

Programming Assignment #3

Prepare a Lab Report

CS 1428.003 and 004, Fall 2015

Instructor: Jill Seaman

Due: in class Monday, 9/28/2015 (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 formatted 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:

- 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).
- Do NOT use loops.
- **Grading Threshold:** Your program **must compile** and run, and **pass** the following minimal test case, otherwise you will receive a 0.

Note that the names of the rats have no spaces, the averages are whole numbers, and the Rating is not required. Also the output may be displayed to the screen.

```

Please enter the name of the first rat.
Fred
Please enter three maze times for the first rat.
40      35      30
Please enter the name of the second rat.
Bean
Please enter three maze times for the second rat.
28      30      29
Please enter the name of the third rat.
Splinter
Please enter three maze times for the third rat.
30      30      30
Name           Time 1 Time 2 Time 3   Avg
Fred           40    35    30     35
Bean           28    30    29     29
Splinter       30    30    30     30

```

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.