CSC-101 – HW1

Q1 (25 points) Consider the following program segment:

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

int main()
{
//variable declaration

//executable statements

//return statement
}
```

- Write a C++ statement that includes the header file `iostream`.
- Write C++ statement(s) that declare the following variables: `num1`, `num2`,`num3`, and `average` of type `int`.
- Write a C++ statement that stores the average of `num1`, `num2`, and `num3` into `average`.
- Write C++ statement(s) that output the values of `num1`, `num2`, `num3`, and `average`.

Q2 (25 Points) Consider the following program segment:

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

int main()
{
  //variable declaration
  //executable statements
  //return statement
}
```

- Write C++ statements that include the header files `iostream` and `string`.
- 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**.

- Write C++ statements that prompt the user to input two integers and store the first number in `num1` and the second number in `num2`.
- 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`.
- Write a C++ statement that outputs the value of `newNum`.
- Write a C++ statement that updates the value of `newNum` by adding the value of the named constant `SECRET` to it.
- Write a C++ statement that outputs the value of `newNum` with an appropriate message.
- Write C++ statements that prompt the user to enter a decimal number between **0** and **70** and then store the number entered into `hoursWorked`.
- Write C++ statements that produce the following output:
    - Name: //output the value of the variable name
    - Pay Rate: $ //output the value of the 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
- Test run your program (twice) on the following input data:
    - a. num1 = 13, num2 = 28; name ="Jacobson"; hours-Worked = 48.30.
    - b. num1 = 32, num2 = 15; name = "Crawford"; hours-Worked = 58.45.

Q3 (25 Points) To make a profit, a local store marks up the prices of its items by a certain percentage.

Write a C++ program that reads:

1. The original price of the item sold
2. The percentage of the marked-up price
3. The sales tax rate.

The program then outputs:

1. The original price of the item
2. The percentage of the mark-up
3. The store's selling price of the item
4. The sales tax rate
5. The sales tax
6. The final price of the item.
    - (The final price of the item is the selling price plus the sales tax.)

Q4 (25 Points) In an elementary school, a mixture of equal amounts of nuts and dried fruit is provided during lunch. Suppose that the number of calories in each pound of nuts is 0.70 times the number of calories in each pound of dried fruit.

Instructions

Write a program that prompts the user to input:

1. The number of students in the elementary school
2. The number of calories required for each student from the mixture
3. The number of calories in each pound of nuts.

The program outputs:

1. The amount of nuts and dried fruit needed for the students.

For simplicity, assume that each student requires the same amount of calories.