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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 7_MCQ_Updated

Attempt : 1
Total Mark : 20
Marks Obtained : 15

Section 1 : MCQ

1. What is the worst-case time complexity for inserting an element in a hash table with linear probing?

Answer

O(n)

Status : Correct ***Marks : 1/1***

2. In C, how do you calculate the mid-square hash index for a key k, assuming we extract two middle digits and the table size is 100?

Answer

((k * k) / 10) % 100

Status : Wrong ***Marks : 0/1***

3. Which folding method divides the key into equal parts, reverses some of them, and then adds all parts?

Answer

Folding boundary method

Status : Wrong ***Marks : 0/1***

4. What is the initial position for a key k in a linear probing hash table?

Answer

k % table_size

Status : Correct ***Marks : 1/1***

5. Which C statement is correct for finding the next index in linear probing?

Answer

index = (index + 1) % size;

Status : Correct ***Marks : 1/1***

6. In division method, if key = 125 and m = 13, what is the hash index?

Answer

8

Status : Correct ***Marks : 1/1***

7. Which of the following best describes linear probing in hashing?

Answer

Resolving collisions by linearly searching for the next free slot

Status : Correct ***Marks : 1/1***

8. Which data structure is primarily used in linear probing?

Answer

Array

Status : Correct ***Marks : 1/1***

9. What is the output of the mid-square method for a key k = 123 if the hash table size is 10 and you extract the middle two digits of k * k?

Answer

5

Status : Wrong ***Marks : 0/1***

10. What happens if we do not use modular arithmetic in linear probing?

Answer

Index goes out of bounds

Status : Correct ***Marks : 1/1***

11. In linear probing, if a collision occurs at index i, what is the next index checked?

Answer

(i + 1) % table_size

Status : Correct ***Marks : 1/1***

12. In the division method of hashing, the hash function is typically written as:

Answer

h(k) = k % m

Status : Correct ***Marks : 1/1***

13. What does a deleted slot in linear probing typically contain?

Answer

A special "deleted" marker

Status : Correct ***Marks : 1/1***

14. Which of the following statements is TRUE regarding the folding method?

Answer

It divides the key into parts and adds them.

Status : Correct ***Marks : 1/1***

15. What would be the result of folding 123456 into three parts and summing: (12 + 34 + 56)?

Answer

102

Status : Correct ***Marks : 1/1***

16. Which of these hashing methods may result in more uniform distribution with small keys?

Answer

Division

Status : Wrong ***Marks : 0/1***

17. What is the primary disadvantage of linear probing?

Answer

Clustering

Status : Correct ***Marks : 1/1***

18. Which situation causes clustering in linear probing?

Answer

Sequential key insertion

Status : Wrong ***Marks : 0/1***

19. Which of the following values of 'm' is recommended for the division method in hashing?

Answer

A prime number

Status : Correct ***Marks : 1/1***

20. In the folding method, what is the primary reason for reversing alternate parts before addition?

Answer

To reduce the chance of collisions caused by similar digit patterns

Status : Correct ***Marks : 1/1***