COS 120 – C++ Programming – Fall 2022

Homework 1

**If your Student ID is an even number, solve Task 1, if your Student ID is an odd number, solve Task 2.**

**Deliverables (via Canvas** [**https://aubg.instructure.com**](https://aubg.instructure.com/)**)**

1. Zipped project folder of your program.

2. Demonstration to me, on demand.

**Notes**

* Think carefully about the code in your programs – variable names, comments, etc.
* Programs must be fully commented – add a comment in the beginning describing what your program does and how! Also add any other comments where necessary.

**Deadline**

The deadline for the homework can be checked in canvas.

**Late work will be accepted but penalized**.

**Task 1 – Calculate the sum of divisors of an integer**

Write a function called **calcDivs**, which accepts one integer as parameter and returns the sum of all the divisors in that number.

**Note:** The divisors of **6** are 1, 2, 3, 6, so the sum is 1 + 2 + 3 + 6 = **12**. For negative numbers treat them as positive, so the sum of the divisors of 6 and -6 should be the same!

Write a program to ask the user to enter how many numbers they would like to process and read that number. Then for each number that is entered invoke **calcDivs** and print the result from the function. Finally print a message that all numbers have been processed.

***Sample input/output of your program:***

Please enter how many numbers you would like to enter: **4**

Please enter a number: **0**

0

Please enter a number: **145**

180

Please enter a number: **-145**

180

Please enter a number: **9**

13

All 4 numbers were processed.

**Task 2 – Convert a month to a season**

Write a function called **convertMonth** that expects a single parameter (integer) a month and returns a string:

* If month is 1, 2, 3, 4, 5 return the string **spring semester**
* If month is 6, 7, 8 return the string **summer vacation**
* If month is 9, 10, 11, 12 return the string **fall semester**
* Otherwise return the string **error**

Write a program to ask the user to enter how many months they would like to process and read that number. Keep asking the user for a number of months till a positive number is entered. After a positive number is entered, then ask the user to enter that many months. For each entered month invoke convertMonth and print the result from the function.

After processing all of the months display a message saying how many months were correct from the processed ones (from the entered months exclude the count of those that returned the string error).

***Sample input/output of your program:***

Please enter how many months you would like to process: **-2**

Please enter how many months you would like to process: **3**

Please enter a month to convert: **12**

*fall semester*

Please enter a month to convert: **14**

*error*

Please enter a month to convert: **8**

*summer vacation*

All 3 months were processed, only **2** were valid.