Program Structures and Algorithms
Spring 2023(SEC –03)

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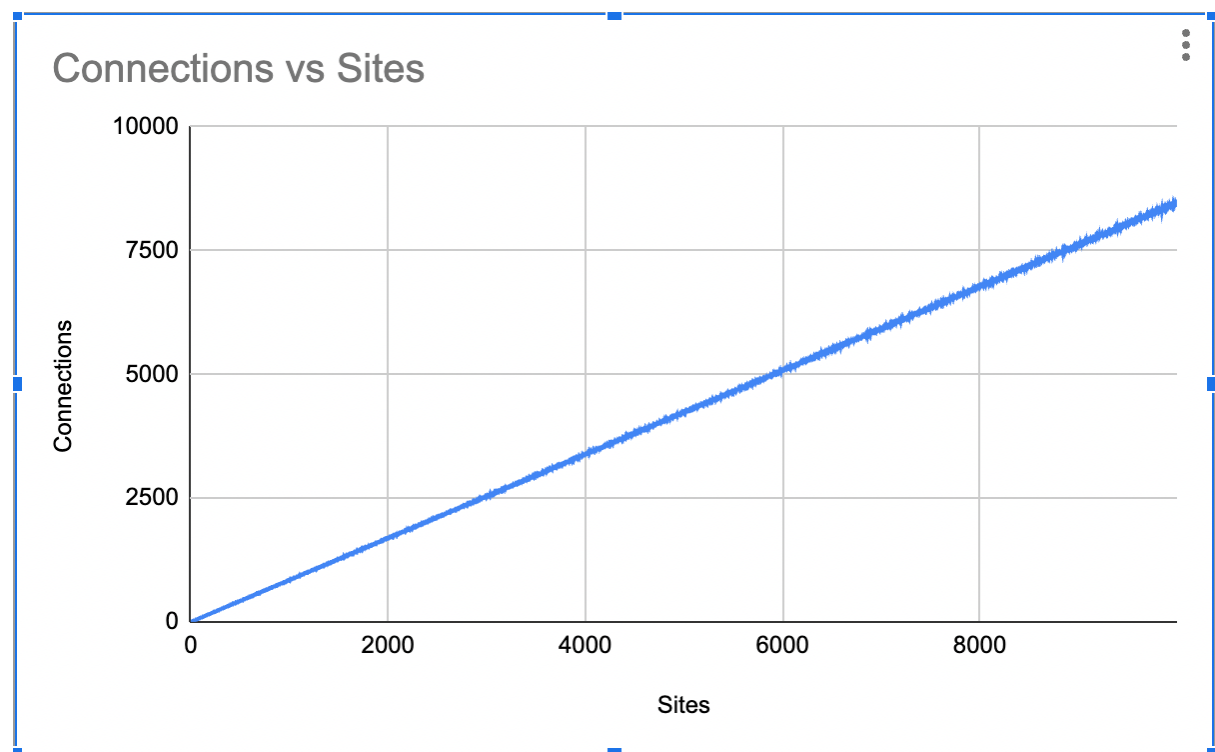
Task: Implement Height Weighted Union Find data structure. For varying number of sites (for example, from 0 to 10000 is given for following graph and spreadsheet) print and find the relation between number of connections made for two randomly selected array indices if they are not connected already. Also, 50 runs are processed to get a better accuracy and the average value is considered as the final value.

Relationship Conclusion: After comparing the values by putting them in a spread sheet and plotting a graph. The graph represents a straight line which represents that the number of connections made, follow a linear curve for the number of sites.

Evidence to support that conclusion and graphical representation:
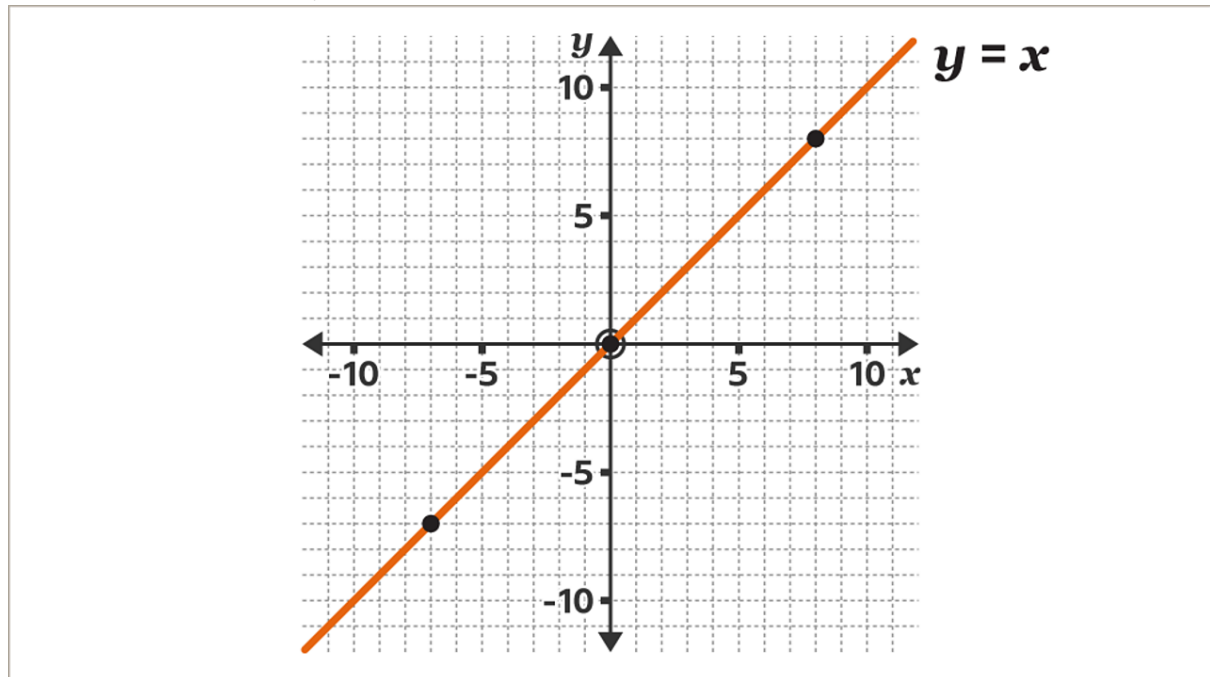
The excel sheet has been upload on GitHub, which shows the generated values.

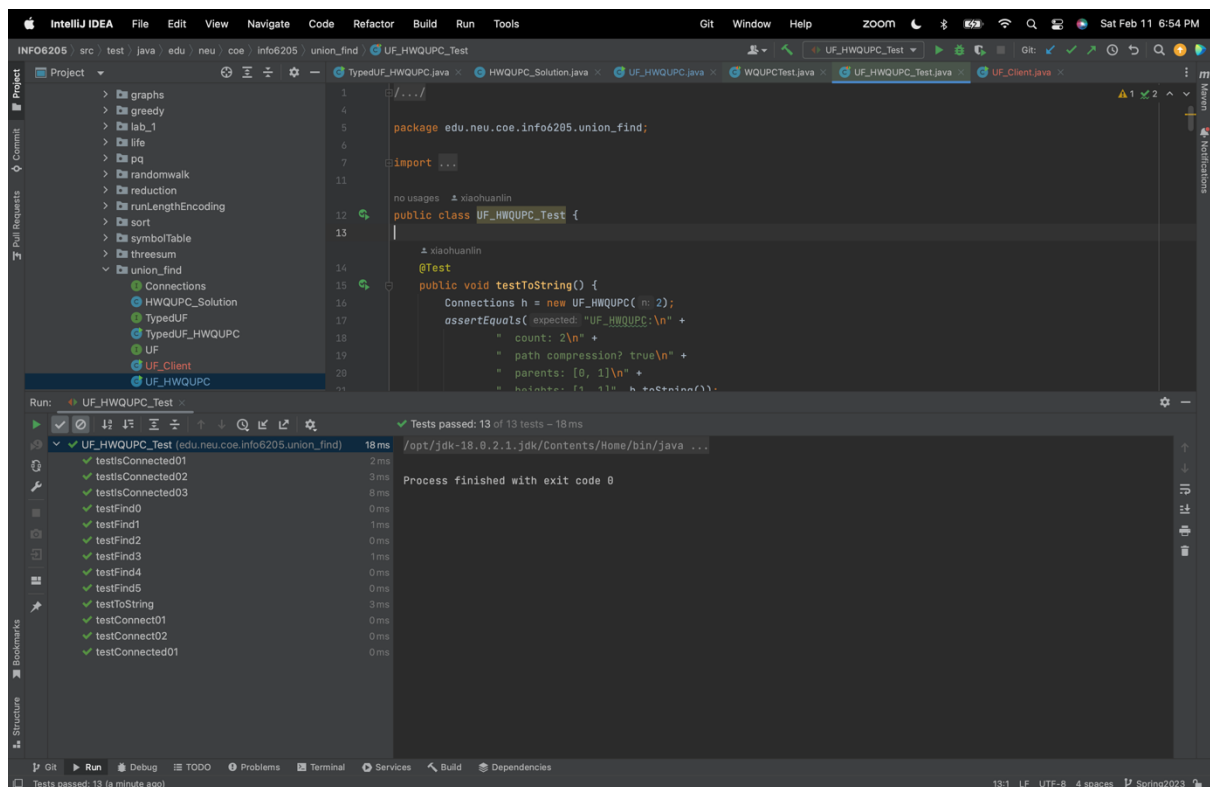The graph between number of sites and number of connections made:

x-axis represents number of sites and y-axis represents number of connections made.

The actual linear curve for y = x:

Unit Test Screenshots:

A screen recording video is also uploaded on GitHub to prove that no unit test cases have been changed.