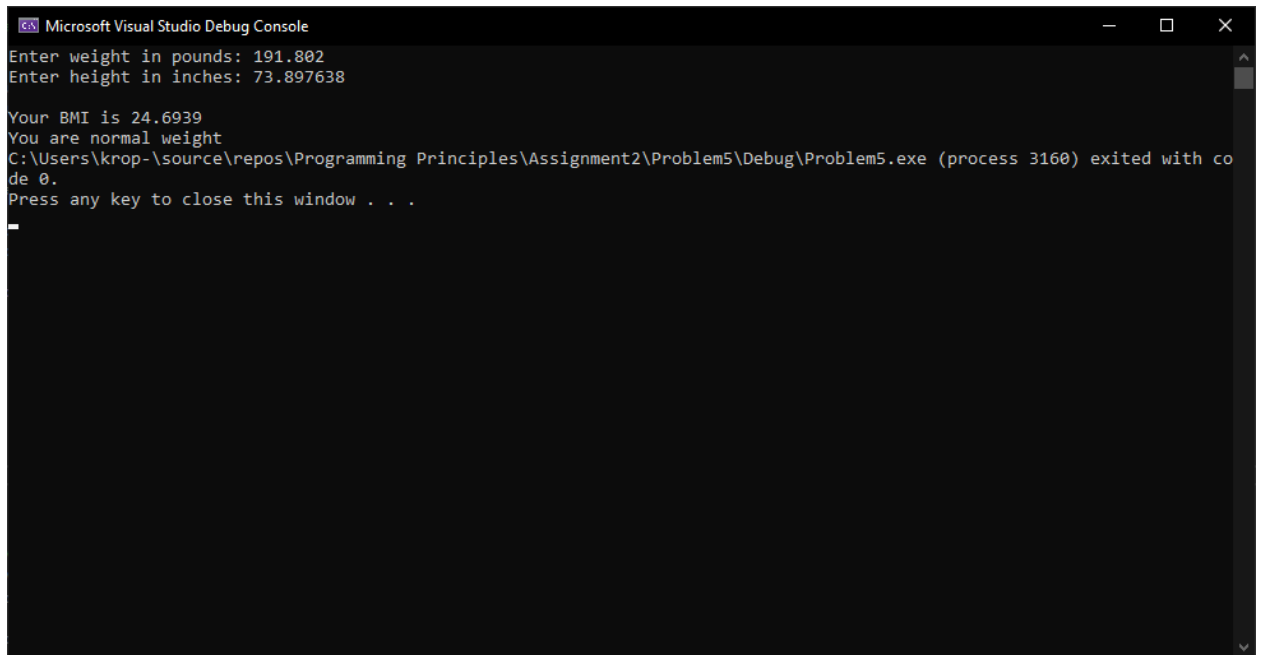

Pic. 1.Try to enter integer numbers. Code compiled successfully.

Pic. 2.Try to enter double numbers. Code compiled successfully.

Pic. 3.Try to enter negative numbers. Program asks for re-entering a value. Code compiled successfully.