OCR Computer Science A Level

2.3.1 Algorithms for the Main Data Structures

Flashcards

Are stacks FIFO or FILO?

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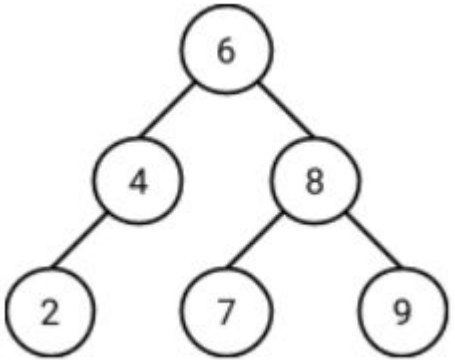
FILO

Which is the output of breadth-first search on this tree?

A: 6, 4, 2, 8, 7, 9
B: 2, 4, 6, 7, 8, 9
C: 6, 4, 8, 2, 7, 9
D: 2, 4, 7, 9, 8, 6



Which was the output of breadth-first search?

C

Which function adds an item to a stack?

Which function adds an item to a stack?

Push

Which function removes an element from a stack?

Which function removes an element from a stack?

Pop

What is the significance of the back pointer in the array representation of a queue?

What is the significance of the back pointer in the array representation of a queue?

Holds the location of the next **available** space in the queue

Which function returns the item at the front of a queue without removing it?

Which function returns the item at the front of a queue without removing it?

Peek

Which tree traversal algorithm uses a stack?

Which tree traversal algorithm uses a stack?

Depth first

What is the purpose of the front pointer in the array representation of a queue?

What is the purpose of the front pointer in the array representation of a queue?

Points to the space containing the first item in the queue

What value is the top pointer initialised to in the array representation of a stack?

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-1

Give pseudocode for the two functions which add new elements to stacks and queues

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Stacks

```
push(element)
    top += 1
    A[top] = element
```

Queues

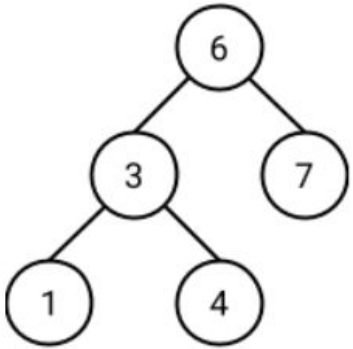
```
enqueue(element)
    A[back] = element
    back += 1
```

Which function returns the item at the top of a stack without removing it?

Which function returns the item at the top of a stack without removing it?

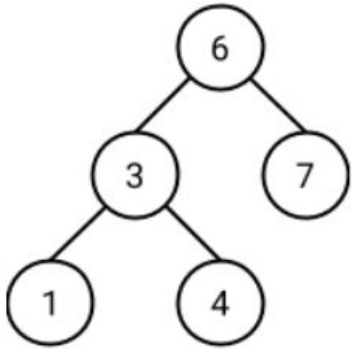
Peek

Which traversal on the tree below returns 6, 3, 1, 4, 7?



Which traversal on the tree returns 6, 3, 1, 4, 7?

Depth first



Which search algorithm is used when searching in linked lists?

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Linear search