COS 120 – C++ Programming – Fall 2022

Homework 2

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

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

1. Zipped archive with the project folder of your program or just a zipped archive with the cpp file.

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 – Products**

Write a program to read a file called **products.txt**, which contains an **arbitrary number** of lines of products in the format <price> <quantity>. While reading the products determine what is the max and min total price (total price = price \* quantity) among the products.

Sample file (this is just a sample file, your program should work correctly with file with 2 or any number of lines!):

10.5 10

4.5 20

1.5 100

A sample output of the program, for the above input, is shown below:

Max total price is: **150**

Min total price is: **90**

**Note**: If the opening of the file fails for some reason (not existing file was passed to the open function, etc.) print the message “Failed to open the file!” and terminate the program.

**Task 2 – Transactions**

Write a program to read a file called **transactions.txt**, which contains an **arbitrary number** of lines of transactions that are in the format <transaction type> <amount>, where <transaction type> can only be d (debit – the amount should be subtracted from the balance) and c (credit – the amount should be added to the balance). While reading the transactions calculate what would be the final balance of the user after all transactions are applied and how many transactions were applied. The initial balance should be 0. The final balance is allowed to be negative number.

Sample file (this is just a sample file contents, your program should work correctly with file with 2 or any number of lines!):

c 10.5

d 2.4

d 5.3

A sample output of the program, for the above input, is shown below:

Final Balance is **2.8** after applying **3** transactions.

**Explanation**: The initial balance is 0, then credit for amount 10.5 needs to be applied, then two debit transactions for 2.4 and 5.3 needs to be applied. So *0 + 10.5 – 2.4 – 5.3 = 2.8*, and we have applied three transactions.

**Note**: If the opening of the file fails for some reason (not existing file was passed to the open function, etc.) print the message “Failed to open the file!” and terminate the program.