ITA1293: COMPUTER PROGRAMMING

LAB ASSIGNMENT 1
Submit via E-Learning as instructed by lecturer.

Question 1:

Consider the following program segment:

```
//include statement(s)
//using namespace statement

int main()
{
    //variable declaration

    //executable statements

    //return statement
}
```

Write the following into the program segment:

a. Write C++ statements that include the header files `iostream` and `string`.
b. Write a C++ statement that allows you to use `cin`, `cout`, and `endl`
c. Write C++ statements that declare and initialize the following named constants: `SECRET` of type `int` initialized to `11` and `RATE` of type `double` initialized to `12.50`.
d. Write C++ statements that declare the following variables: `num1`, `num2`, and `newNum` of type `int`; `name` of type `string`; and `hoursWorked` and `wages` of type `double`.
e. Write C++ statements that prompt the user to input two integers and store the first number in `num1` and the second number in `num2`.

f. Write a C++ statement(s) that outputs the values of num1 and num2, indicating which is num1 and which is num2. For example, if num1 is 8 and num2 is 5, then the output is:

```
The value of num1 = 8 and the value of num2 = 5.
```

g. Write a C++ statement that multiplies the value of num1 by 2, adds the value of num2 to it, and then stores the result in newNum. Then, write a C++ statement that outputs the value of newNum.

h. Write a C++ statement that updates the value of newNum by adding the value of the named constant SECRET. Then, write a C++ statement that outputs the value of newNum with an appropriate message.

i. Write C++ statements that prompt the user to enter a person's last name and then store the last name into the variable name.

j. Write C++ statements that prompt the user to enter a decimal number between 0 and 70 and then store the number entered into hoursWorked.

k. Write a C++ statement that multiplies the value of the named constant RATE with the value of hoursWorked and then stores the result into the variable wages.

l. Write C++ statements that produce the following output:

```
Name:              //output the value of the variable name
Pay Rate: $        //output the value of the variable rate
Hours Worked:      //output the value of the variable
                   //hoursWorked
Salary: $          //output the value of the variable wages
```

For example, if the value of name is "Rainbow" and hoursWorked is 45.50, then the output is:

```
Name: Rainbow
Pay Rate: $12.50
Hours Worked: 45.50
Salary: $568.75
```

m. Write a C++ program that tests each of the C++ statements that you wrote in parts a through l. Place the statements at the appropriate place in the previous C++ program segment. Test run your program (twice) on the following input data:

   a. `num1 = 13, num2 = 28; name = "Jacobson"; hoursWorked = 48.30.`

   b. `num1 = 32, num2 = 15; name = "Crawford"; hoursWorked = 58.45.`

(Time estimate to complete: 60 minutes)