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Web Engineering Front-end Pt. 3

5. JavaScript: Conditions

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Revision

Comparison operators

- Comparison operators are used to compare values and either return True or False (a Boolean).

Common comparison operators:

==, ===, !=, !==, >, >=, <, <=

Logical operators

- Logical operators can be used to connect two or more expressions so that the result depends on the combined expression.

Logical operators:

AND (&&), OR (||), NOT(!)

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5.1 Conditional Statements

What are conditional statements?

In programming, you will often want to perform different actions based on different situations.

What are conditional statements?

Just like how you would make decisions in your everyday life.

e.g.

“It’s raining, so I’m bringing an umbrella.”

What are conditional statements?

“Raining” is the condition, and “bringing an umbrella” is the action you take because of it.

What are conditional statements?

Conditional statements allow us to decide whether or not to execute a block of code based on a given condition.

Brainstorm: Decision making

Think of some decisions you have made today and what caused you to make those decisions.

5.2 if statements

if statement

We can use the if statement to specify a block of code to be executed if the condition is True.

if statement pseudocode

```
if (raining) {
   bring umbrella
}
```

if statement syntax

To use an if statement, we need to specify the condition to be fulfilled and the code to be executed if the condition returns True.

if statement syntax

```
if (condition) {
  // code to be executed if true
}
```

if statement syntax

```
if (score >= 40) {
   result = “pass”;
}
```

if statement syntax

```
var score = 55;
if (score >= 40) {
   result = “pass”;
}
result; // “pass”
```

Practice: if statements

Try writing some of your own if statements based on the first exercise.

5.3 else statements

else statement

```
var score = 30;
if (score >= 40) {
   result = “pass”;
}
result; // undefined
```

else statement

Often, we will also need to specify the code to be executed if the condition returns as False.

else statement syntax

```
if (condition) {
  // code to be executed if true
} else {
  // code to be executed if false
}
```

else statement example

```
if (score >= 40) {
   result = “pass”;
} else {
   result = “fail”;
}
```

else statement example

```
var score = 70;
if (score >= 40) {
  result = “pass”;
} else {
  result = “fail”;
}
result; // “pass”;
```

else statement example

```
var score = 25;
if (score >= 40) {
  result = “pass”;
} else {
  result = “fail”;
}
result; // “fail”;
```

else statement example

Why can’t we just use this instead of else?

```
if (score >= 40) {
   result = “pass”;
}
result = “fail”;
```

Practice: else statements

Try adding else statements to the examples you wrote in the previous exercise.

5.4 else-if statements

else-if statement

We can use else-if statements to specify a new condition if the first one fails.

else-if statement syntax

```
if (condition1) {
  // code to be executed if condition 1 is true
} else if (condition2) {
  // code to be executed if condition 2 is true
} else {
  // code to be executed if both conditions are false
}
```

else-if statement example

```
if (score >= 40) {
   result = “pass”;
} else if (score == “absent” && doctorsNote == true) {
   result = “exempt”;
} else {
   result = “fail”;
}
```

else-if statement example

```
var score = “absent”;
var doctorsNote = true;
if (score >= 40) {
   result = “pass”;
} else if (score == “absent” && doctorsNote == true) {
   result = “exempt”;
} else {
   result = “fail”;
}
result; // “exempt”
```

else-if statement example

```
var score = “absent”;
var doctorsNote = false;
if (score >= 40) {
  result = “pass”;
} else if (score == “absent” && doctorsNote == true) {
  result = “exempt”;
} else {
  result = “fail”;
}
result; // “fail”
```

else-if statement

You can also have multiple else-if statements, as long as they are between if and else statements.

else-if statement example

```
if (score >= 80) {
  result = “merit”;
} else if (score >= 40) {
  result = “pass”;
} else if (score == “absent” && doctorsNote == true {
  result = “exempt”;
} else {
  result = “fail”;
}
```

Practice: else-if statements

Add 1 or more alternate conditions to the examples you wrote in the previous exercise.

5.5 switch statements

switch statement

switch statements are an alternate way to write conditional statements.

switch statement example

```
switch (expression) {
  case x:
    // code to be executed if the result of expression equals x
    break; // break is used to stop other cases from being executed if the current one is a match
  case y:
    // code to be executed if the result of expression equals y
    break;
  default:
    // code to be executed if the result of expression does not match any of the cases
    // break is not necessary in the last case
}
```

switch statement example

```
switch (day) {
  case “Monday”:
  case “Tuesday”:
  case “Wednesday”:
  case “Thursday”:
  case “Friday”:
    weekend = false;
    break;
  case “Saturday”:
  case “Sunday”:
    weekend = true;
}
```

switch statement example

```
var day = “Friday”
switch (day) {
   case “Monday”:
   case “Tuesday”:
   case “Wednesday”:
   case “Thursday”:
   case “Friday”:
      weekend = false;
      break;
   case “Saturday”:
   case “Sunday”:
      weekend = true;
}
weekend; // false
```

if-else alternative

```
if (day == “Monday” || day == “Tuesday” || day == “Wednesday” || day == “Thursday” || day == “Friday”) {
   weekday = false;
} else if (day == “Saturday” || day == “Sunday”) {
   weekday = true;
}
```

switch statement

switch picks code to execute depending on a value, while if-else is a series of Boolean checks. They are generally interchangeable.

Practice: switch statements

Try rewriting the examples from the previous exercise using switch statements. Which do you prefer?

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The End

Reference 1: W3 Schools JavaScript Tutorial https://www.w3schools.com/js/default.asp

Reference 2: MDN JavaScript reference

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference