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**Program Structures & Algorithms**

**Fall 2021**

**Assignment No. 3**

* **Task**

**UF\_HWQUPC.java:**

1. Worked on ***find***function to obtain the value of its parent of the node.
2. Worked on ***mergeComponents***function merging the nodes and to update the parent and height of the tree.
3. Worked on ***doPathCompression*** function.

**UF\_HWQUPC\_PairTest.java:**

1. Created ***UF\_HWQUPC\_PairTest.java*** file for test cases.
2. Implemented ***randomNum*** function to get the random numbers between 0 and 1000.
3. Implemented ***getConnections***function to find the pairs.
4. Wrote a main function which is used to which is used to print number of connections to the respective number of sites.

**Conclusion:**

***m = n \* log10(n)***

**Evidence to support the conclusion:**

**Output:**

**UF\_HWQUPC\_PairTest.java**

Text

Description automatically generated

**UF\_HWQUPC\_Test.java**

Text

Description automatically generated

**Graphical Representation:**

Chart, line chart

Description automatically generated