

Programming Assignment #3

Prepare a Lab Report

CS 1428.003 and 004, Fall 2014

Instructor: Jill Seaman

Due: in class Monday, 9/29/2014 (upload electronic copy by 10:00am)

Problem:

Your friend the biology lab assistant needs to calculate the average time it takes each of his rats to run through a given maze. For three days he runs each rat through the maze once, and records the amount of time it takes. Write a C++ program that will, after the test runs are all complete, calculate the average time it took for each of his 3 rats to run the maze, and print a report to a file.

Input: The user should be prompted to input the name and 3 maze times for each of 3 rats. The name may have spaces in it. The three maze times will be positive integers.

Processing: Compute the average maze time for each of the rats by computing the mean of their 3 maze times.

Output: The program should output a lab report to a file named "lab_report.txt". The first row of the report should be a list of column headers that label the data to be output. This should be followed by a row for each rat that lists their name, each of the three maze times, and the average. This should be followed by the word "Smart" if the average is less than 30. If it is 30 or above, it should be followed by the word "Normal". The final average should be output to 1 decimal place. The numerical data in each column should line up under its column header.

| Name | Time 1 | Time 2 | Time 3 | Avg | Rating |
|-----------------|--------|--------|--------|------|--------|
| Black Fred | 28 | 40 | 29 | 32.3 | Normal |
| Lima Bean | 28 | 31 | 25 | 28.0 | Smart |
| Master Splinter | 25 | 27 | 39 | 30.3 | Normal |

Additional Requirements:

- Your program **must compile** and run, otherwise you will receive a score of 0. (You should compile and test it yourself in CodeBlocks or another IDE before submitting it).
- All of the output data should be LEFT justified for this assignment.

- The name should be displayed in a width of 20 characters, the numerical data should be displayed in a width of 7 characters each.
- Note that the header columns may be output as one long string with spaces embedded in the proper places.
- Use proper data types (only use float and double when necessary).

Style:

See the Style Guidelines document on the course website. The grader will deduct points if your program violates the style guidelines.

Logistics:

Name your file **assign3_XXXXX.cpp** where XXXXX is your TX State NetID (your txstate.edu email id). The file name should look something like this: assign3_js236.cpp

There are two steps to the turn-in process:

1. Submit an electronic copy using the Assignments tool on the TRACS website for this class (tracs.txstate.edu). Submit the .cpp file, (NOT a .cbp file!).
2. Submit a printout of the source file at the beginning of class on the day the assignment is due. Please print your name on the front page, and staple if there is more than one page.

See the assignment turn-in policy on the course website (cs.txstate.edu/~js236/cs1428) for more details.