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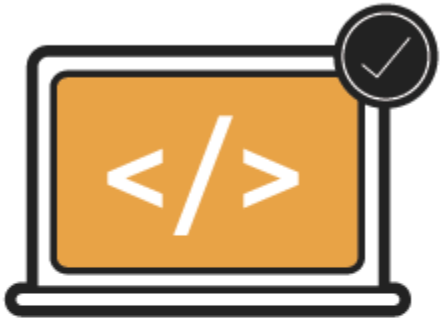

FRONT END WEB DEVELOPMENT FUNDAMENTALS

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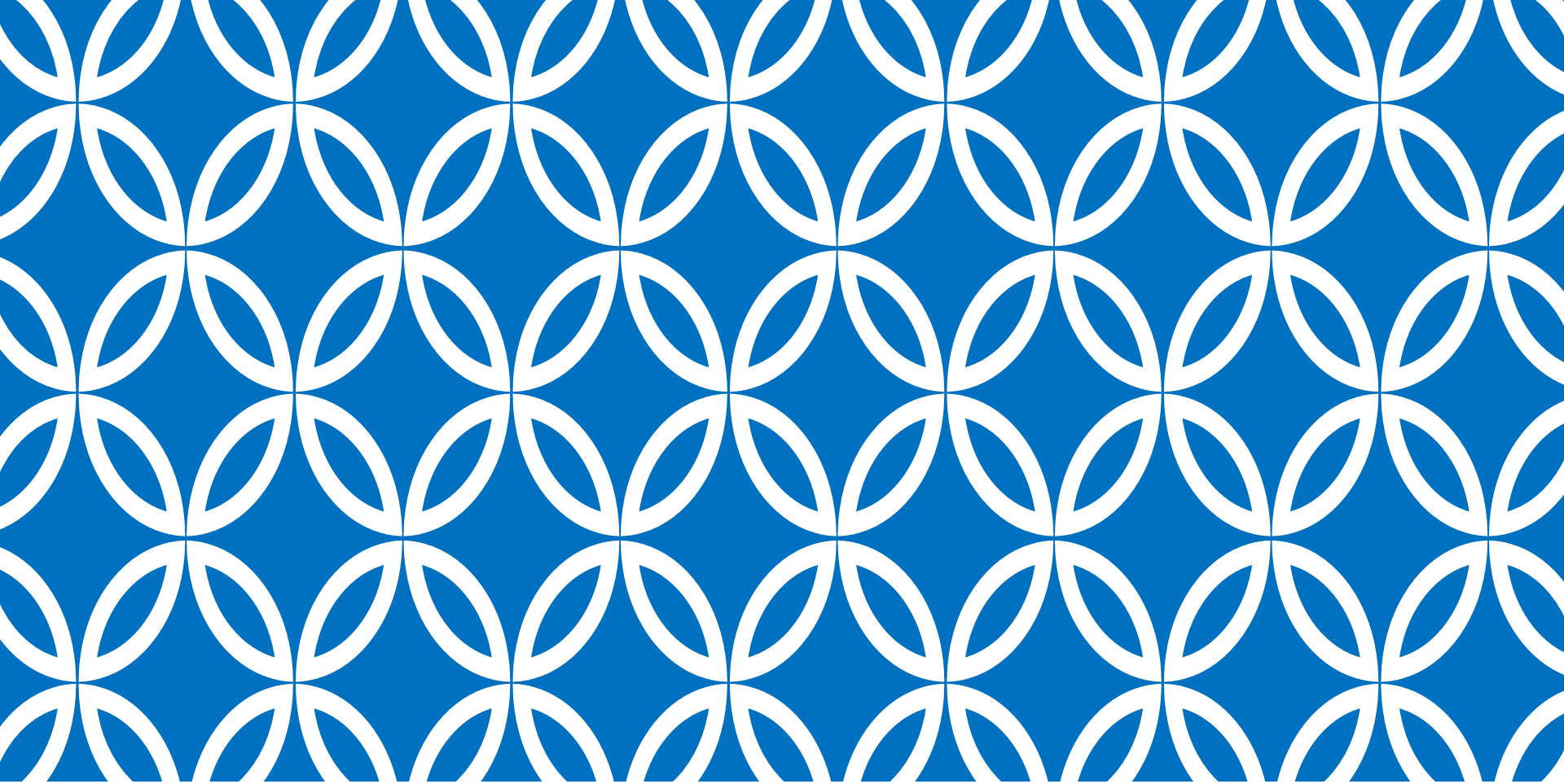

Session 6 – JavaScript

Agenda – JavaScript

Sl No	Agenda Title
1	JavaScript Identifiers
2	JavaScript Keywords
3	Conditionals
4	if Statement
5	if…else Statement
6	else if Statement
7	if/if…else Statement
8	switch Statement
9	Looping Statement

Sl No	Agenda Title
10	for Loop
11	for-in Loop
12	while Loop
13	do while Loop
14	function
15	Accessing Unnamed Arguments
16	Scope
17	Debugging in JavaScript

JavaScript Identifiers

- **Identifiers** are used to name variables, keywords, functions and labels.
- The rules for legal names are much the same in most programming languages.
- **Rules:**
  - First character must be a letter, an underscore (_), or a dollar sign ($).
  - Subsequent characters may be letters, digits, underscores, or dollar sign.
  - Numbers are not allowed as the first character.
  - Reserved words (like JavaScript keywords) cannot be used as names.
- All JavaScript identifiers are **case sensitive**.
- **Hyphens are not allowed** in JavaScript. *It is reserved for subtractions.*

JavaScript Keywords

- **JavaScript** keywords are reserved words.
- *Reserved words cannot be used as names for variables.*

Keywords	Description
break	Terminates a switch or a loop
continue	Jumps out of a loop and starts at the top of the loop
debugger	Stops the execution of JavaScript and calls (if available) the debugging function
do…while	Executes a block of statements, and repeats the block, while a condition is true
for	Marks a block of statements to be executed, as long as a condition is true
function	Declares a function
if…else	Marks a block of statements to be executed, depending on a condition
return	Exits a function
switch	Marks a block of statements to be executed, depending on different cases
try…catch	Implements error handling to a block of statements
var	Declares a variable

Conditionals

- **Conditionals** are code structures that allow you to test whether an expression returns true or not, and then run different code depending on the result. These are:
  - “if” statement
  - “if … else” statement
  - “else if” statement
  - “if/if … else” statement
  - “switch” statement

if Statement

- It is the main conditional statement in JavaScript.
- The keyword “if” always appears in lowercase.
- The condition yields a logical true or false value.
- If the condition is true then statements are executed.

Syntax : if (condition) { statements; }

if...else Statement

- You can include an “else” clause in an if statement when you want to execute some statements in case the condition is false.
- In other words, else statement is used to specify a block of code to be executed if the condition is false.

Syntax :

```
if (condition) { statements; }
else { statements; }
```

else if Statement

- Allows you to test for multiple expression for one true value and executes a particular block of code.
- else if statement is used to specify a new condition if the first condition is false.

Syntax:

```
if (condition) { statement; }
   else if (condition) { statement; }
        else { statement; }
```

if/if ... else statement

Syntax :

```
if (condition) {
        if (condition) { statements; }
        else { statements; }
 }
```

switch Statement

- Allows you to merge several evaluation tests of the same variable into a single block of statements.
- The **switch** statement is used to perform different actions based on different conditions.

Syntax:

```
switch (expression) {
        case label1:
                statements; break;
        default:
                statements;
}
```

Looping Statement

- Loops let you execute a block of code certain number of times.
- **Types:**
  - for” Loops
  - “for/in” Loops
  - “while” Loops
  - “do … while” Loops

for Loop

- One of the most used and familiar loops is “for loop”.
- It iterates through a sequence of statements for a number of times controlled by a condition.
- The change_exp determines how much has been added or subtracted from the counter variable.

Syntax :

```
for (initial_expression; test_exp; change_exp)
{  statements;  }
```

for–in Loop

- When the for/in statement is used, the counter and termination are determined by the length of the object.
- The statement begins with 0 as the initial value of the counter variable, terminates with all the properties of the objects have been exhausted.
  - E.g. array → no more elements found

Syntax :

```
for (counter_variable in object)
{ statements; }
```

while Loop

- The **while loop** begins with a termination condition and keeps looping until the termination condition is met.
- The counter variable is managed by the context of the statements inside the curly braces.

Syntax :

initial value declaration;

```
while (condition) {
        statements;
        increment/decrement statement;
}
```

do while loop

- The **do/while** loop always executes statements in the loop in the first iteration of the loop.
- The termination condition is placed at the bottom of the loop.

Syntax :

initial value declaration;

```
while (condition) {
        statements;
        increment/decrement statement;
}
```

function

- A **JavaScript** function is a block of code designed to perform a particular task.
- A **JavaScript** function is executed when "something" invokes it (calls it).
- A **JavaScript** function is defined with the **function** keyword, followed by a **name** and then followed by parentheses **()**.
- Function names can contain letters, digits, underscores, and dollar signs (same rules as variables).
- The parentheses may include parameter names separated by commas: **(*parameter1, parameter2, ..., so on*)**.
- The code to be executed, by the function, is placed inside curly brackets: **{}**

Syntax :

```
function Name(parameter1, parameter2, parameter3) {
        code to be executed
}
```

Accessing Unnamed Arguments

How do we get more arguments than listed in parameters?

- There is a special pseudo-array inside each function called **arguments.**
- It contains all parameters by their
  number: arguments[0], arguments[1] etc.

Example :

```
function sayHi() {
for(var i=0; i<arguments.length; i++) {
    alert("Hi, " + arguments[i]) }
}
say Hi("Ron", "Alice") // 'Hi, Ron', then 'Hi, Alice'
```

Scope

- **“Scope”** refers to the variables that are available to a piece of code at a given time.
- Functions have access to variables defined in the same scope.

Example :

```
var foo = 'hello';

var sayHello = function() {
console.log(foo);
};

sayHello(); // logs 'hello'
console.log(foo); // also logs 'hello'
```

Scope (contd.)

- Code outside the **scope** in which a variable was defined does not have access to the variable

Example :

```
var sayHello = function() {
var foo = 'hello';
console.log(foo);
};

sayHello(); // logs 'hello'
console.log(foo); // doesn't log anything
```

Scope (contd.)

- Variables with the same name can exist in different scopes with different values

Example :

```
var foo = 'world';

var sayHello = function() {
var foo = 'hello';
console.log(foo);
};

sayHello(); // logs 'hello'
console.log(foo); // logs 'world'
```

Debugging in JavaScript

- With the recent boom of JavaScript, all major browsers come with their own debug tools.

Examples:

- Chrome has **Chrome DevTools**. You can access it by shortcut key Ctrl+Shift+Alt.
- For Firefox you can use **firebug extension**.

Lets Discuss Assignments

Assignment