Shaohua Lu (001514123)

**Program Structures & Algorithms**

**Spring 2021**

**Assignment No. 4**

* **Task:**

For weighted quick union, store the depth rather than the size;

For weighted quick union with path compression, do two loops, so that all intermediate nodes point to the root, not just the alternates.

For both of these, code the alternative and benchmark it against the implementation in the repository. You have all of that available from a previous assignment.

* **Output:**

For weighted quick union, the reason why it’s unnecessary to time it is because since we used path compression, depth would takes much less time than size, the bigger the number is, the difference of time it adds.

After two loops, the time should be real quick, the depth is real low and could easily be counted since all intermediate nodes are connected to the same root.

* **Relationship Conclusion:**
* **Evidence to support the conclusion:**
* **Graphical representation:**
* **Unit tests result:**