Queue

Data structures: Queue

- **Queue** is a data structure in which:
  - Items can be inserted only from one end.
  - Items can be taken only from the **different** end.

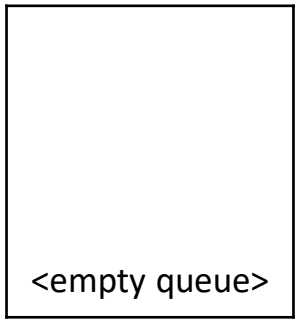
- The first inserted item is the first item to be taken.
  - First Input First Output [FIFO].

- Example:
  - Queue in markets.

Data structures: Queue Operations

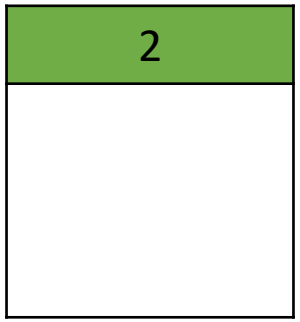
- **push:** Inserts item to the end of the queue. Time complexity is O(1).
- **pop:** Removes items from the front of queue. Time complexity is O(1).
- **front:** Returns front element of the queue. Time complexity is O(1).
- **empty:** Returns “true”, if queue is empty. Time complexity is O(1).
- **size:** Returns size of queue. Time complexity is O(1).

Data structures: Queue Example

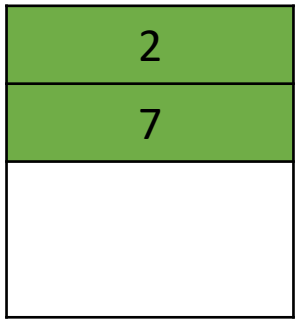


Data structures: Queue Example

push 2



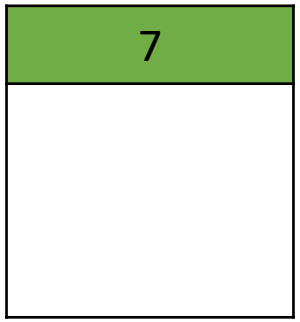
Data structures: Queue Example



push 2

push 7

Data structures: Queue Example

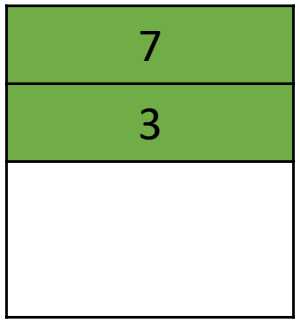


push 2

push 7

pop

Data structures: Queue Example



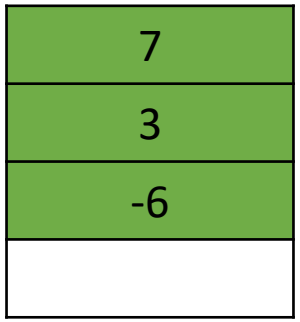
push 2

push 7

pop

push 3

Data structures: Queue Example



push 2

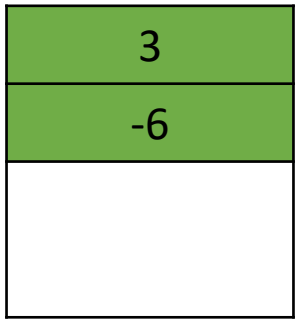
push 7

pop

push 3

push -6

Data structures: Queue Example



push 2

push 7

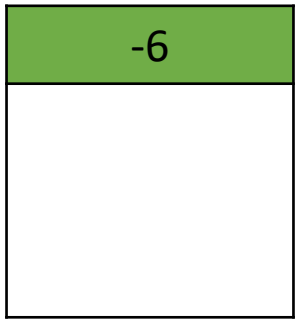
pop

push 3

push -6

pop

Data structures: Queue Example



push 2

push 7

pop

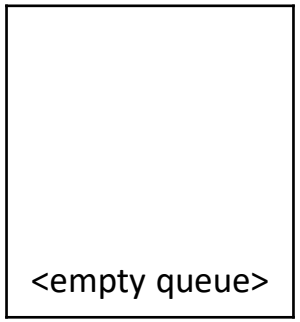
push 3

push -6

pop

pop

Data structures: Queue Example



push 2

push 7

pop

push 3

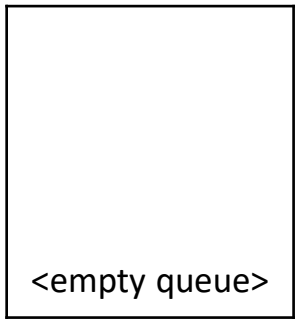
push -6

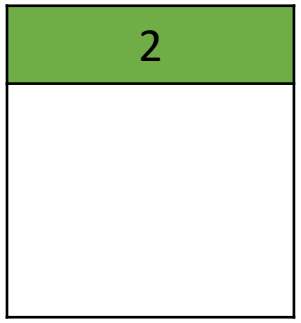
pop

pop

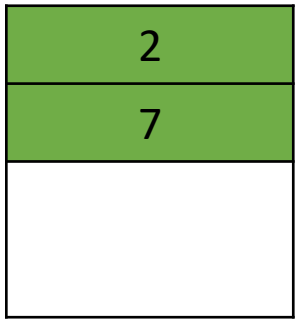
pop

Data structures: Queue Example

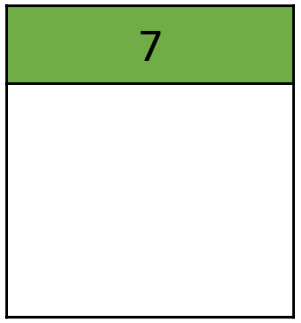




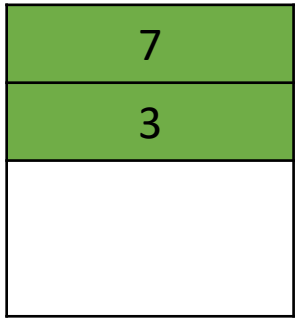
push 2



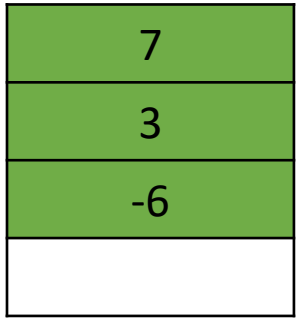
push 7



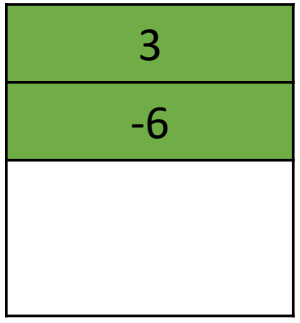
pop



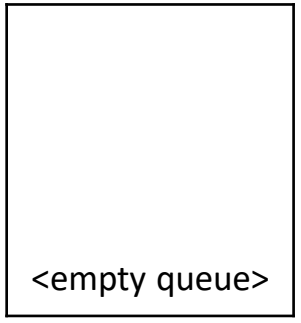
push 3



push -6



pop



pop
pop