DSA in JavaScript - Traversal, Insertion, Deletion (Deep Understanding)

Traversal (Traverse)

Matlab: Array ke har element ko access karna.

- Simple for loop ya while loop se.

- Har index ka data print ya access karna.

Example:

```
let arr = [10, 20, 30, 40];

for (let i = 0; i < arr.length; i++) {

console.log(i, arr[i]);

}
```

Insertion (Add Data)

Matlab: Array mein naye elements add karna.

- End mein add karna => push()

- Start mein add karna => unshift()

- Specific index par add karna => splice()

- New array create karke add karna => concat()

Examples:

```
let arr = [10, 20, 30];

// push
```

```
arr.push(40);  // [10, 20, 30, 40]
```

```
// unshift
```

```
arr.unshift(5);  // [5, 10, 20, 30, 40]
```

```
// splice (specific index par)
```

```
arr.splice(2, 0, 15);  // [5, 10, 15, 20, 30, 40]
```

```
// concat
```

```
let newArr = arr.concat(50); // [5, 10, 15, 20, 30, 40, 50]
```

Deletion (Remove Data)

Matlab: Array se elements hataana.

- End se remove => pop()

- Start se remove => shift()

- Specific index se remove => splice()

Examples:

```
let arr = [5, 10, 15, 20, 30, 40, 50];
```

```
// pop
```

```
arr.pop();  // [5, 10, 15, 20, 30, 40]
```

```
// shift
```

```
arr.shift();  // [10, 15, 20, 30, 40]
```

```
// splice (index 2 se ek element hatao)

arr.splice(2, 1);  // [10, 15, 30, 40]
```