# 6 Lecture - CS301

# **Important Mcqs**

- 1. Which of the following is NOT a characteristic of a stack?
  - a. Follows LIFO principle
  - b. Has two main operations: push and pop
  - c. Can only be implemented using arrays
  - d. Topmost element is the last one added

# Answer: c. Can only be implemented using arrays

- 2. What is the time complexity of push and pop operations in a stack implemented using an array?
  - a. O(1)
  - b. O(log n)
  - c. O(n)
  - d. O(n^2)

# Answer: a. O(1)

### 3. Which data structure is often used to implement a stack?

- a. Array
- b. Linked List
- c. Queue
- d. Binary Tree

# Answer: b. Linked List

# 4. Which of the following is NOT a common application of stacks?

- a. Reversing a string
- b. Evaluating postfix expressions
- c. Implementing depth-first search in a graph
- d. Sorting an array

# Answer: d. Sorting an array

#### 5. Which operation in a stack does not modify the stack?

- a. Push
- b. Pop
- c. Peek
- d. Size

# Answer: c. Peek

- 6. What happens when we try to pop an element from an empty stack?
  - a. The program crashes

- b. An error message is displayed
- c. The topmost element becomes NULL
- d. Nothing happens

#### Answer: b. An error message is displayed

#### 7. Which of the following is NOT a disadvantage of using an array to implement a stack?

- a. Fixed size
- b. Elements must be contiguous in memory
- c. Dynamic resizing is difficult
- d. Push operation is slower than pop operation

Answer: d. Push operation is slower than pop operation

- 8. What is the maximum number of elements a stack implemented using an array can hold if its size is n?
  - a. n
  - b. n-1
  - c. 2n
  - d. 2n-1

#### Answer: b. n-1

- 9. Which of the following is NOT a potential application of stacks in computer science?
  - a. Function calls and return values
  - b. Undo and redo operations
  - c. Implementing breadth-first search in a graph
  - d. Checking for balanced parentheses in an expression

#### Answer: c. Implementing breadth-first search in a graph

# 10. What is the time complexity of searching for an element in a stack implemented using a linked list?

- a. O(1)
- b. O(log n)
- c. O(n)
- d. O(n^2)

Answer: c. O(n)