Web Programming II

Lecture 4

Conditional Statements &
Loops in JavaScript

By

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Objectives

By the end of this lecture, you will learn:

- How to use conditional statements (if, else, switch)

- How to write loops (for, while, do-while)

- The difference between different loop types

- When to use break and continue

Conditional Statements in JavaScript

- What are Conditional Statements?

- **Definition:** Conditional statements allow the program to make decisions based on conditions.

- **Example:**

```
if (age >= 18) {
    console.log("You are an adult.");
} else {
    console.log("You are a minor.");
}
```

if Statement

Syntax:

```
if (condition) {
    // Code executes if condition is true
}
```

Example:

```
let temperature = 30;
if (temperature > 25) {
    console.log("It's hot outside!");
}
```

if...else Statement

Syntax:

```
if (condition) {
    // Executes if condition is true
} else {
    // Executes if condition is false
}
```

if...else Statement

Example:

```
let age = 20;
if (age >= 18) {
    console.log("You can vote.");
} else {
    console.log("You cannot vote.");
}
```

if...else if...else Statement

Syntax:

```
if (condition1) {
    // Executes if condition1 is true
} else if (condition2) {
    // Executes if condition2 is true
} else {
    // Executes if none of the conditions are true
}
```

if...else if...else Statement

Example:

```
let score = 85;
if (score >= 90) {
    console.log("Grade: A");
} else if (score >= 80) {
    console.log("Grade: B");
} else {
    console.log("Grade: C or below");
}
```

switch Statement

- Used when checking multiple values of the same variable.
- **Syntax:**

```
switch (expression) {
    case value1:
        // Code to execute
        break;
    case value2:
        // Code to execute
        break;
    default:
        // Code to execute if no cases match
}
```

switch Statement

- Used when checking multiple values of the same variable.
- **Example:**

```
let day = "Monday";
switch (day) {
    case "Monday":
        console.log("Start of the week!");
        break;
    case "Friday":
        console.log("Weekend is near!");
        break;
    default:
        console.log("It's a regular day.");
}
```

Loops in JavaScript

- What are Loops?
- **Definition:** Loops allow executing a block of code multiple times.
- **Types of loops:**
    1) **for loop**
    2) **while loop**
    3) **do…while loop**

for Loop

- Syntax:

  for (initialization; condition; update) {

  *   // Code executes repeatedly*

  }

- Example:

  for (let i = 1; i <= 5; i++) {

  *   console.log("Iteration:", i);*

  }

Output:

Iteration: 1
Iteration: 2
Iteration: 3
Iteration: 4
Iteration: 5

while Loop

- **Syntax:**

while (condition) {
    // Code executes as long as condition is true
}

- **Example:**

```
let count = 1;
while (count <= 5) {
    console.log("Count:", count);
    count++;
}
```

do...while Loop

- **Syntax:**

```
do {
    // Code executes at least once
} while (condition);
```

- **Example:**

```
let num = 1;
do {
    console.log("Number:", num);
    num++;
} while (num <= 5);
```

Note: do...while ensures that the code runs at least once before checking the condition.

break and *continue*

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

- **continue**: Skips the current iteration and moves to the next one.

- Example of break:

```
for (let i = 1; i <= 5; i++) {
    if (i === 3) break;
    console.log(i);
}
// Output: 1, 2 (loop stops at 3)
```

break and *continue*

- Example of continue:

```
for (let i = 1; i <= 5; i++) {
    if (i === 3) continue;
    console.log(i);
}
// Output: 1, 2, 4, 5 (skips 3)
```

Exercise 1 – Using if...else

- **Task**: Write a program that checks if a number is positive, negative, or zero using if...else.

- Example Solution:

```
let num = -5;
if (num > 0) {
    console.log("Positive number");
} else if (num < 0) {
    console.log("Negative number");
} else {
    console.log("Zero");
}
```

Exercise 2 – Using for Loop

- **Task**: Write a for loop that prints numbers from 1 to 10.
- Example Solution:

```
for (let i = 1; i <= 10; i++) {
    console.log(i);
}
```

Student Assignment

Write a program that prints numbers from 1 to 20 but skips numbers divisible by 3 using continue.

Any Questions?