AQA Computer Science A Level

4.2.1 Data structures and abstract data types
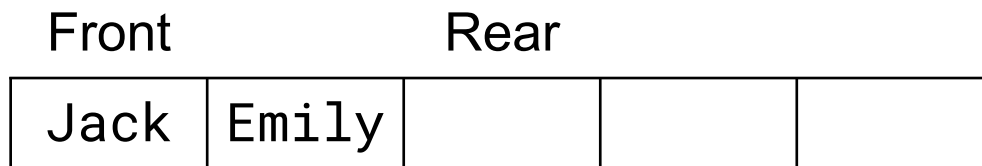
Flashcards

How many pointers do linear queues have?

How many pointers do linear queues have?

Two: front and rear

What would this **linear** queue look like after the operation `queue.dequeue()`?

Front   Rear

Jack	Emily			

What would this **linear** queue look like after the operation `queue.dequeue()`?

Front   Rear

	Emily			
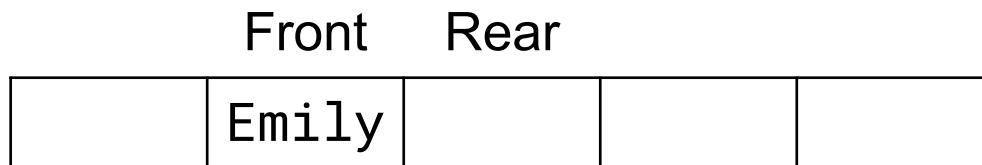
For what do the letters FIFO stand?

For what do the letters FIFO stand?

First in, first out

What data structure are queues based on?

What data structure are queues based on?

Arrays

Which abstract data structure operates on a FILO basis?

Which abstract data structure operates on a FILO basis?

Stacks

Define "Abstract data structure"

Define "Abstract data structure"

Data structures that don't exist as data structures in their own right but make use of other data structures to form a new way of storing data
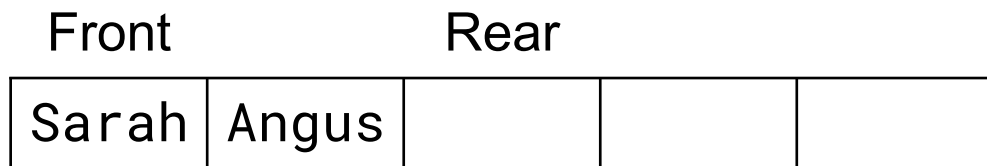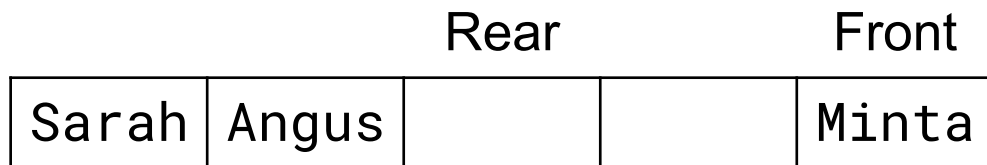
Define "array"

Define "array"

A finite, indexed set of related elements which have the same data type

What would this **circular** queue look like after the operation `queue.enqueue("Minta")`?

Front   Rear

Sarah	Angus			

What would this **circular** queue look like after the operation `queue.enqueue("Minta")`?

		Rear		Front
Sarah	Angus			Minta

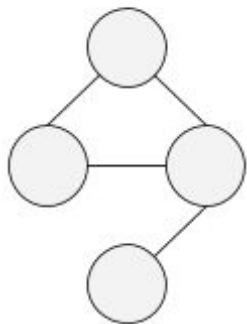If two items in a priority queue have the same priority, what order are they removed in?

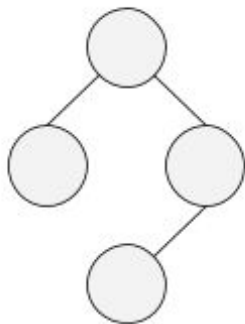If two items in a priority queue have the same priority, what order are they removed in?
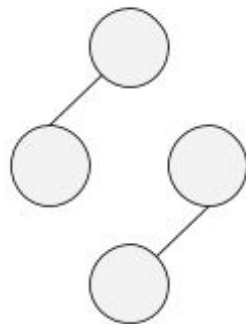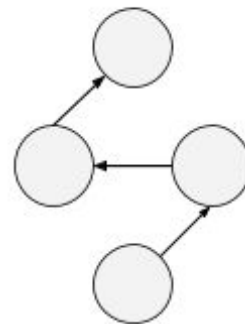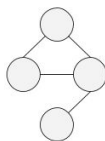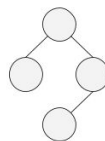
First in, first out

Which of the graphs is a tree?

A   B   C   D

Which of the graphs is a tree?

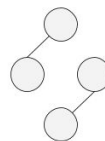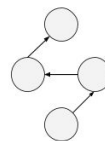A   B   C   D

B

a = [4, 5]
b = [5, 3]

What is a • b?

a = [4, 5]   b = [5, 3]   What is a • b?

(4×5) + (5×3) =

35

What is the name of the procedure that adds an item to a stack?

What is the name of the procedure that adds an item to a stack?

Push

What is the name of the procedure that removes an item from a stack?

What is the name of the procedure that removes an item from a stack?

Pop

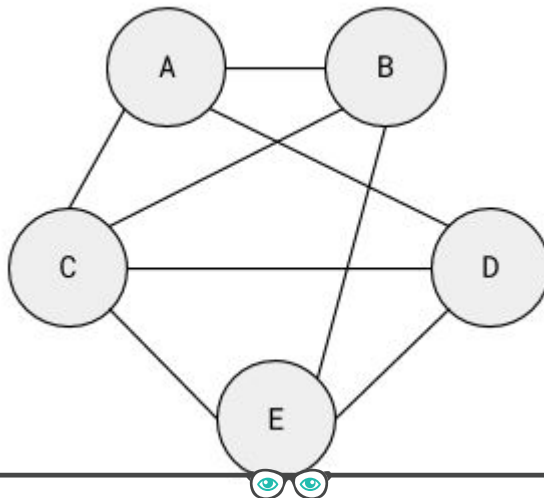# How many pointers do stacks have?

How many pointers do stacks have?
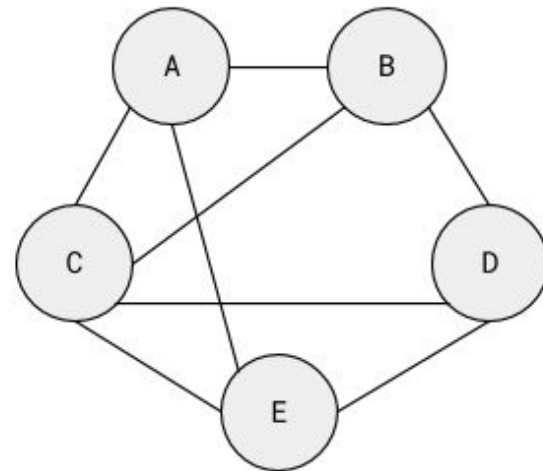
One: top

Which graph is represented by the adjacency list?

Graph 1   **Graph 2**

A B, C, D
B A, C, E
C A, B, D, E
D A, C, E
E B, C, D

Which graph is represented by the adjacency list?

Graph 1

Which are best suited to dense graphs: adjacency matrices or adjacency lists?

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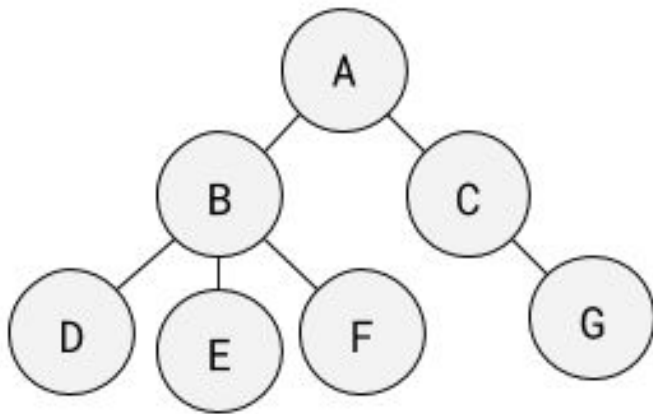
Adjacency matrices

What is meant by a tree?

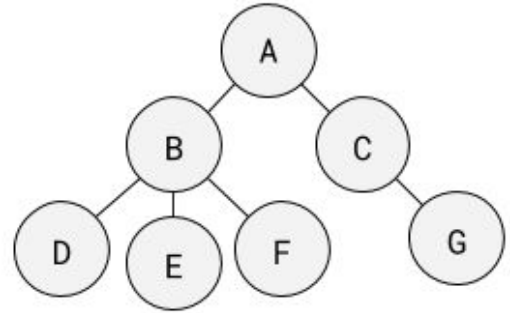What is meant by a tree?

A connected, undirected graph with no cycles

Which nodes are leaf nodes?

Which nodes are leaf nodes?

D, E, F & G

If viewed as a list of numbers, which data structure can represent a vector?

If viewed as a list of numbers, which data structure can represent a vector?

A one-dimensional array

What is said to occur when two values produce the same hash?

What is said to occur when two values produce the same hash?

A collision

What is a dictionary?

What is a dictionary?

A collection of key-value pairs

Which type of data structures are fixed in size?

Which type of data structures are fixed in size?

Static data structures

How is translation of vectors achieved?

How is translation of vectors achieved?

Vector addition