Queue Data Structure

→ FIFO ⇒ First In first Out

↳ Queue in a Railway Station

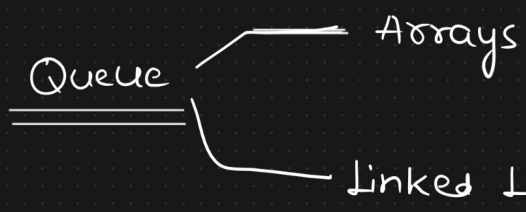
front → Deletion

Rear → Insertion

(Abstract Data Type)

ADT → 1) Enqueue → Insertion of element

2) Dequeue → Deletion of element



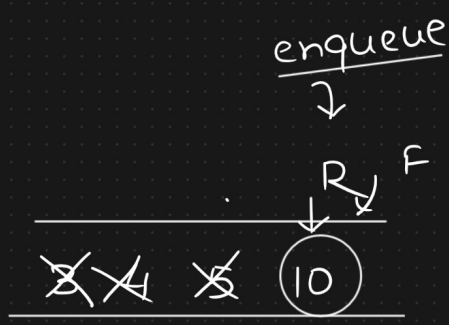
Psuedocode (Enqueue)

⇒ f = R = -1 → Queue is empty

```
Enqueue(Q, data):                    # Queue is fully filled
    if (R == n-1):
        print('Queue overflow')
    elif(f == R == -1):              # Queue is empty
        f += 1
        R += 1
        Q[R] = data
    else:
        R += 1
        Q[R] = data
```

O(1) ↓ constant

FIFO



O(1)

⇓

constant time complexity

```
Dequeue(Q):
    if (f = R = = -1)          ← Queue is empty
        print('Queue underflow')
    elif f = = R:              ← Queue single element
        f = R = -1
    else:
        data = Q[f]
        f = f + 1
    return data
```