Program Structure and Algorithms (INFO-6205 SEC01)
Assignment – 3

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TASK

Task for this assignment is in three parts.

1. Implemented height-weighted Quick Union with Path Compression.
2. Implemented doPathCompression method.
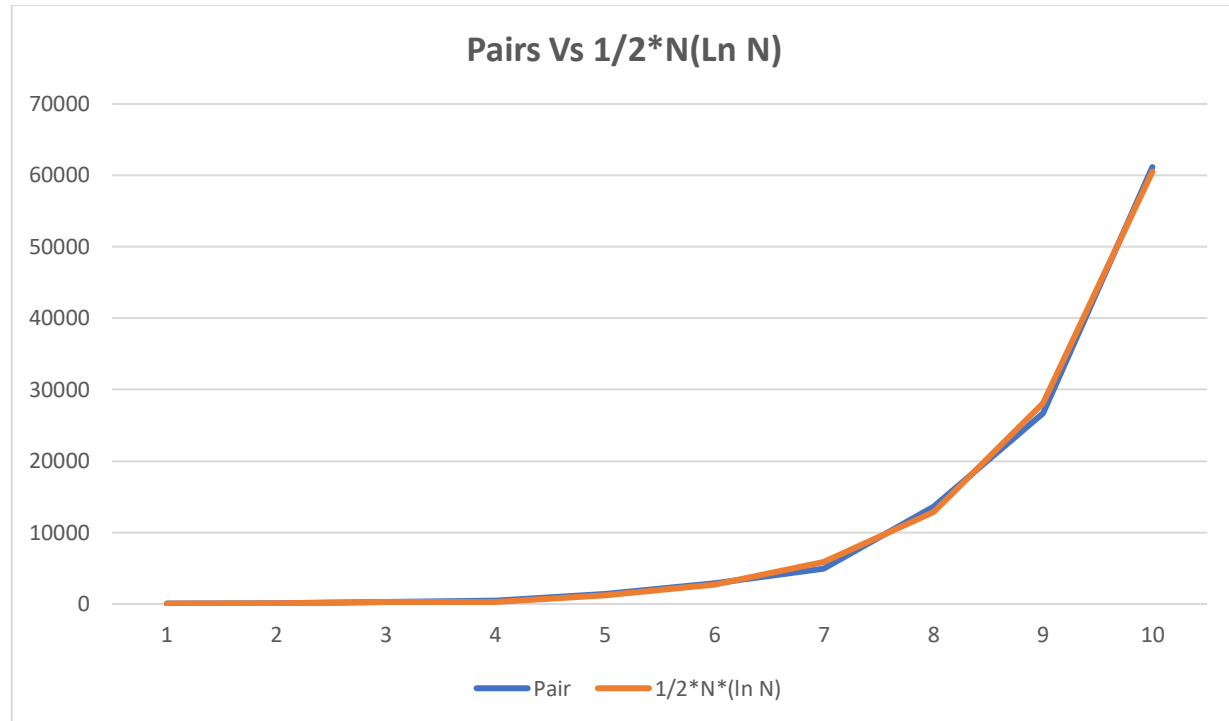3. Implemented mergeComponents method.

OUTPUT SCREENSHOT

CONCLUSION

From the results, we can conclude that the relationship between number of objects(n) and numbers of pairs(m) is as follows:

$$M = (0.5) *N(\ln N)$$

i.e. M is equal to half times the product of number of pairs(N) and the log of number of pairs(N).

EVIDENCE

Objects	Pair	1/2*N*(ln N)
25	46	40.23594781
50	75	97.80057514
100	298	230.2585093
200	441	230.1029996
400	1387	1198.292909
800	2879	2673.844691
1600	4949	5902.207127
3200	13651	12913.44974
6400	26643	28044.97046
12800	61158	60526.08288

Pairs Vs 1/2*N(Ln N)

UNIT TESTS: