CS 2334: Programming Structures and Abstraction

Project 5

Due Date: May 02, 2019

Graphics with Hamming Distance

Spring 2019

115/100 pts

1. Objective:

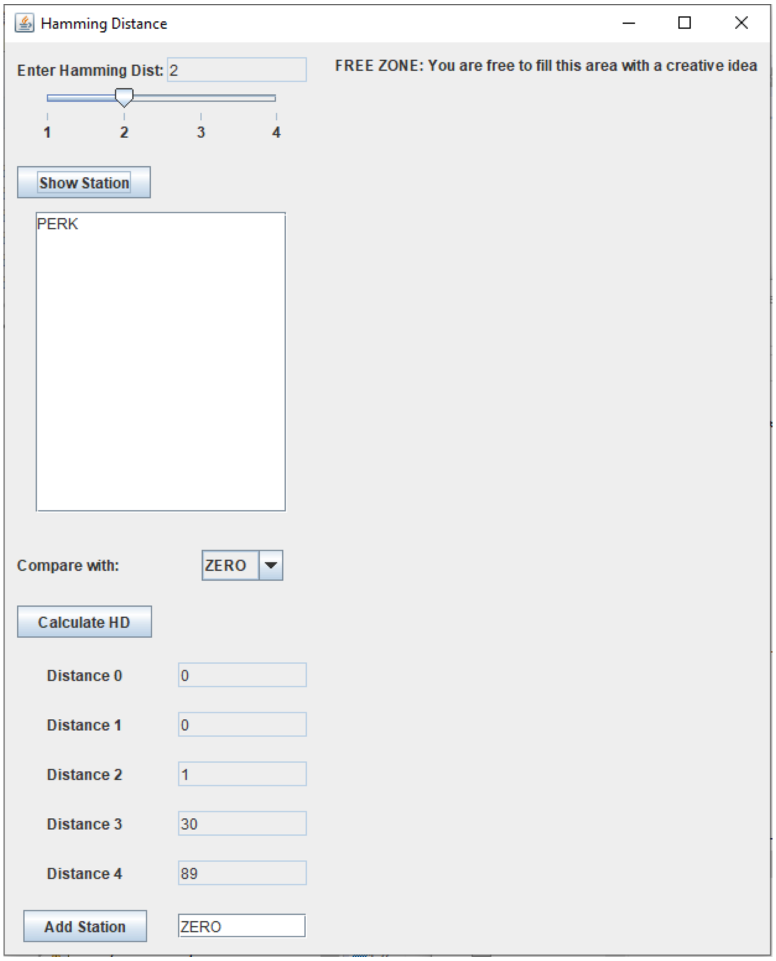
The objective of this programming project is to implement a java program where graphics content will be used to calculate different types of Hamming Distances. After completing the project, students will have an intermediate understanding of Java Graphical User Interface (GUI).

2. Project Specification:

2.1. Overall Program Behavior:

From Project 1 to 3, you are already familiar with Hamming Distance, Mesonet and reading a file where a station ID is a 4-letter code. For Project 5, we will not provide any source code, rather we are giving a sample output of what you will generate. You are free to write class, method, etc. you like to generate the desired output. We will give 'ONLY' Mesonet.txt to read data, and Proj5SP19.jar file as sample.

The screenshot of one of the final outputs:



Enter Hamming Dist: 2

FREE ZONE: You are free to fill this area with a creative idea

PERK

Compare with: ZERO

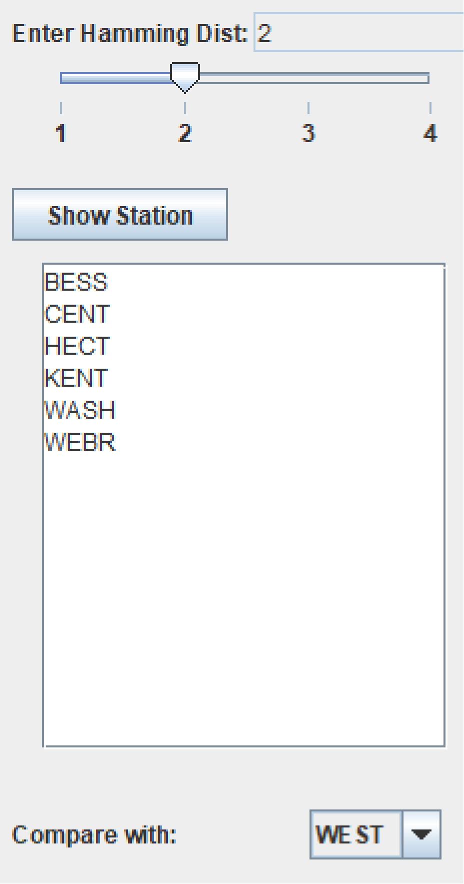
Distance 0	0
Distance 1	0
Distance 2	1
Distance 3	30
Distance 4	89

Add Station: ZERO

2.2 Description:

Run the Proj5SP19.zar file to see the outputs. You will need to place Mesonet.txt file in the same folder to see the values. The program is self-explanatory; however, I am giving a short description.

Part 1: up to 25 points (plus the dropdown box = 10 points).



Enter Hamming Dist: 2

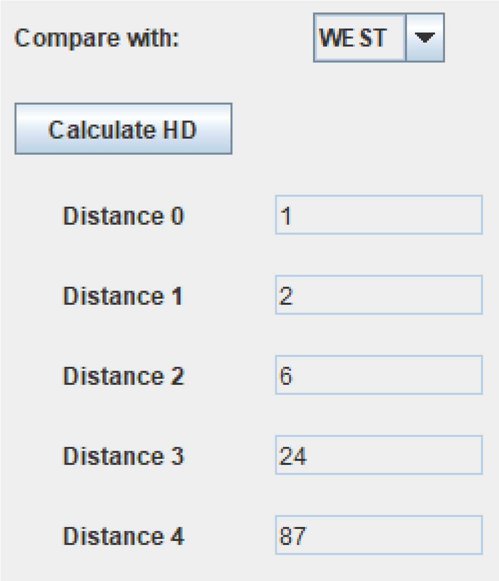
BESS
CENT
HECT
KENT
WASH
WEBR

Compare with: WEST

You can see a slider, one Button and one Dropdown Box.

If you press the button "Show Station" it will compare the Hamming Distance between the station, for example WEST, and the other stations according to the selected value in the slider (in the example 2). The result will be shown in the text area.

Part 2: up to 15 points (plus the dropdown box = 10 points).

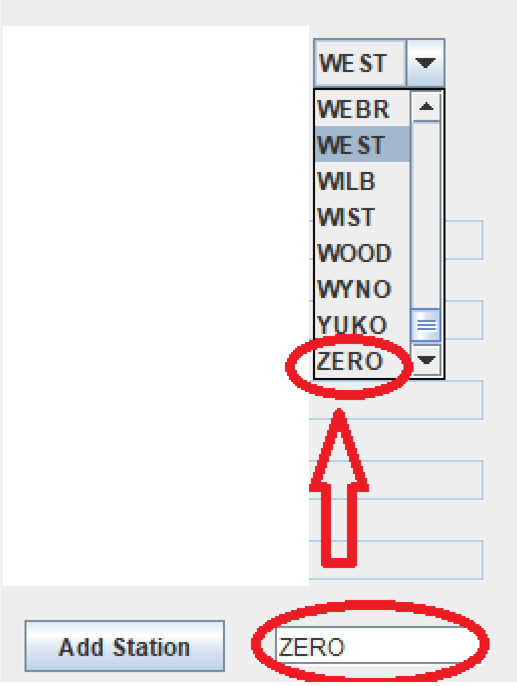


Compare with: WEST

Distance 0	1
Distance 1	2
Distance 2	6
Distance 3	24
Distance 4	87

Here is the same dropdown box with another button, “Calculate HD”. The result is the distance between “WEST” and all the stations.

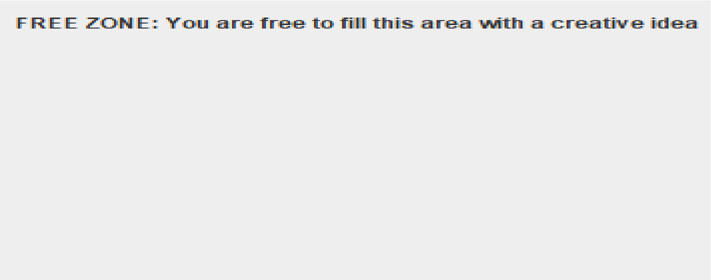
Part 3: up to 10 points.



ZERO

“Add Station” will add the 4-letter code in the text box to the list of the Dropdown box. In the example, “ZERO” is added to the List.

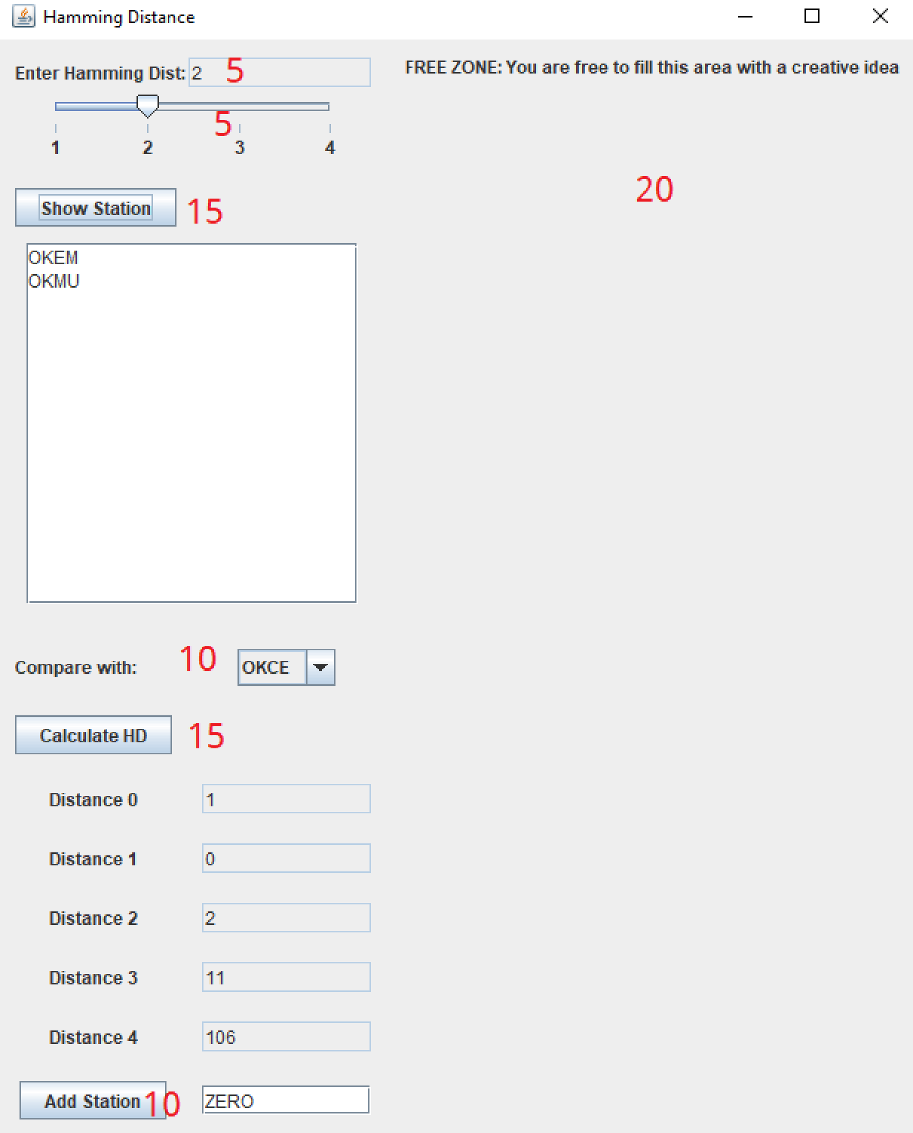
Part 4: up to 20 points.



FREE ZONE: You are free to fill this area with a creative idea

This area is open for you. You are free to fill this area with a creative idea, which is not already implemented in part 1-3. It will be graded.

3. Points Distribution:



Hamming Distance

Enter Hamming Dist: 2

FREE ZONE: You are free to fill this area with a creative idea

OKEM
OKMU

Compare with: OKCE

Distance 0: 1

Distance 1: 0

Distance 2: 2

Distance 3: 11

Distance 4: 106

ZERO

All the button points depend on the correctness of the function performed.

Documentation: 20 points (on Github as README.md). Part of the documentation, you will draw the UML of your program as well as describe your problem-solving approach.

You can see, in the dropdown box you can add a station multiple times creating duplication and added at the end only. If you prevent the duplication, and show the sorted list, will get up to 5 bonus points.

You can also see, only one panel has been used here, if you create multiple panel for different parts, will get up to 5 bonus points.

Moreover, based on overall performance, you can avail up to 5 bonus points.

In total, you can get 5 + 5 + 15 + 10 + 15 + 10 + 20 + 20 + 5 + 5 = **115** points (out of 100).

4. Submission Instructions: (**Due on May 02, 2019, in class Demo**)

No submission is required. During the lab session will be graded.

Output, code, and Documentation.

Plagiarism will not be tolerated under any circumstances. Participating students will be penalized depending on the degree of plagiarism.

5. Late Penalty:

There is no late submission. Because, after the lab session, there is no evaluation of this Project. If you have any difficulty to be present during the lab session, you must contact a T.A. and must show on or before May 01. After the last lab session (May 02, 2.20PM) all the remaining students will get a zero.

Good Luck!!!