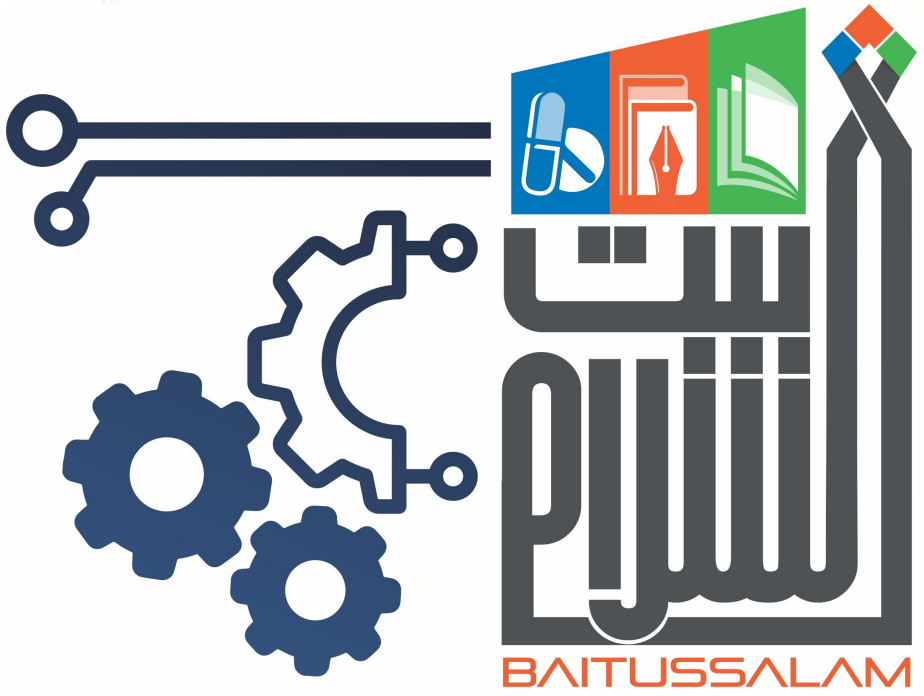

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JavaScript Control Flow and Loops

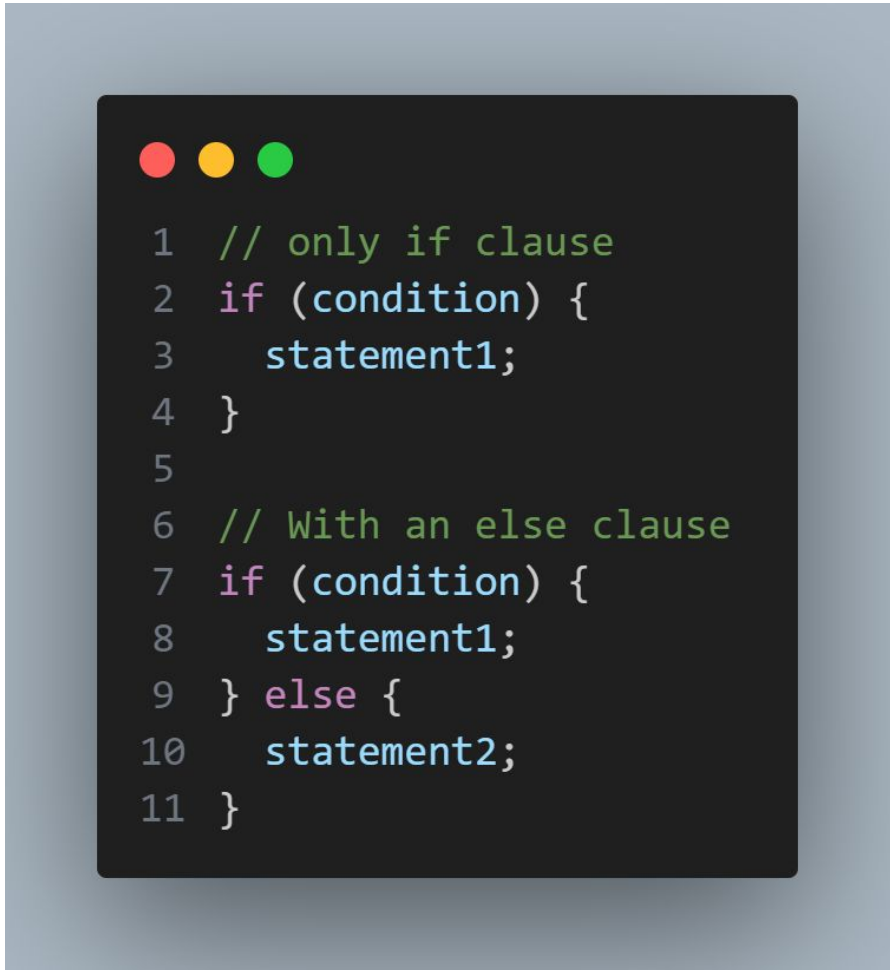
Control Flow

Control flow in JavaScript is about the order in which things happen in a program. It's like following directions: you decide what to do next based on different situations.

If else conditions

The JavaScript if...else statement is used to execute/skip a block of code based on a condition.

If else syntax



```
// only if clause
if (condition) {
  statement1;
}

// With an else clause
if (condition) {
  statement1;
} else {
  statement2;
}
```

Truthy and Falsy Values

Truthy values in JavaScript are things that are considered true when evaluated in a Boolean context, like a simple "yes." For example, any number that's not zero, any non-empty string, and any object are truthy.

Falsy values are things that are considered false when evaluated in a Boolean context, like a simple "no." For example, zero, an empty string, null, undefined, and NaN are falsy.

falsy values list in Javascript

1. *false*: The boolean value false
2. *0*: The number zero.
3. *-0*: Negative zero.
4. *0n*: BigInt zero.
5. *""* (empty string): An empty string.
6. *null*: A null value
7. *undefined*: An undefined value.
8. *NaN*: Not-a-Number.

Conditions Exercise 01

1. Create a code snippet to check user status

create a variable with boolean to check if user is logged in or not

create a variable with boolean to check if user is pro subsciber or not

if user is not logged in, console.log please login first to see the data.

if user is logged in but not a pro subscriber, console.log “Here is your data, consider subscribe to get access to pro features.

if user is logged in and pro subscriber, console.log Thanks, you are are a pro subscriber.

Conditions Exercise 02

2. Create a marksheet and assign a user grade based on his percentage

if percentage greater than equals to 90 ⇒ A Grade

if percentage greater than equals to 80 ⇒ B Grade

if percentage greater than equals to 70 ⇒ C Grade

if percentage greater than equals to 60 ⇒ D Grade

if percentage less than 60 ⇒ F Grade

There should be a better way to handle multiple conditions

Introducing Switch Statements

Javascript Switch Statement

The JavaScript switch...case statement executes different blocks of code based on the value of a given expression.

Syntax of the switch...case Statement

app.js > ...

```
switch (expression) {

  case value1:
      // code block to be executed
      // if expression matches value1
      break;

  case value2:
      // code block to be executed
      // if expression matches value2
      break;

  ...

  default:
      // code block to be executed
      // if expression doesn't match any case
}
```

app.js > ...

```
let trafficLight = "green";
let message = "";

switch (trafficLight) {
  case "red":
    message = "Stop immediately.";
    break;
  case "yellow":
    message = "Prepare to stop.";
    break;
  case "green":
    message = "Proceed or continue driving.";
    break;
  default:
    message = "Invalid traffic light color.";
}

console.log(message);

// Output: Proceed or continue driving.
```

Switch Statement Exercise 01

1. As a user, I want to set an alarm for different days of the week.

Create a variable day of week

if day of week is saturday, or sunday console a message “wake up at 10am”

if day of week is monday, console a message “wake up at 8am”

if day of week is tuesday, or wednesday console a message “wake up at 9am”

if day of week is thurday, console a message “wake up at 9.30am”

if day of week is friday, console a message “wake up at 8.30am”

default console a message No alarm set for this day

Javascript Loops

Loops are used to execute a block of code multiple times

For Loop Syntax

app.js

```
1  for (initialExpression; condition; updateExpression) {
2    // for loop body
3  }
4
```

How does for loop works in Javascript

- Initialization: The starting point of the loop.
- Condition: The loop continues executing as long as this condition is true.
- Increment/Decrement: How the loop variable changes after each iteration.

For Loop Exercises

- Print numbers from 1 to 20
- Console the sum of n Natural Numbers (n is a variable)
- Print from 20 to 1 in reverse order
- Print all even numbers from 1 to 40 but not the number who are divisible by 5

Break and Continue in for loop

`break`:

`break` is a keyword used in loops to immediately stop the loop's execution.

`continue`:

`continue` is a keyword used in loops to skip the current iteration and proceed to the next one.

Javascript for loop Exercise 01

Track the loop progress

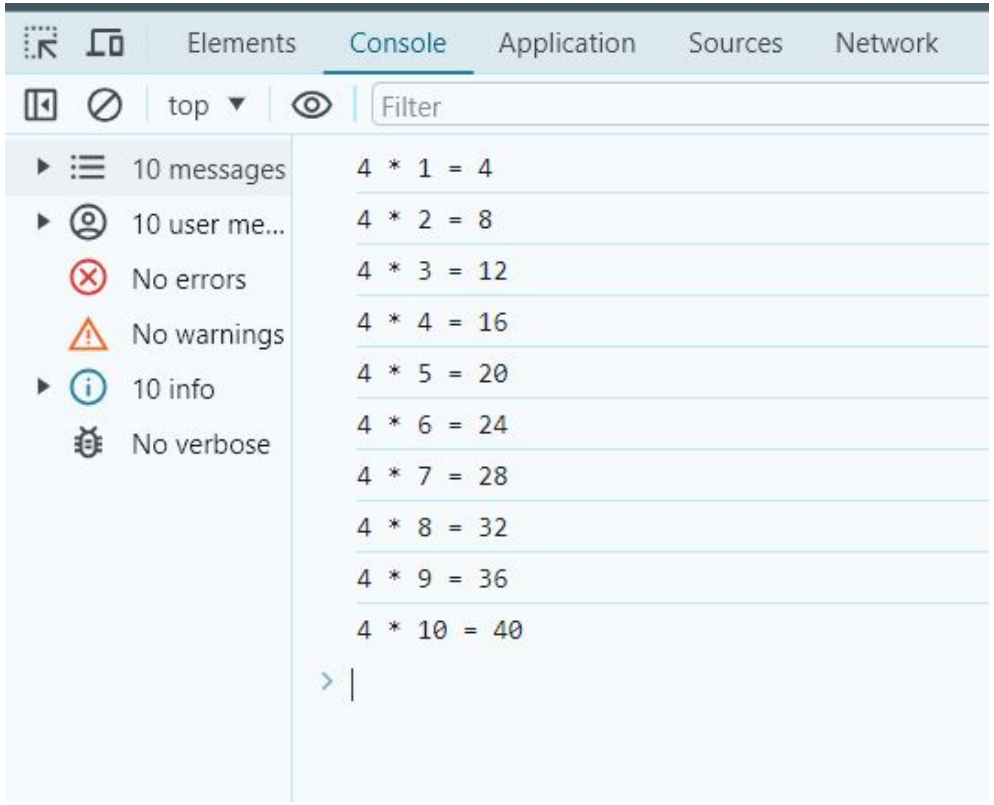
1. Create a for loop that runs from 1-100
2. Every 10 loops, print out: Checkpoint! and the loop number
3. On loop 50 print out ONLY: Half way there!
4. On the final loop (100) print out ONLY: You made it!
5. AFTER the loop is done, print out: All, done!

```
You should see this printed out when run:
Checkpoint! 10
Checkpoint! 20
Checkpoint! 30
Checkpoint! 40
Half way there!
Checkpoint! 60
Checkpoint! 70
Checkpoint! 80
Checkpoint! 90
You made it!
All, done!
```

Javascript for loop Exercise 02

Print the multiplication table of a given number (represented by the variable 'n') from 1 to 10 using a JavaScript for loop.

The output should look like this;



Javascript while loop

The while statement creates a loop that executes a specified statement as long as the test condition evaluates to true.

While loop syntax

```
while (condition) {
    // body of loop
}
```

Where to use `for loop` and where to use `while loop`

Use `for loops` when you know exactly how many times you want to repeat a block of code.

Use `while loops` when you don't know how many times you need to repeat the code.

While Loop Exercise 01

app.js > ...

```
let guess = 0;
let target = Math.floor(Math.random() * 10) + 1; // Generate random number between 1 and 10

while (guess !== target) {
  guess = parseInt(prompt("Guess a number between 1 and 10:"));
  if (guess === target) {
    console.log("You guessed it!");
  } else if (guess > target) {
    console.log("Too high! Guess again.");
  } else {
    console.log("Too low! Guess again.");
  }
}
```

The End

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