HackerRank For Work

Info6205_Summer18_Quiz5 30 minutes

Question - 1

SCORE: **1 points**

Complete the sentence

Problem Statement

Complete the sentence

The String written on the blackboard is <blank 1>.

Answers

<blank 1> : [hytd$546.sruy~]

Question - 2

SCORE: **5 points**

Dynamic Connectivity

If we are going to apply quick-find algorithm to solve the dynamic connectivity problem until all components are connected, how many times of array operations is necessary.

- NlogN
- N
- N^2
- logN

Question - 3

SCORE: **5 points**

Quick Find, Quick Union

Statement 1 : Quick-Find union operation is too expensive
Statement 2 : Trees formed in Quick-Union are always flat
Statement 3 : Find / connected operation can be N-array access in Quick-Union, hence it is too expensive
Statement 4 : It takes O(N) array accesses to process one union operation on N objects in Quick-Find
Which statements are true ?

- All of these
- Statement 1 and 3
- Statement 1 and 2
- Statement 3 and 4
- Statement 1, 2 and 4
- Statement 1, 2 and 3
- Statement 1, 3 and 4

- None of these

Question - 4

SCORE: **5 points**

Quick Find

What is the time complexity of find operation in Quick Find.

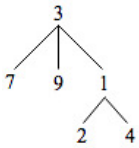
- N
- N/2
- 1
- N^2

Question - 5

SCORE: **5 points**

Union Operations

The operations union(1, 2), union(4, 2), union(3, 7), union(3, 9), union(3, 4) result in the tree:



Which algorithm was used?

- Quick union with path compression
- Quick union
- Weighted quick union
- Weighted quick union with path compression

Question - 6

SCORE: **30 points**

Weighted quick union

Your task is to implement the find and union methods for the weighted quick union algorithm