Tara Moses

S. Gauch

Programming Foundations 1

January 21, 2015

**Problem Statement:**

The goal of this assignment was to create a program that utilized user input as well as simple mathematical operations to find the final quarterback rating of a player. The program was to calculate four numbers from the various numbers input by the user. Then the program was supposed to use those four numbers to find the final quarterback rating and display it on the screen.

The user inputs the player’s name and team name as well as the number of attempted and completed passes, touchdowns, and interceptions. The program was meant to echo each of the input data pieces and to output the quarterback rating as well as the four calculated numbers used to determine it. No error checking was done, as it was assumed that all user input would be valid.

**Design:**

The design of the project was as follows: the input variables would be declared at the beginning of the main function. After the input variables were declared, the program would collect user input in a series of cout and cin statements. After all of the data was collected, the input variables would be echoed out on the screen to ensure that they were correctly initialized.

Following all of the user input, the calculations would be made. The four numbers needed to calculate the final quarterback rating were determined and each was stored in a variable. These four variables were all floats, seeing as the numbers needed all required decimals. The four variables were displayed on the screen and the final quarterback rating was displayed right after.

**Implementation:**

I started with the basic skeleton of a program; the only things on the screen were the include statements and the main function, empty except for the return statement. After that, I added the comments for my code: declare variables, get user input, validate user input, calculate things, and output statistics. It took about five minutes to get the skeleton with the comments up and running. Then I started fleshing it out about two lines at a time.

The calculation of the variables gave me the most trouble; after a few misplaced parentheses and multiplying things by 1.0 to make them floats, the four numbers and the final quarterback rating finally came out to what they were supposed to be.

**Testing:**

I tested the program after every few lines. I started with the numbers outlined in the homework pdf in order to see if my program was actually doing what it was supposed to do. I also tested random numbers. After everything came out correctly for the regular numbers, I started putting in unrealistic numbers like zero and negative numbers. After a few small tweaks here and there, everything worked fine.

**Conclusions:**

Overall, the program did exactly as it was supposed to. Next time, I’d like to remember to typecast things to floats earlier so I don’t run into as many errors. The project took about an hour to complete; this report actually took longer than the program itself did.

**Typescript:**

Script started on Wed 21 Jan 2015 10:34:43 PM CST

#]0;csce\_user@cscuser-VirtualBox: ~#csce\_user@cscuser-VirtualBox:~$ g++ -Wall 010630228.hw1.cpp -o hw1

#]0;csce\_user@cscuser-VirtualBox: ~#csce\_user@cscuser-VirtualBox:~$ ./hw1

---GATHERING INPUT---

Input quarterback surname >> Tara

Input team name >> Winners

Input # of passes attempted >> 12

Input # of passes completed >> 1021

Input # of yards thrown for >> 9

Input # of touchdowns >> -3

Input # of interceptions >> 0

---CHECKING VARIABLE INPUT---

Surname >> Tara

Team >> Winners

Passes attempted >> 12

Passes completed >> 1021

Yards >> 9

Touchdowns >> -3

Interceptions >> 0

---STATISTICS---

Point rating >> 423.917

Yard rating >> -0.5625

Touchdown rating >> -5

Interception rating >> 2.375

FINAL QUARTERBACK RATING >> 7012.15

#]0;csce\_user@cscuser-VirtualBox: ~#csce\_user@cscuser-VirtualBox:~$ ./hw1

---GATHERING INPUT---

Input quarterback surname >> Nerdpants

Input team name >> Glasses

Input # of passes attempted >> 0

Input # of passes completed >> 1

Input # of yards thrown for >> 20

Input # of touchdowns >> 3

Input # of interceptions >> -8

---CHECKING VARIABLE INPUT---

Surname >> Nerdpants

Team >> Glasses

Passes attempted >> 0

Passes completed >> 1

Yards >> 20

Touchdowns >> 3

Interceptions >> -8

---STATISTICS---

Point rating >> inf

Yard rating >> inf

Touchdown rating >> inf

Interception rating >> inf

FINAL QUARTERBACK RATING >> inf

#]0;csce\_user@cscuser-VirtualBox: ~#csce\_user@cscuser-VirtualBox:~$ ./hw1

---GATHERING INPUT---

Input quarterback surname >> Suzanne

Input team name >> FallOutBoy

Input # of passes attempted >> 400

Input # of passes completed >> 200

Input # of yards thrown for >> 1000

Input # of touchdowns >> 25

Input # of interceptions >> 5

---CHECKING VARIABLE INPUT---

Surname >> Suzanne

Team >> FallOutBoy

Passes attempted >> 400

Passes completed >> 200

Yards >> 1000

Touchdowns >> 25

Interceptions >> 5

---STATISTICS---

Point rating >> 1

Yard rating >> -0.125

Touchdown rating >> 1.25

Interception rating >> 2.0625

FINAL QUARTERBACK RATING >> 69.7917

#]0;csce\_user@cscuser-VirtualBox: ~#csce\_user@cscuser-VirtualBox:~$ ./hw1

---GATHERING INPUT---

Input quarterback surname >> SmithOrWhatever

Input team name >> Sweat

Input # of passes attempted >> 461

Input # of passes completed >> 324

Input # of yards thrown for >> 3969

Input # of touchdowns >> 35

Input # of interceptions >> 10

---CHECKING VARIABLE INPUT---

Surname >> SmithOrWhatever

Team >> Sweat

Passes attempted >> 461

Passes completed >> 324

Yards >> 3969

Touchdowns >> 35

Interceptions >> 10

---STATISTICS---

Point rating >> 2.0141

Yard rating >> 1.40239

Touchdown rating >> 1.51844

Interception rating >> 1.8327

FINAL QUARTERBACK RATING >> 112.794

#]0;csce\_user@cscuser-VirtualBox: ~#csce\_user@cscuser-VirtualBox:~$ exit

exit

Script done on Wed 21 Jan 2015 10:40:05 PM CST