

QUEUE DATA STRUCTURE

Explanation: A queue is a data structure that follows the First In, First Out (FIFO) principle, meaning the first element added to the queue will be the first one to be removed. This is analogous to standing in line at a store where the first person in line is the first to be served.

Key Points:

- A queue can be built on top of a vector or a deck type of data structure.
- It is a container adapter, meaning it adapts existing container types to provide specific functionality.
- Elements are added to the back of the queue and removed from the front.
- Operations include checking the size, accessing the front element without removing it, and removing the front element using the pop operation.
- Example: Creating a queue with elements 10, 20, and 30, where the front element is 10.

STACK DATA STRUCTURE

Explanation: A stack is a data structure that follows the Last In, First Out (LIFO) principle, meaning the last element added to the stack will be the first one to be removed. This can be visualized as a stack of plates where you add and remove plates from the top.

Key Points:

- A stack can be built on top of a vector or a deck type of data structure.
- It is a container adapter, similar to a queue.
- Elements are added to the top of the stack and removed from the top.

- Operations include checking the size, accessing the top element, and removing the top element using the pop operation.
- Example: Creating a stack with elements 10, 20, and 30, where the top element is 30.