Queues

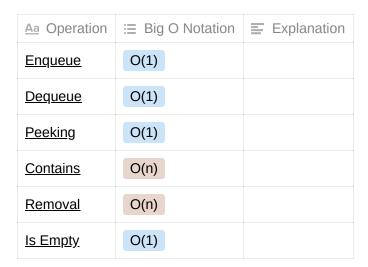
Overview

- A linear data structure that models real-world queues with enqueue and dequeue
 - Enqueue adding from the back (also adding or offering)
 - Dequeue removing from the front (also removing or polling)
 - FIFO

Why Use It?

- Used to model real-world queues
- Can be used to efficiently track the x most recently added elements
- FCFS for web server requests
- Breadth-first search (BFS) graph traversal

Big O Analysis



Code Implementation

Can be implemented using linked lists or arrays

• https://www.geeksforgeeks.org/queue-set-1introduction-and-array-implementation/

Techniques

Used for BFS

```
// Let Q be a Queue
Q.enqueue(starting_node)
starting_node.visited = True

while (!Q.isEmpty()):
   node = Q.dequeue()

for neighbour in neighbours(node):
   if (neighbour.visited == False):
        neighbour.visited = True
        Q.enqueue(neighbour)
```

Queues 2