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| **COMP 1130**  **Seminar #6 Rainfall program with methods** |

## Due Date: Section 1 – Tuesday October 30, 2018; Section 4 – Wednesday October 31, 2018

**Student Academic Integrity**

All assessments given for the computing science courses are governed by the academic honesty policy of both TRU and the Computing Science Department. Academic dishonesty is a serious offense. All work submitted must be of your own. Preliminary discussions may be held with other students but the work produced finally must be your own. Jointly produced work will result in a zero for that assignment for all students involved in the joint work and may mean loss of a letter grade for the course. The student may also be expelled from the University.

**DO NOT SHARE CODE OR ANYTHING IN WRITING WITH YOUR CLASSMATES.**

**NOTE: ARRAYS ARE NOT ALLOWED IN THIS ASSIGNMENT.**

**PROBLEM**: **Re-do the Java program you wrote to use the following methods**. Fix any problems you had with the original program. Produce the **EXACT** output shown at the end of the document.

1. In addition to the Java program, you will use 2 .txt files—one for input and one for output. (You might call them RainIn.txt and RainOut.txt. RainIn.txt will contain the data below. RainOut.txt will be created when the program runs and it will contain the output from your program)
2. Generate a graph that compares, on a month-by-month basis, the monthly rainfall for Kamloops for the first half of 2018 (i.e. Jan – June) versus the 30 year average rainfall for Kamloops for the same months.
   * **Create and call a method to return the month name to main()**
   * **Create and call ONE method to print a line of symbols.**
     + **call it the first time to print the line of \***
     + **call it a second time to print the line of !.**
3. **Call a method to print the scale and the legend as shown below.**

1. **Call a method to print the total rainfall for each data set, then compares the 2018 rainfall total for Jan. to June, and the 30 year average half-year total.** **The method will state whether 2018 was wetter or drier than average and by how much.**

1. Determine which month in 2018 had the highest rainfall, and print the month (**using the method described in #2),** the rainfall amount and how that amount compares to the 30 year average amount for that month.

Input will consist of 6 pairs of numbers representing the 30-year average rainfall for the month and the 2018 rainfall amount for the same month. Use the exact data shown below when you run your program: **(Note: the data file and output below are for illustration purposes only. Your program must be able to work with any input file that has this format, but can contain any data)**

* 1. 5.4 ← January data
  2. 4.4 ← February data
  3. 4.1

5.0 6.0

4.0 5.6

6.3 4.5

Rainfall comparison for January to June 2018

January |\*\*\*\*\*\*\*\*\*\*\*

|!!!!!!!!!!!!!!!!!!!!!!!!!

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February |\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

|!!!!!!!!!!!!!!!!!!!!!

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March | etc for the rest of the months

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June |\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

|!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

|----1----2----3----4----5----6----7----8

LEGEND:

\* - 30 year average rainfall for a given month

! - 2018 rainfall for a given month

Total 30 year average rainfall was xx.x mm.

Total rainfall for 2018 was yy.y mm.

2018 was a drier year than normal by z.z mm. **(or print wetter or equal if that is appropriate)**

The month with the highest rainfall was …

**Assignment Submission:**

Submit a print-out of your program’s source code, and the output file.

see seminar 4 regarding using PrintWriter for output. To facilitate using this object in methods, declare it before main() using this declaration

static PrintWriter output;

then put this in main()

output = new PrintWriter(“…….”);