9.3 LAB TASKS

1. Write a function called zeroSmaller() that is passed two int arguments by reference and then sets the smaller of the two numbers to 0. Write a main() program to test this function.
   [20 marks]

2. Write a program which determines the retail price (cost with added profit amount) of an item according to the pricing policies of a supermarket chain. Set three global constants LOW_PROFIT_MARGIN, HIGH_PROFIT_MARGIN and THRESHOLD as 0.05, 0.10 and 7 respectively.
   This program should utilize the following functions:
   void get_input(double& cost, int& shelf_time);
   - takes wholesale cost of an item from the user
   - takes shelf-time (expected number of days until sold) of an item from the user

   double price(double cost, int shelf_time);
   - computes and returns retail price of an item with
     - low profit margin if the shelf-time is not more than threshold, i.e 7 days
     - high profit margin if the shelf-time is more than a week

   void give_output(double cost, int shelf_time, double price);
   - displays the wholesale cost, expected time until sold and retail price in a good-looking format

   Note: Call the functions one by one in the same order to produce required results. You can declare/define other variables where required in this program.

   [30 Marks]

3. Write a function which finds the frequency of a character in a given string. String and character to be searched should be given as an input to the function and the output will be the number of times character is repeated in that string.
   Test your function for multiple cases.

   [20 marks]

4. Write a program which *takes* 4 numbers s1, s2, s3 & s4 from the user and ***displays*** their standard deviation on the screen. Standard deviation formula for the 4 number input is:

$$SD = \sqrt{\frac{(s_1 - a)^2 + (s_2 - a)^2 + (s_3 - a)^2 + (s_4 - a)^2}{4}}$$

Where **a** = average of the numbers s1, s2, s3 & s4

Write your own functions

- to compute and return the average of 4 numbers
- to compute and return the standard deviation of 4 numbers
  Note: Utilize your average function to compute the average where required in the formula

The *main()* of your program should use only the following two functions:

void getData(double& s1, double& s2, double& s3, double& s4)

- takes data s1, s2, s3 & s4 from the user

void showData(double& s1, double& s2, double& s3, double& s4)

- prints the result by utilizing standard deviation function which you have made

[30 marks]