

h9 Sets and Sorts

Started: Apr 22 at 8:08pm

Quiz Instructions

1. This is an individual assignment. Do not compare or share your answers until after the due date and time of the quiz. Do not post your work or questions publicly to Piazza or other forums.
2. You must complete (and submit) the quiz BEFORE the due date and time, NOT AT the exact time due.
3. Be sure to save answers as you complete each question so that answers are not lost.
4. Every time you open the quiz, it counts as an attempt. You have 120 minutes per attempt.
5. This quiz is MUTED, which means that in Canvas, you will not be able to see your scores until after the quiz deadline. Consider these quizzes like a cross between an in-class quiz and a problem set. We would like you to think carefully about your answers before you submit.
6. You have 3 attempts, to handle any possible technical issues or unexpected interruptions to your quiz. We will count the highest-scoring attempt.

Question 1

1 pts

What assumption does Flash Sort make about the data?

- ☐ the data is in order
- ☒ the data is almost evenly distributed
- ☐ the data is already partially sorted

Question 2

2 pts

If the assumptions are not met, which component of FlashSort could cause the efficiency to be greater than linear?

- ☒ Classification
- ☐ Permutation
- ☐ Insertion
- ☐ Setup

Question 3**2 pts**

Assume that List contains this data:

397, 902, 586, 306

After the first pass of RadixSort, what would be the order of the data in List ?

- ☐ 306, 397, 586, 902
- ☒ 902, 586, 306, 397
- ☐ 902, 306, 586, 397
- ☐ 902, 586, 397, 306
- ☐ 397, 306, 586, 902

Question 4**2 pts**

Which type of ADT does a Radix sort make use of?

- ☐ Tree
- ☒ Queue
- ☐ none of the above
- ☐ Map
- ☐ Stack

Question 5**1 pts**

What assumption does Radix Sort make about the data?

- ☐ the data is equally distributed
- ☒ the data can be partitioned by place value
- ☐ the data is partially sorted

Question 6

2 pts

What does this method do?

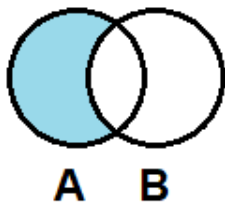
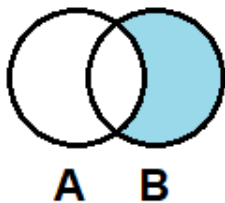
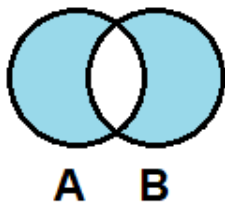
```
public static boolean method(Set A, Set B) {  
    for ( String a : A )  
        if ( ! B.contains(a) ) return false;  
    for ( String b : B )  
        if ( ! A.contains(b) ) return true;  
    return false;  
}
```

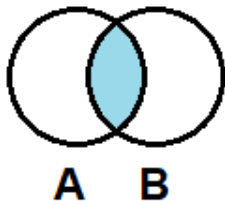
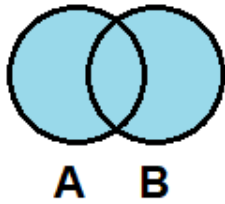
- ☐ returns true if A is a proper superset of B
- ☐ returns true if A is a subset of B
- ☐ returns true if A is a superset of B
- ☒ returns true if A is a proper subset of B

Question 7

2 pts

Which figure has shaded area that is the *symmetric difference* $A \Delta B$?

☐☐☒☐


☐
**Question 8****2 pts**

Assume Flash Sort is being used on a array of integers with

Amin = 51, Amax = 71, N=10, m=5

Items are classified according to the formula:

$$K(A[i]) = 1 + (\text{int}) \left((m-1) * (A[i] - \text{Amin}) / (\text{Amax} - \text{Amin}) \right)$$

What is the classification for 63?

Question 9**2 pts**

What is the difference of A and B that is, A - B ?

if A = {5, 7, 9, 10, 13} and B = {6, 9, 10, 15} ?

☐ {6, 15}

☒ {5, 7, 13}

☐ {}

☐ {9, 10}

☐ {5, 6, 7, 13, 15}

Question 10**1 pts**

Radix Sort is a comparison sort.

- ☐ True
- ☒ False

Question 11**1 pts**

Flash Sort is a stable sort.

- ☐ True
- ☒ False

Question 12**1 pts**

Which of the following is a syntactically correct definition of an Enumerated Type?

- ☐ `enum Meal = new (BREAKFAST, LUNCH, DINNER);`
- ☐ `enum Meal = {BREAKFAST, LUNCH, DINNER}`
- ☐ `enum Meal {BREAKFAST, LUNCH, DINNER} ;`
- ☒ `enum Meal {BREAKFAST, LUNCH, DINNER}`

Question 13**1 pts**

Which JavaFX layout container has exactly 5 sub-containers?

- ☐ GridPane
- ☐ VBox
- ☒ BorderPane

☐ HBox

Quiz saved at 9:06pm

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