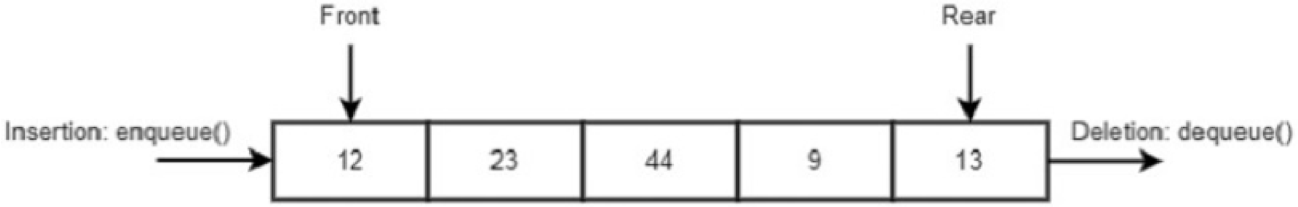
Queues

What is Queue?

- A linear data structure where elements are stored in the FIFO (First In First Out) principle



Operations

- Enqueue (Insertion)
- Algorithm

```
1. If count == queue_size, return "Queue Overflow"
2. If front == -1, set front = 0 (initial condition)
3. Set rear = (rear + 1) % queue_size
4. Set queue[rear] = value
5. Increment count by 1
```

E	b	c	d

Q_s=4

Count=0 ,1,2,3

Front=-1,0

Rear=-1 (-1+1)%4 =0   (0+1)%4=1, 1+1)%4=2, 2+1)%4=3, 3+1)%4

Operations

- Dequeue (Deletion)
- Algorithm

```
1. If count == 0, return "Queue Underflow"
2. Store queue[front] in a variable (optional, for returning)
3. Set front = (front + 1) % queue_size
4. Decrement count by 1
5. If count == 0, set front = rear = -1 (queue is now empty)
```