JavaScript – Lecture 2: Loops, Arrays, Objects & More

Loops

JavaScript supports 3 main types of loops:

1. for loop:

```
for (let i = 0; i < 10; i++) {

console.log(i);

}
```

2. while loop:

```
let i = 0;

while (i < 10) {

console.log(i);

i++;

}
```

3. do...while loop:

```
let i = 0;

do {

console.log(i);

i++;

} while (i < 10);
```

Flow Control Keywords

- ***break:*** exits the loop immediately.

- ***continue:*** skips the current iteration and continues with the next.

Array and Object

Array: Ordered list of elements.

Example:

let arr = [1, "text", true];

Object: Key-value pairs.

Example:

let product = {

name: "Product1",

price: 100,

available: true

};

Array Methods

- ***push() / pop():*** add/remove from end

- ***unshift() / shift():*** add/remove from start

- ***concat():*** merge arrays

- ***splice():*** add/remove/replace items

- ***join():*** convert to string with separator

- ***indexOf() / lastIndexOf():*** find element position

- ***includes():*** checks existence

- ***sort() / reverse():*** sort or reverse order

Spread Operator

- Used to copy/merge arrays or objects.

Example:

let arr1 = [1,2];

let arr2 = [...arr1, 3, 4];

For in / For of Loops

- for...in: loops over keys (used with objects).

- for...of: loops over values (used with arrays).

Example:

for (let key in obj) { console.log(obj[key]); }

for (let val of arr) { console.log(val); }

String Methods

- trim(): remove spaces from both sides

- toLowerCase(), toUpperCase()

- indexOf(), lastIndexOf()

- slice(start, end)

- concat(), replace(), replaceAll()

- padStart(), padEnd()

- split(), charAt(), at()

Math Object

- Math.round(), Math.ceil(), Math.floor()

- Math.random(): generates number between 0 and 1

*- Math.floor(Math.random()*10):* random between 0-9

*- Math.floor(Math.random() * (max - min) + min):* random between min and max

Functions (User Defined)

function greet(name) {

```
console.log("Hello " + name);

}

greet("Eman");
```

Array Iteration Methods

- *forEach():* executes a function for each array item

- *map():* creates a new array by transforming items

- *filter():* filters items based on condition

- *reduce():* reduces array to single value

Example:

```
arr.forEach((item) => console.log(item));
```