Queue:

- **Queue** ek data structure hai jo data ko First-In-First-Out (FIFO) order mein store karta hai, matlab pehla jo data aaya woh pehle nikalta hai.
- Jaise ke aap line mein khade hokar wait karte hain, wahi ek queue hoti hai jahan se pehle aaya hua shakhs pehle bahar nikalta hai.

Queue ke basic operations:

1. **Enqueue (Daalna):** Naya element queue mein daalna.
2. **Dequeue (Nikaalna):** Pehla element queue se nikaalna.
3. **Front:** Pehla element dekhna bina usse nikale.
4. **Rear (Ya Tail):** Akhri element dekhna bina usse nikale.
5. **Ismpty:** Queue khali hai ya nahi check karna.
6. **Isfull:** Queue bhar gayi hai ya nahi check karna.

Queue with Arrays in Java:

```
public class Queue {
private int maxSize;
private int[] queueArray;
private int front;
private int rear;
private int nItems;

public Queue(int size) {
   maxSize = size;
   queueArray = new int[maxSize];
   front = 0;
   rear = -1;
   nItems = 0;
}

public void enqueue(int value) {
   if (rear == maxSize - 1) {
      rear = -1; // Circular queue, agar end tak pohanch gaye toh start se continue karein
   }
   queueArray[++rear] = value;
   nItems++;
}

public int dequeue() {
   int temp = queueArray[front++];
   if (front == maxSize) {
      front = 0; // Circular queue, agar end tak pohanch gaye toh start se continue karein
```

```
        }
        nItems--;
        return temp;
    }

    public int peekFront() {
        return queueArray[front];
    }

    public boolean isEmpty() {
        return (nItems == 0);
    }

    public boolean isFull() {
        return (nItems == maxSize);
    }
}
```

Queue ka Istemaal:

```
public class QueueExample {
    public static void main(String[] args) {
        Queue myQueue = new Queue(5);

        myQueue.enqueue(10);
        myQueue.enqueue(20);
        myQueue.enqueue(30);

        System.out.println("Front element: " + myQueue.peekFront());

        myQueue.dequeue();
        myQueue.dequeue();

        myQueue.enqueue(40);
        myQueue.enqueue(50);

        while (!myQueue.isEmpty()) {
            System.out.print(myQueue.dequeue() + " ");
        }
    }
}
```

Samajhne ke liye:

- Enqueue: Line mein kisi ko daalna.
- Dequeue: Line se pehla shakhs nikalna.
- Front: Line ka pehla shakhs dekhna bina nikale.
- Rear: Line ka akhri shakhs dekhna bina nikale.

Yeh code, ek virtual line ki tarah hai jahan se log aate hain (enqueue) aur nikal jaate hain (dequeue) pehle aaye pehle gaye k taur par.