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Homework #1

**Problem Statement:**

The goals of the programming assignment, homework #1, was to read in information about a quarterback. After reading in values, it would perform calculations and write to the screen the statistics about the quarterback. Normal inputs to the program are two strings (last name and team name) followed by five integer values. It creates output of float values and strings in prompts. No error handling was required.

**Design:**

I used two string data structures to store the quarterback’s last name and team name and I used five integer values to store the quarterback’s statistics. I created four float values to store the initial calculations of the read data and created an additional float value to store one of the integer values in order to simply calculate float values while using integer variables. I also created a final float data structure that stored the final statistic, the QB rating. A simple algorithm was used to solve the program and the thought process is visible in the comments of the program. There were no cons in the algorithm and it had an important pro because of its simplicity.

**Implementation:**

I started with no sample code, I wrote from scratch. I developed the code by simply writing in comments each step that was required and gradually filled in code, compiling and testing as I worked.

**Testing:**

I tested this program by using correct inputs that were used in the prompt and in the sample output through Turing. Special cases I tested included incorrect inputs, like characters or strings into expected integers which did as expected – terminated the program and gave inf. results.

**Conclusions:**

The programming project was a success. I wouldn’t change anything in my coding process differently in the future. The project took less than an hour to code the entire thing including the algorithm process.

**Typescript:**

csce\_user@cscuser-VirtualBox:~/csce$ more typescript  
Script started on Mon 26 Jan 2015 07:29:06 PM CST  
csce\_user@cscuser-VirtualBox:~$ ssh dtvanbus@t  
ssh dtvanbus@turing.cscu  
g++ -Wall hw1.cpp -o hw1.exe  
g++: error: hw1.cpp: No such file or directory  
g++: fatal error: no input files  
compilation terminated.  
csce\_user@cscuser-VirtualBox:~$ cd csce  
csce\_user@cscuser-VirtualBox:~/csce$ cd c  
g++ -Wall hw1.cpp -o hw1.exe  
csce\_user@cscuser-VirtualBox:~/csce$ ./hw  
1.exe  
Welcome to the QB Rating Caclulator!  
Enter your quarterback's name: Brady  
Enter the team's name that they play for: Patriots  
We will calculate the quarterback rating for Brady who plays for the Patriots.  
  
How many passes did the quarterback attempt?  
50  
How many of those passes did the quarterback complete?  
45  
How many yards did he throw for?  
500  
How many touchdowns did he throw?  
2  
How many interceptions did he throw?  
1  
Your quarterback had a completion percentage rating of: 3  
Your quarterback had a yards per attempt rating of: 1.75  
Your quarterback had a touchdown percentage rating of: 0.8  
Your quarterback had an interception rating of: 1.875  
The final QBR of your quarterback was: 123.75  
csce\_user@cscuser-VirtualBox:~/csce$ ./hw  
1.exe  
Welcome to the QB Rating Caclulator!  
Enter your quarterback's name: Blank  
Enter the team's name that they play for: Nothing  
We will calculate the quarterback rating for Blank who plays for the Nothing.  
  
How many passes did the quarterback attempt?  
99  
How many of those passes did the quarterback complete?  
999  
How many yards did he throw for?  
50  
How many touchdowns did he throw?  
51  
How many interceptions did he throw?  
3  
Your quarterback had a completion percentage rating of: 48.9545  
Your quarterback had a yards per attempt rating of: -0.623737  
Your quarterback had a touchdown percentage rating of: 10.303  
Your quarterback had an interception rating of: 1.61742  
The final QBR of your quarterback was: 1004.19  
csce\_user@cscuser-VirtualBox:~/csce$ ./hw  
1.exe  
Welcome to the QB Rating Caclulator!  
Enter your quarterback's name: Smith   
Enter the team's name that they play for: Chiefs  
We will calculate the quarterback rating for Smith who plays for the Chiefs.  
  
How many passes did the quarterback attempt?  
461  
How many of those passes did the quarterback complete?  
324  
How many yards did he throw for?  
3969  
How many touchdowns did he throw?  
35  
How many interceptions did he throw?  
10  
Your quarterback had a completion percentage rating of: 2.0141  
Your quarterback had a yards per attempt rating of: 1.40239  
Your quarterback had a touchdown percentage rating of: 1.51844  
Your quarterback had an interception rating of: 1.8327  
The final QBR of your quarterback was: 112.794  
csce\_user@cscuser-VirtualBox:~/csce$ ./hw  
1.exe  
Welcome to the QB Rating Caclulator!  
Enter your quarterback's name: 55  
Enter the team's name that they play for: 60  
We will calculate the quarterback rating for 55 who plays for the 60.  
  
How many passes did the quarterback attempt?  
Ch  
How many of those passes did the quarterback complete?  
How many yards did he throw for?  
How many touchdowns did he throw?  
How many interceptions did he throw?  
Your quarterback had a completion percentage rating of: inf  
Your quarterback had a yards per attempt rating of: inf  
Your quarterback had a touchdown percentage rating of: -inf  
Your quarterback had an interception rating of: -inf  
The final QBR of your quarterback was: -nan  
csce\_user@cscuser-VirtualBox:~/csce$ exit  
Script done on Mon 26 Jan 2015 07:30:56 PM CST