CS150 Assignment 5
Temperature Summarizer

Date assigned: Friday, October 20, 2017
Program due: Monday, October 30, 2017, 9:15am (35 points)

Goals:
File I/O
Ifs
Formatted output
Running Totals

You have been hired by the Forest Grove weather service to write a program to display temperature data to the screen and to a file. You must display a table of data to the screen that shows the low and high temperature per day as well as the average temperature per day. This table will also display the temperature trend that shows whether today's average temperature is Warmer, Cooler, or Same as yesterday's average temperature.

You also must write to a file, named **summary.txt**, the number of days read and the average high and average low temperature for the entire set of days as well as the lowest and highest temperature seen.

The data that has been provided for you is in a text file named "temps.txt" and includes a series of lines of data. The first line contains the number of days. This is followed by a line for each day that contains the low temperature and the high temperature for that day.

For example, the following file contains data for two days where the low temperature of the first day is 43 and the high temperature of the second day is 76.

```
2
43 67
51 76
```

Notes:
1. Read the data from a file called "temps.txt".
2. Write data to the screen.
3. Write data to a file.
4. Minimally, a data file must consist of one line containing the number zero indicating that there is no temperature data provided.
5. There is no input from the keyboard in this program. All the data will be read from the input file.
6. Verify that your program works with a wide variety of different "temps.txt" files, but when you submit your assignment, make certain that the input file is returned to its original state in the example given below.

For example, assume you are given the following input file named **temps.txt**:

```
8
43 67
51 76
44 60
43 88
50 86
51 61
66 77
51 76
```

Your program must produce the following output exactly **to the screen**:

```
*********************
* Temperature Table *
*********************

    Day     Low    High  Average    Trend
------------------------------------------
      1      43      67     55.0
      2      51      76     63.5   Warmer
      3      44      60     52.0   Cooler
      4      43      88     65.5   Warmer
      5      50      86     68.0   Warmer
      6      51      61     56.0   Cooler
      7      66      77     71.5   Warmer
      8      51      76     63.5   Cooler
------------------------------------------
```

Your program must produce the following output exactly **to a file named summary.txt**:

```
Number of days:      8

            Averages
Low Temperature | High Temperature
           49.9 |             73.9

 Lowest Temperature:   43
Highest Temperature:   88
```

To complete this assignment you must submit the following:

1. **An electronic copy of your program on Grace**

   a. Add a new project named 05_Temperature to your previously created assignment solution called PUNetIDAssignments. It is *vital* that you name your project correctly!

   b. Type your program (fully documented/commented) into the project. The comment block at the top of the program needs to contain your name, the date the assignment is due, the class name, assignment number and name, and a brief description of the program. **You must follow the coding standards!**

   c. Pay attention to the example output! Your program's output must look **exactly** like the example output! The spacing and newlines in your output must match exactly.

   d. Make sure that your program compiles and runs correctly. If you get any errors, double check that you typed everything correctly.

   e. Make sure that your program does not produce any warnings.

   f. Once you are sure that the program works correctly it is time to submit your program. You do this by logging on to Grace and placing your complete solution folder in the **CS150-01 Drop** folder. This solution folder must also contain your four previous projects.

   g. The program must be in the drop folder by 9:15am on the day that it is due. Anything submitted after that will be considered late.

2. **A hard copy of your program**

   a. The hard copy must be placed on the instructor's desk by 1pm on the day that it is due.

   b. The hard copy must be printed in color, double-sided, and stapled if necessary. Staple the program output described above to your program.

   c. Your tab size must be set to 2 and you must not go past column 80 in your output.

Good luck! And remember, if you have any problems, come and see straight away. ☺