

Saddleback College  
Department of Computer Science  
CS1A - Introduction to Computer Science I  
Homi Bodhanwala  
Exam 2, Basic Programming  
Fall 2021

Name: \_\_\_\_\_ Student Number: \_\_\_\_\_

**Instructions for this test:**

- Write your name and student number at the top of this exam
- Turn in all of your written work
- Do NOT collaborate with others. Turn in your own solution

*Good Luck!*

## Section 1. Exam Programming Exercise (50 points)

### 1. Problem Statement:

Write a program that process weather data for several days. The input file is `input.dat` and contains multiple lines. Each line contains the **day of the week** and the **high** and **low** temperatures for that day. Your task is to read this input file, process the data, and save the results to a file called `output.out` that contains:

- (a) The day of the week
- (b) The high temperature that day
- (c) The low temperature that day
- (d) The average temperature that day (i.e. the average of the high and low temperatures)
- (e) The weather status of that day (if the average of the high and low temperature for the day is **greater than** 70 degrees, the status is Warm, otherwise it is Cool).
- (f) The average temperature across days in the input file. To calculate this take the **average of all the daily average temperatures**.

2. **Input File** The input file has been replicated below and can be downloaded from Canvas.

Monday	78	57
Tuesday	83	60
Wednesday	81	61
Thursday	80	60
Friday	73	57
Saturday	72	56
Sunday	72	55

### 3. Other Requirements and Important Considerations

- (a) Use a width of 15 for the day of the week and 8 for all other fields.
- (b) Store your width values using constants.
- (c) Temperatures should be output using 2 decimal places of precision.
- (d) If your program fails to open the input file, you must `cout` an error message that reads `Could not open input file, program terminating!` and then terminate your program.
- (e) Make sure you close your file input and output streams.

4. **Sample Run (The Output File)** This is what the contents of your output file should look like:

DAY	HIGH	LOW	AVG	STATUS
Monday	78.00	57.00	67.50	Cool
Tuesday	83.00	60.00	71.50	Warm
Wednesday	81.00	61.00	71.00	Warm
Thursday	80.00	60.00	70.00	Cool
Friday	73.00	57.00	65.00	Cool
Saturday	72.00	56.00	64.00	Cool
Sunday	72.00	55.00	63.50	Cool

Average of daily averages: 67.50