

M7: Hands-On: Disjoint Sets

Due Apr 28 at 11:59pm

Points 2

Questions 2

Time Limit None

Allowed Attempts Unlimited

Instructions

Hands-On: Disjoint Sets

This activity focuses on the fundamental mechanics of working with disjoint sets.

Representing disjoint sets

1. Open the lecture notes on Disjoint Sets.
2. Review the note set to refresh your memory on this data structure.

Adding values

1. Go to the slides that illustrate building a disjoint set data structure using the "fast find" strategy.
2. Go through each operation in the slides and make sure you understand how each works.
3. Go to the slides that illustrate building a disjoint set data structure using the "fast union" strategy that utilizes path compression.



Take the Quiz Again

Attempt History

| | Attempt | Time | Score |
|--------|---------------------------|--------------------|------------|
| KEPT | Attempt 3 | less than 1 minute | 2 out of 2 |
| LATEST | Attempt 3 | less than 1 minute | 2 out of 2 |
| | Attempt 2 | less than 1 minute | 1 out of 2 |
| | Attempt 1 | 3 minutes | 1 out of 2 |

⚠ Correct answers are hidden.

Score for this attempt: 2 out of 2
Submitted Apr 26 at 6:30pm
This attempt took less than 1 minute.

Question 1

1 / 1 pts

Assuming that the *fast find* strategy was used to construct the disjoint set array below, how many disjoint sets exist?

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 6 | 6 | 6 | 6 | 6 | 7 | 8 | 6 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

A. 1

B. 4

C. 5

D. 8

☐ A

☐ B

☒ C

☐ D

Question 2**1 / 1 pts**

Assuming that the *fast union* strategy was used to construct the disjoint set array below, and assuming that path compression is utilized, what is the result of `find(6)` on the array?

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8 | 1 | 8 | 3 | 0 | 5 | 1 | 8 | 8 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- A.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8 | 8 | 1 | 8 | 3 | 8 | 8 | 1 | 8 | 8 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
- B.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8 | 1 | 8 | 3 | 0 | 5 | 1 | 8 | 8 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
- C.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8 | 1 | 8 | 3 | 0 | 8 | 1 | 8 | 8 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
- D.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8 | 8 | 1 | 8 | 3 | 0 | 8 | 1 | 8 | 8 |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

☒ A☐ B☐ C☐ DQuiz Score: **2** out of 2