

## Programming Assignment #4

### Prepare a Flu Activity Report

CS 1428.253, Spring 2020

Instructor: Jill Seaman

**Due: Monday, 3/9/2020** (upload electronic copy by 11:59pm)

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#### Problem:

Your friend is an intern at the local Department of Health and needs to prepare a report about the recent activity of the influenza virus. She has recorded the number of cases of each type of flu (A, B, and C) over the last several weeks. Write a C++ program that will calculate the total cases for each week, determine the level of activity for the week (low, moderate, or widespread) and print a report to a file, including a small bar chart for the weekly cases.

**Input:** The user should be prompted to input the total number of weeks, and then for each week the number of cases of type A, B, and C flu reported.

**Processing:** For each week, sum up the total number of flu cases. Also sum up the total number of cases of flu reported over the entire period.

**Output:** The program should output a report to a file named **"flu\_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 week that lists the week number and the number of total cases of flu. This should be followed by the activity rating: "Low" if the total cases are less than 500. Otherwise "Moderate" if the cases are less than 2000, and "Widespread" if the total cases are 2000 or more. This should be followed by an asterisk for each 250 cases of the total weekly cases. After the table is complete, the program should output the total number of flu cases for the entire period. See a sample below:

Week	Total Cases	Activity	Chart
1	333	Low	*
2	1079	Moderate	****
3	2497	Widespread	*****
4	1830	Moderate	*****

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The total number of cases reported: 5739

See the file `output4.txt` on the class website for the console output from running the program to create this output file.

## Additional Requirements:

- For full credit, your program should work for any number of weeks (not always 4).
- For full credit, your program must use a (nested) loop to input the number of cases of each type of flu. In other words, rather than having three cout and cin statements (one for A, one for B, one for C), have just one cout and one cin inside of a for loop that executes its body three times.
- In order to output the letter A, B, or C in the for-loop, you can use this "trick":  

```
char type = 'A' + i; // flu type
```

This sets `type` to 'A' when `i` is 0, to 'B' when `i` is 1 and 'C' when `i` is 2.
- Hint: use simple test data like 1 week with 111, 222, and 333 and output to the screen until you get the formatting set up. Then set it up to output to a file. Also try to test with various data.
- Hint: My column widths are 3, 10, 16, and 6 blank spaces between the activity rating and the bar chart.
- All of the output data can be RIGHT justified for this assignment. Optionally you can Left justify the Activity rating to make it look nicer.
- Note that the column headers may be output as one long string with spaces embedded in the proper places.
- Use proper data types (use float or double only if necessary).
- Don't forget the style guidelines...

## Logistics:

Name your file **assign4\_XXXXX.cpp** where XXXXX is your TX State NetID (your txstate.edu email id). The file name should look something like this: assign4\_js236.cpp

Submit an **electronic copy** using the Assignments tool on the Canvas course for this class ([canvas.txstate.edu](https://canvas.txstate.edu)). Submit the .cpp file, (NOT a .cbp or .xcodeproj file!).

See the assignment turn-in policy on the course website ([cs.txstate.edu/~js236/cs1428](https://cs.txstate.edu/~js236/cs1428)) for more details, including late deadlines and penalties.