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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 7_MCQ_Updated

Attempt : 1

Total Mark : 20

Marks Obtained : 20

Section 1 : MCQ

1. Which situation causes clustering in linear probing?

Answer

All the mentioned options

Status : Correct

Marks : 1/1

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

Answer

Mid-Square

Status : Correct

Marks : 1/1

3. 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

4. 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

$((k * k) / 100) \% 100$

Status : Correct

Marks : 1/1

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

Answer

$h(k) = k \% m$

Status : Correct

Marks : 1/1

6. 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

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

Answer

Array

Status : Correct

Marks : 1/1

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

Answer

Index goes out of bounds

Status : Correct

Marks : 1/1

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

Answer

8

Status : Correct

Marks : 1/1

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

Answer

A special "deleted" marker

Status : Correct

Marks : 1/1

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

Answer

A prime number

Status : Correct

Marks : 1/1

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

Answer

$(i + 1) \% \text{table_size}$

Status : Correct

Marks : 1/1

13. 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

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

Answer

$k \% \text{table_size}$

Status : Correct

Marks : 1/1

15. What is the primary disadvantage of linear probing?

Answer

Clustering

Status : Correct

Marks : 1/1

16. 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

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

Answer

Folding reversal method

Status : Correct

Marks : 1/1

18. 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

1

Status : Correct

Marks : 1/1

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

Answer

102

Status : Correct

Marks : 1/1

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

Answer

`index = (index + 1) % size;`

Status : Correct

Marks : 1/1