## Assignment 2 - Module 1

Which of the following arrays could not possibly occur during the execution of weighted quick union with path compression:

1. 0 1 2 3 4 5 6 7 8 9
2. 7 3 8 3 4 5 6 8 8 1
3. 6 3 8 0 4 5 6 9 8 1
4. 0 0 0 0 0 0 0 0 0 0
5. 9 6 2 6 1 4 5 8 8 9
6. 9 8 7 6 5 4 3 2 1 0

**Rule 1 :**

*“Weighted Quick Union follows that, the merging of sites will be done where the site with smaller weight move towards the site with the larger weight.”*

**For all the above array, id[ ] holds index from 0-9.**

**0 1 2 3 4 5 6 7 8 9 - Can possibly Occur**

On tree representation of the above array, it is possible to obtain a quick union, as well quick union path compression.

**7 3 8 3 4 5 6 8 8 1 - Cannot Occur**

On tree representation, 3, 4, 5, 6, 8 holds the root/parent positions. 3 and 8 being roots doesn’t follow rule 1 mentioned above.

**6 3 8 0 4 5 6 9 8 1 - Cannot Occur**

On tree representation, 4, 5, 6, 8 holds the root/parent positions. 6 and 8 being roots doesn’t follow rule 1 mentioned above.

**0 0 0 0 0 0 0 0 0 0 - Can possibly occur**

On tree representation of the above array, it is possible to obtain a quick union, as well quick union path compression.

**9 6 2 6 1 4 5 8 8 9 - Cannot occur**

On tree representation, 8, 9 holds the root/parent positions. 8 and 9 being roots doesn’t follow rule 1 mentioned above.

**9 8 7 6 5 4 3 2 1 0 - Cannot Occur**

Above array does not holds root/parent sites to represent a tree.