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Cs100vbo

PA4 Report

1. The union_find was slightly faster (roughly 1.6 times according to Linux shell timer)
2. When there are a lot of data to search through, union_find tends to perform significantly better since the traversal distance does not scale as significantly as bfs.
3. The slightly faster performance of union_find (especially with path compression) is because it minimizes the traversal distance to find an element. The number of comparison is also decrease since the comparison of sentinel nodes are the only one checking the origin of the objects under question. Lot of other comparisons are omitted due to the disjointing of unrelated sets. (There is no need to traverse through all the data as the result)