

判题器 10 A. 单选题 8 程序填空题 2

概述

2-1-2 分数 6

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题目列表

Assume that there are 10000 documents in the database, and the statistical data for one query are shown in the following table. One metric for evaluating the relevancy of the query is F-score, which is defined as $\frac{(1+\alpha)(precision \cdot recall)}{\alpha \cdot precision + recall}$. Then the F=0.5 ($\alpha=0.5$) score for this query is:

	Relevant	Irrelevant
Retrieved	3800	3200
Not Retrieved	2200	600

提交列表

排名

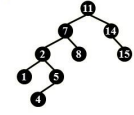
- A. 0.62
- B. 0.60
- C. 0.52
- D. 0.57

评测结果 答案正确
得分 6分

2-2-2 分数 6

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For the result of accessing the keys 5,8 in order in the splay tree in the following figure, which one of the following statements is FALSE?



- A. 8 is the root
- B. 11 is the parent of 7
- C. 2 and 7 are siblings
- D. 5 is the parent of 7

评测结果 答案正确
得分 6分

2-3-1 分数 6

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A queue can be implemented by using two stacks S_A and S_B as follows:

- To enqueue x , we push x onto S_A .
- To dequeue from the queue, we pop and return the top item from S_B . However, if S_B is empty, we first pop it (and empty S_A) by popping the top item from S_A , pushing this item onto S_B , and repeat until S_A is empty.

Assuming that push and pop operations take $O(1)$ worst-case time, please select a potential function ϕ which can help us prove that enqueue and dequeue operations take $O(1)$ amortized time (when starting from an empty queue).

- A. $\phi = 2|S_A|$
- B. $\phi = |S_A|$
- C. $\phi = 2|S_B|$
- D. $\phi = |S_B|$

评测结果 答案正确
得分 6分

2-4-1 分数 6

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Merge the two leftist heaps in the following figure. Which one of the following statements is FALSE?



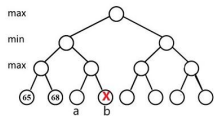
- A. 4 and 3 are siblings
- B. along the left path from the root, we have 1, 2, 4, and 8
- C. 6 is the right child of 5
- D. 2 and 4 have the same NPL

评测结果 答案正确
得分 6分

2-5-1 分数 6

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Given the following game tree, if node b is pruned with $\alpha\beta$ pruning algorithm, which of the following statements about the value of node a is correct?



- A. greater than 65
- B. less than 65
- C. greater than 68
- D. less than 68

评测结果 答案正确
得分 6分

2-6-2 分数 6

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After deleting 10 from the red-black tree given in the figure, which one of the following statements must be FALSE?



- A. 11 is the parent of 6, and 14 is red
- B. 8 is the parent of 15, and 7 is black
- C. 8 is the parent of 15, and there are 2 red nodes in the tree
- D. 11 is the parent of 15, and there are 2 red nodes in the tree

评测结果 答案正确
得分 6分

2-7-1 分数 6

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If the depth of an AVL tree is 6 (the depth of an empty tree is defined to be 0), then the minimum possible number of nodes in this tree is:

- A. 13
- B. 17
- C. 20
- D. 33

ZJUADS_王灿_2024_Midterm

得分 6分



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2-9-1 分数 6

Given two words `word1` and `word2`, the minimum number of operations required to transform `word1` into `word2` is defined as the edit distance between the two words.

The operations include:

- Inserting a character
- Deleting a character
- Replacing a character

Example:

Input: `word1` = "horse", `word2` = "ros"

Edit Distance: 3

Explanation:

1. horse => rose (replace 'h' with 'r')
2. rose => rose (remove 'e')
3. rose => ros (remove 'e')

We can use dynamic programming to solve it.

Definition:

- `dp[i][j]` represents the minimum edit distance between the substring of `word1` ending at index `i-1`, and the substring of `word2` ending at index `j-1`.
- `word[i]` represents the `i`-th character of the word

Which one of the following statements is FALSE?

- A. The edit distance between "intention" and "execution" is 5.
- B. When two words have the same suffix, the edit distance remains unchanged after removing the suffix.
- C. When `word1[i - 1]` and `word2[j - 1]` are not equal, $dp[i][j] = \min(dp[i - 1][j], dp[i][j - 1]) + 1$.
- D. When `i` is less than the length of `word 1`, `dp[i][0] = i`.

评测结果 答案正确

得分 6分