

15-1 QUEUE

Sunday, June 5, 2022 9:55 AM

What is a Queue?

Queue is a data structure that stores items in a First-In/First-Out manner.

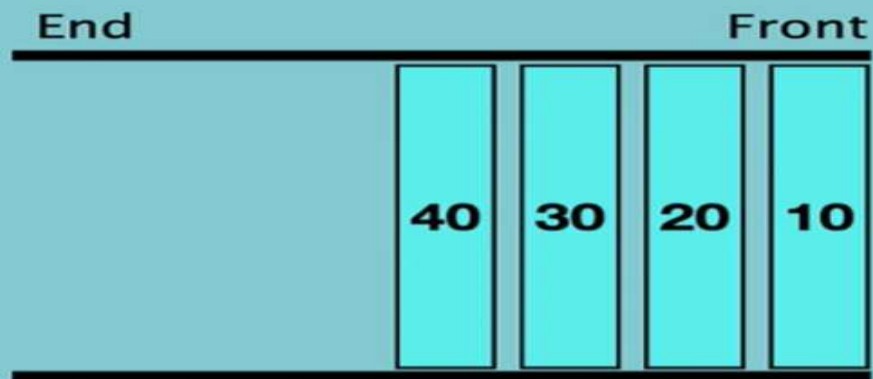


A new addition to this queue happens at the end of the queue.

First person in the queue will be served first

FIFO method - First in First Out





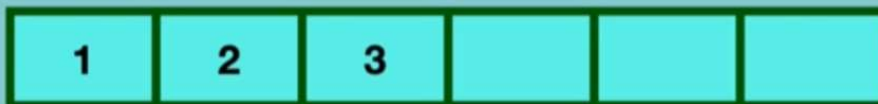
Queue Operations

- Create Queue
- Enqueue
- Dequeue
- Peek
- isEmpty
- isFull
- deleteQueue

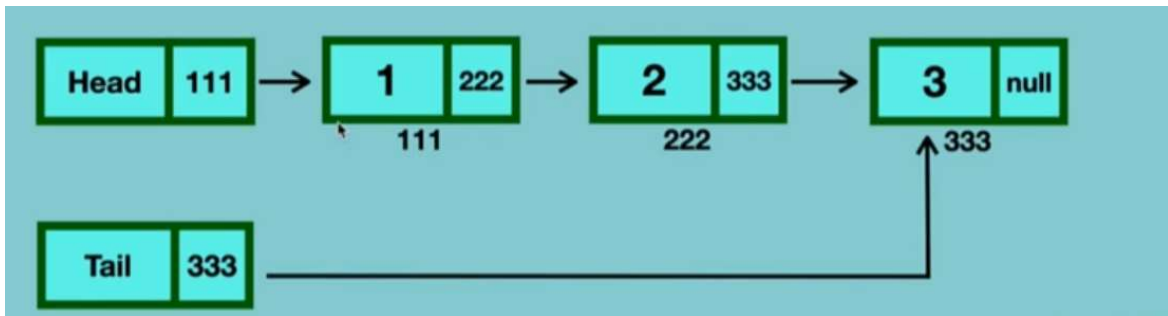
Queue Operations

Implementation

1. Python List
 - Queue without capacity
 - Queue with capacity (Circular Queue)
2. Linked List

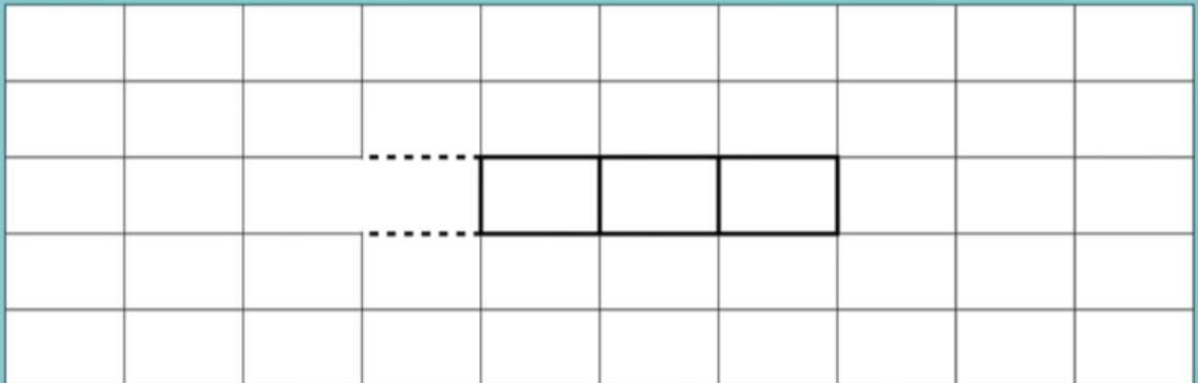


ENQUEUE WILL MEAN INSERT
DEQUEUE WILL MEAN REMOVE



Create Queue using Python List no capacity

```
customQueue = [ ]
```



INITIALIZE AN EMPTY LIST WITH AS MUCH ELEMENTS AS WE WANT NO MAXIMUM CAPACITY

Enqueue() = insert in the queue. WE CAN NOT INSERT WHERE WE WANT. ONLY AT THE END OF THE QUEUE

Enqueue() method

```
customQueue = [1]
```

```
customQueue.enqueue(1)
```

						1			

```
customQueue = [1,2,3,4]
```

```
customQueue.enqueue (4)
```

			4	3	2	1			

DEQUEUE = REMOVE AND RETURN THE FIRST ELEMENT OF THE QUEUE

Deque() method

`customQueue = [1,2,3,4]`

			4	3	2	1			

`customQueue = [2,3,4]`

`customQueue.dequeue()` → 1

			4	3	2				

customQueue = [3,4]

customQueue.dequeue() → 2

			4	3					

PEEK WILL RETURN THE FIRST ELEMENT WITHOUT REMOVING IT FROM THE QUEUE

Peek() method

customQueue = [1,2,3,4]

customQueue.peek() → 1

			4	3	2	1			

isEmpty() method

customQueue = [1,2,3,4]

customQueue.isEmpty() → False

			4	3	2	1			

isFull() method

customQueue = [1,2,3,4]

			4	3	2	1			