CS 36 Programming Assignment 1
(20 Points)

1. You must have your student name, student ID, and program set number/description in the title banner at the very top of each program set. Late homework submission will not be accepted for whatever reasons you may have.

*********for this homework, you are to submit your Program sets to Canvas** under Homework 1 link*********

   a. Name your files: HW1_PS1_ lastname_firstinitial.c for Program Set 1 and HW1_PS2_ lastname_firstinitial.c for PS2 and so on. PS means program set. If there are two program sets you will submit two files one for each program set. Example if your name is Joe Smith then the filename will be HW1_PS1_smith_j.c
   b. You must submit your homework by the deadline at the specified upload link on Canvas under homework 1. If the deadline is past, Program Sets will not be graded. Homework submitted via email attachment, comment in Canvas, Canvas message, or by any other method is not accepted and will be given a zero for no submission.
   c. if you do not follow instructions on file naming provided in this section you will receive a zero for the question you did not correctly name the file.
   d. It is your responsibility to check if your homework is properly submitted to Canvas.

2. Please format your output properly, for example all dollar amounts should be printed with 2 decimal places. Make sure that your output values are correct (check the calculations).

3. Use only the 'tools' in the topics we covered from Lesson 1 to 14 only. **No loops, arrays, structs, if statements, #include<math.h>, #include<stdlib.h>, #inlcude<iostream>, #include<string.h>, scanf("%[^\n]%*c",varname); and any topics not covered from lesson 1 to lesson 14 except to declare strings char strVar[n]. A zero grade will be given if any of the listed is used.**

4. Each student is expected to do their own work. **IF IDENTICAL PROGRAMS ARE SUBMITTED, EACH IDENTICAL PROGRAM WILL RECEIVE A SCORE OF ZERO.**

Grading:

If a program does not compile the program set will receive a zero score. If the program compiles and run but does not have proper declaration of variables, syntax, logic, and displays the correct output (given in the sample test runs) with proper formatting as specified in the question, the program set will receive a zero score. Each program set must compile and must run correctly with proper declaration of variables, syntactically, logically, and display the correct output (given in the sample test runs) as specified then you will receive the full points for that question. Then points will be deducted for not having proper:

a. Comments 1 pt deducted for each infraction
   - Title Banner --Your name, description at the beginning of each program set.
   - Short description of the what each section or function of your codes do.

b. Consistency/Readability 1 pt deducted for each infraction
   - Spacing(separate each section of codes with a blank line
   - Proper Indentation
   - Proper naming of variables no a, b, c – use descriptive and mnemonics)

accounts payable
acct_pay

c. Required elements 1 pt deducted for each infraction
   - proper formatting for output when specified
   - all monetary values must be in 2 decimal places

d. Use only 'tools' in the topics that have been covered in class. For example, in for this homework we have not covered loops, if or arrays. So, if you use a loop you will receive a **zero** for the whole program set. See also item 3 above.

e. Output (you **must provide the specified number of test runs or your program set will receive a zero score**)
   - to be displayed at the end of the program listing(codes) and commented
   - must have the number of test runs as specified in each program set.
   - must use the data for test runs when they are provided for you in the question.

Points will be deducted from items a. to e. above until your Program Set reaches zero points.

Programs that do not compile

If you submit a program that does not compile, I will not be able to execute it and, thus, will not be able to evaluate its correctness. It is your responsibility to turn in code that compiles and run. I reserve the right to assign zero points on the **Correctness and Robustness** for a program that does not compile, regardless of how much code there is or how close it is to working. This rule is in place not only because it is impractical for me to evaluate the correctness of non-compiling code, but to impress upon you the importance of this issue: in the "real world," there is no excuse for submitting code that does not compile.

At first blush, this sounds like a harsh policy, but it is not as difficult as it sounds to make sure your program compiles, if you develop your program one small piece at a time, ensuring that the program compiles and runs (and, ideally, runs correctly) before moving on to the next piece. It is never a good idea to write hundreds of lines of code before attempting to compile and run a program, yet many students do it. The "code-everything-then-compile" approach, which can be successful for very small programs, such as those you may have written in courses prior to this one, does not scale up well to problems the size of those you will face in this course. I urge you to consider working through your programs step-by-step, compiling and running them as you make progress.

Program Set 1 (10 points)

Write a program that let the user three input characters which are user's initials and displays them in a welcoming message. Then let user input of the quantities of each of the following coins, in the respective order, quarters, dimes, nickels, and pennies. Computes the total value of the coins, and then displays the value. Enter the initials with no space or separated by periods, e.g., JTK

Your output must look exactly like the sample test runs provided except for the values entered by user was changed. For example, Hello J.T.K. has periods but the input has no periods.

You are to provide 5 test runs (run the program 5 separate times with different input data). For test run 1 and 2 you must use the data provided below. Provide your own data for test runs 3, 4, and 5.

Here are sample runs (blue user input):

Sample test runs

```
/*
Test Run 1
Enter your initials, first, middle and last: JTK

Hello J.T.K., let's see what your coins are worth.
Enter number of quarters: 4
Enter number of dimes: 0
Enter number of nickels: 0
Enter number of pennies: 0

Number of quarters is 4.
Number of dimes is 0.
Number of nickels is 0.
Number of pennies is 0.

Your coins are worth 1 dollars and 0 cents.
```

Test Run 2

```
Enter your initials, first, middle and last: RHT

Hello R.H.T., let's see what your coins are worth.
Enter number of quarters: 0
Enter number of dimes: 10
Enter number of nickels: 0
Enter number of pennies: 0

Number of quarters is 0.
Number of dimes is 10.
Number of nickels is 0.
Number of pennies is 0.

Your coins are worth 1 dollars and 0 cents.

//show the rest of the test runs using your own input data
```

Test Run 3

Test Run 4

Test Run 5

Program Set 2 (10 points)

Read item 3 above for what is not allowed to be used.

You need a program to maintain information about your stocks. Assume that you have the following stocks:

Stock Name	Number of Shares	Buying Price Per Share	Current Price Per Share	Yearly Fees
IBM CORP	155	$15.33	$13.33	$5.00
ORACLE SYS	375	$11.77	$12.25	$3.50
SUN MICRO	350	$27.55	$35.75	$12.25
LINKSYS INC	85	$25.35	$23.34	$6.00
CISCO INC	50	$45.36	$50.86	$1.50

**You must use the data from this table for your Program Set 2 submission. Note that the stock name can have a space in between like IBM CORP, SUN MICRO and must entered as one input (hint: use gets())

Write a C program that will perform the following tasks:

Task 1: Allow the user to enter in the data for each stock. Stock name, Number of shares, Buy Price, Current Price and Yearly Fees.(The user will not enter the $'s.)

Task 2: Calculate the Initial Cost, Current Cost, and Profit for each stock. The formulas to use are:

Initial Cost = Number of Shares * Buying Price Per Share

Current Cost = Number of Shares * Current Price Per Share

Profit = Current Cost - Initial Cost - Yearly Fees

Task 3: Print out the Stock Name, Initial Cost, Current Cost, and Profit for each stock.

Task 4: Calculate and print the total profit for all of the stocks. That is, find the sum of the 5 profits for each stock.

notes:

1. The user will enter the correct datatype, for example stock will be string(user must enter the whole stock name including the space in one input statement. If two input statements are used to input a stock name 2 points will be deducted), shares as integer and the rest as floats.

2. Use print formatting to align all numbers, using column width and precision.

3. Use the data in the table above for your test run 1.

Here is a sample run- you only need to have **one test run** with all the five stocks entered (blue user input):

Your output must run and ***look exactly*** like the sample test run shown below.

Sample test run
Test Run 1 (use the data from the table provided)

```
/*
*********************************
            Stock 1
*********************************
Enter stock name IBM CORP
Enter number of shares 155
Enter the buy price, current price, fees 15.33 13.33 5.00

The Stock name is    : IBM CORP
The number of shares :         155
The buy price is     : $     15.33
The current price is : $     13.33
The fees are         : $      5.00

The initial cost is :  $   2376.15
The current cost is :  $   2066.15
The profit is       :  $   -315.00

*********************************
            Stock 2
*********************************
Enter stock name ORACLE SYS
Enter number of shares 375
Enter the buy price, current price, fees 11.77 12.25 3.50

The Stock name is    : ORACLE SYS
The number of shares :         375
The buy price is     : $     11.77
The current price is : $     12.25
The fees are         : $      3.50

The initial cost is :  $   4413.75
The current cost is :  $   4593.75
The profit is       :  $    176.50

*********************************
            Stock 3
*********************************
Enter stock name SUN MICRO
Enter number of shares 350
Enter the buy price, current price, fees 27.55 35.75 12.25

The Stock name is    : SUN MICRO
The number of shares :         350
The buy price is     : $     27.55
The current price is : $     35.75
```

```
The fees are         : $     12.25

The initial cost is :  $   9642.50
The current cost is :  $  12512.50
The profit is       :  $   2857.75

*********************************
            Stock 4
*********************************
Enter stock name LINKSYS INC
Enter number of shares 85
Enter the buy price, current price, fees 25.35 23.34 6.00

The Stock name is    : LINKSYS INC
The number of shares :          85
The buy price is     : $     25.35
The current price is : $     23.34
The fees are         : $      6.00

The initial cost is :  $   2154.75
The current cost is :  $   1983.90
The profit is       :  $   -176.85

*********************************
            Stock 5
*********************************
Enter stock name CISCO INC
Enter number of shares 50
Enter the buy price, current price, fees 45.36 50.86 1.50

The Stock name is    : CISCO INC
The number of shares :          50
The buy price is     : $     45.36
The current price is : $     50.86
The fees are         : $      1.50

The initial cost is :  $   2268.00
The current cost is :  $   2543.00
The profit is       :  $    273.50

The total profit for the 5 stocks is : $   2815.90

*/
```