

## CS 215 – Fall 2018

### Lab 3

#### Learning Objectives:

Use of while loops to:

- Validate user input.
- Determine the sum, count, min, highest and lowest of data values entered.

Entering multiple values on one line with cout/cin.

#### General Description:

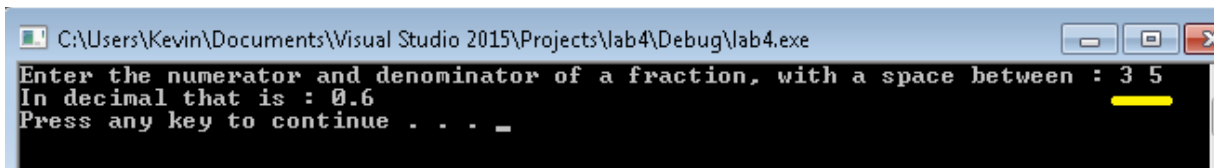
Write a program for processing temperature readings for a period of days. The program first asks the user to enter the number of days, validating the answer between 1 and 10:

It then asks the user to enter the Hi and Low Temperatures for each day. Finally, it finds and prints the highest high, lowest low, average high and average low. It should also print the *number* of days the low temperature was below freezing (less than 32 degrees). As usual, the program should pause at the end.

Note: all numbers, including averages, may be integers. You may assume that, for each day, the high temperature entered actually is greater than or equal to the low entered, and that both are numbers without decimal points.

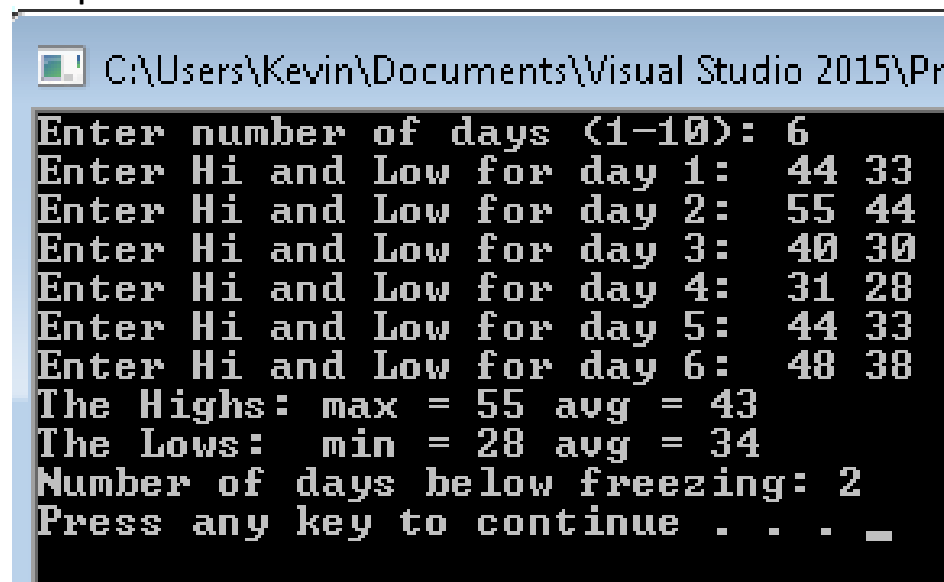
#### Entering multiple data values on a line:

```
int den, num;
float dec;
cout << "Enter the numerator and denominator of a fraction, with a space between : ";
cin >> num >> den;
dec = num / (1.0 * den);
cout << "In decimal that is : " << dec << endl;
```



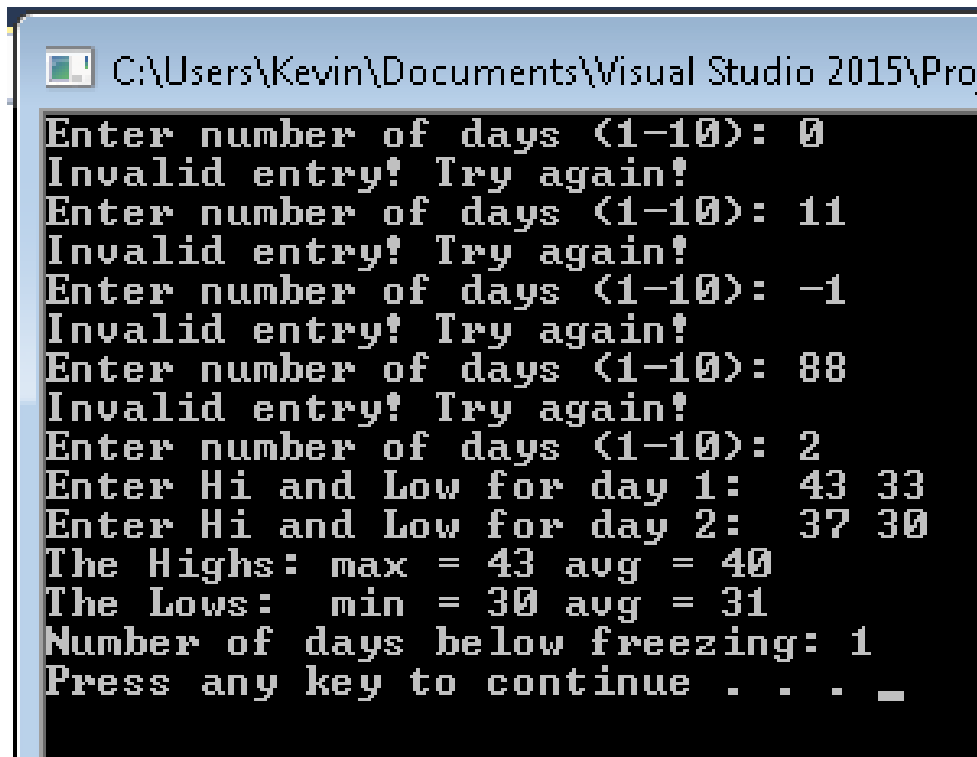
```
C:\Users\Kevin\Documents\Visual Studio 2015\Projects\lab4\Debug\lab4.exe
Enter the numerator and denominator of a fraction, with a space between : 3 5
In decimal that is : 0.6
Press any key to continue . . . _
```

#### Example #1:



```
C:\Users\Kevin\Documents\Visual Studio 2015\Pr
Enter number of days (1-10): 6
Enter Hi and Low for day 1: 44 33
Enter Hi and Low for day 2: 55 44
Enter Hi and Low for day 3: 40 30
Enter Hi and Low for day 4: 31 28
Enter Hi and Low for day 5: 44 33
Enter Hi and Low for day 6: 48 38
The Highs: max = 55 avg = 43
The Lows: min = 28 avg = 34
Number of days below freezing: 2
Press any key to continue . . . _
```

**Example #2:**



```
C:\Users\Kevin\Documents\Visual Studio 2015\Pro...
Enter number of days (1-10): 0
Invalid entry! Try again!
Enter number of days (1-10): 11
Invalid entry! Try again!
Enter number of days (1-10): -1
Invalid entry! Try again!
Enter number of days (1-10): 88
Invalid entry! Try again!
Enter number of days (1-10): 2
Enter Hi and Low for day 1: 43 33
Enter Hi and Low for day 2: 37 30
The Highs: max = 43 avg = 40
The Lows: min = 30 avg = 31
Number of days below freezing: 1
Press any key to continue . . . _
```

**Grading Rubric:**

Style: standard comment box at the top

Style: all statements are properly indented

Style: meaningful variable names are used

Program asks for number of days 1-10, and *validates* correctly.

Program asks for hi/low for the correct number of days, two numbers per line.

Program prints the day number (1,2,3,etc) in the prompt.

Program calculates the max Hi, average Hi, Min Low and average Low correctly.

Program prints the 4 numbers as shown in the example.

Program does the system/pause.