

COMP 1601: Programming 1
Assignment #3
Date Due: 9th November, 2017 @11pm

Instructions:

1. Create a folder. The name of the folder is your UWI student Id number.
2. Create and test the program, *Billing.cpp* as detailed below.
3. *Billing.cpp* and the data file *customers.txt* must be saved in the folder created above.
4. Zip the folder and upload the zipped folder to myeLearning no later than **November 9th, 2017 at 11:00 pm.**
5. Absolutely no late or emailed submissions will be accepted.

A telecommunication company offers three services cable, home phone and broadband Internet services. Internet services are offered in four (4) packages:

- Essential: 30Mbps (download) /3Mbps (upload)
- Max: 60Mbps (download) /5Mbps (upload)
- Turbo: 120Mbps (download) /7Mbps (upload)
- Gigabit: Up to 1Gbps

The company has implemented a new computer system. The system keeps track of all registered members as well as the services they have registered for. A text file, *customers.txt*, contains data on customers' cable, phone and Internet usage. Each line of the file consists of the following data: An integer representing the customer number, an integer 1 or 0 indicating whether the customer has cable (0 means no cable), an integer value representing the number of minutes the customer has used and an character ('E', 'M', 'T' or 'G') representing the Internet package the customer has chosen. A value of 'X' means the customer does not have Internet service. The last line of data in the file consists of a 0 only.

There are no duplicate customer numbers and all data is valid.

The following is a sample line of data from the file: 7364893 1 25 M

The amount to be charged to the customer is calculated as follows:

For cable is a fixed cost of \$277.00 is charged.

The cost of airtime for home phone is: 0.69 per minute

The cost of broadband Internet services is as follows:

- Essential: \$219.99
- Max: \$391.29
- Turbo:\$529.99
- Gigabit: \$1,999.99

The overall charge to the customer is the sum of cable, home phone and Internet services plus 12.5% VAT. Write a program, *Billing.cpp*, to read the data and perform the following sending all output to the file *billing.txt*:

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- For each customer, display the customer number, the cable cost, the telephone cost, Internet cost, the amount of VAT and the overall charge to the customer. Print \$0 if the customer does not have the service.
- Output the number of customers in the data file.
- Output the number of customers with each type of Internet service.
- Output the customer number of the customer with the highest overall bill (assume there is no tie)
- Output the total amount owed by all customers.

Please note a *sample data file* is provided on myLearning.

Hint:

The program repeatedly reads customer data from a file (See Lecture 7.3.1 Reading Data from a File), chooses the Internet package and calculates the customer's bill. The program keeps track of which customer bill is the highest and who the customer is.