Program Structure and Algorithm

Assignment – 4

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| --- | --- |
| n(Objects) | M(Pairs) |
| 10 | 13 |
| 25 | 52 |
| 100 | 374 |
| 225 | 561 |
| 500 | 1485 |
| 1500 | 6752 |
| 2250 | 10995 |

Conclusion:

Based on the observations, it can be concluded that the number of connections required increases as the number of objects increases. This is because a larger number of objects means a larger number of components, and therefore more connections are required to combine the components into a single component. The larger the number of objects, the greater the number of possible combinations of pairs that need to be considered, leading to an increase in the number of connections required.

So, to summarize, the relationship between m and n can be expressed as O(n^2) for Quick-Union and O(nlogn) for Weighted Quick-Union, but the exact formula may depend on other factors such as the implementation details and the specific use.

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