Conceptual session on

Functions, Objects & Apply JavaScript

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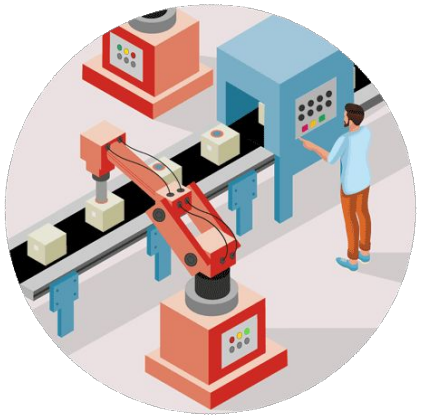
JavaScript Functions

A JavaScript function is **a block of code** that perform a particular task.

To work with functions we need to know 02 (two) things-

- Declaring a Function
- Calling a Function



Declaring a Function

The syntax to declare a function is-

```
function nameOfFunction () {
    // block of code
}
```

```
// example
function greet () {
    console.log("Hello everyone");
}
```

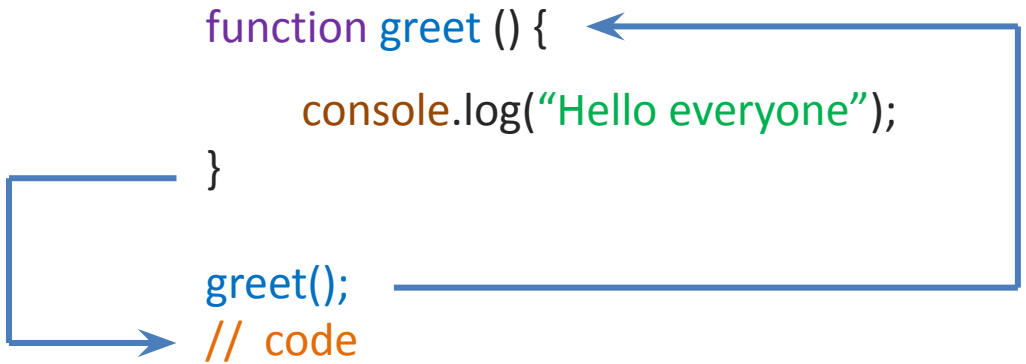
Calling a Function

In the above program, we have declared a function named **greet()**. To use that function, we need to call it.

Here's how you can call the above **greet()** function.

```
// calling a function
greet();
```

Working of a Function in JS



https://www.programiz.com/javascript/function

Function Parameters

A parameter is a **value** that is passed when **declaring a function**.

```
function greet (name) {
        console.log("Hello ", name);
}

greet( "Ananta Jalil" );
//  code
```

```
function sum (num1, num2) {
        console.log(num1+num2);
}

sum ( 5, 7 );
//  code
```

Function Return

The **return** statement can be used to return the value to a function call.
The **return** statement denotes that function has ended.

```
function sum (num1, num2) {
        return  (num1+num2);
}

console.log( sum( 5, 7) );
//  code
```

Why functions?

- You can **reuse code**: Define the code once, and use it many times.
- You can use the same code **many times** with different arguments, to produce different results.

Exersice-1

Write a function to check odd or even number.
You need to do it in 2 ways- **has return** and **no return.**

Input	Output
2	Even
9	Odd
104	Even

Exersice-2

Write a function which will take 3 integers and return the largest number.
You need to do it in 2 ways- **has return** and **no return.**

Input	Output
2, 3, 1	3
2, 5, 7	7
6, 5, 8	8

Let & Const

'let' is a signal that variable may be reassigned.

Example:

```
let x = 30;
x = 50;

let age = 21;
age = age+1;
```

'const' means that the identifier can't be reassigned.

Example:

```
const x = 30;
x = 50;

const age = 21;
age = age+1;
```

JavaScript Objects

In JavaScript, almost “everything” is an object.

Object

brand = Tesla
model = 3
weight = 980kg
seating = 5 Adults

Properties

start()
drive()
break()
stop()

Methods

JavaScript Objects

Objects are variables too. But objects can contain many values.

This code assigns **many values** (Tesla, 3, 980kg) to a variable named **car**:

```
var car = { brand: ‘Tesla’, model: 3, weight: ‘980kg’, seating: ‘5 Adults’, start()};
```

Array vs Object

Array	Object
const arr = [1, 3, 23, 56, 89];	const obj = { name: “Laptop”, brand: “Apple”, price: 12000 }

Exersice-3

Write a program to find the total price of those product object.

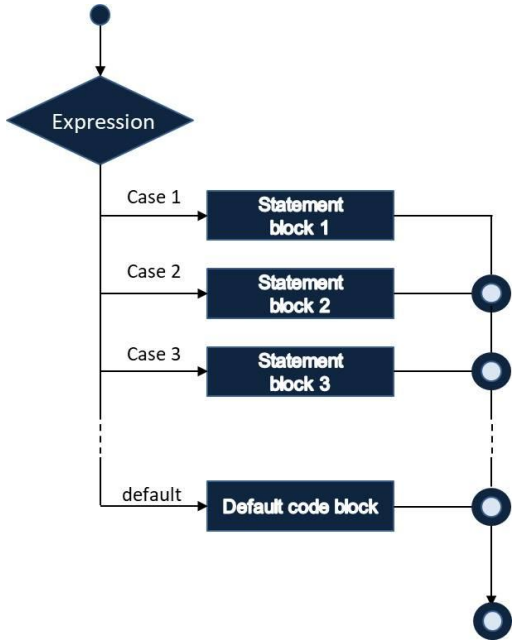
{ name: “Laptop”, color: “black” , price: 12000 }
{ name: “Monitor”, color: “gray” , price: 5000 }
{ name: “Mobile”, color: “black” , price: 2500 }

Switch-case

The **switch** statement is used to perform different actions based on different conditions.

Syntax:

```
switch (expression) {
  case x:
    // code block
    break;
  case y:
    // code block
    break;
  default:
    // code block
}
```



Problem-1

Write a function that will take a radius of a circle and will return the area of circle. ***[Hint: Area of Circle = πr^2]***

Input	Output
5	78.54
7	153.94
3	28.27

Problem-2

Write a function that will take **feet** as the input parameter and will convert it into **inch** and will return the result in inch.

Input	Output
1	12
3	36
1.5	18

Problem-3

Write a function that takes input the total price of the products you bought and returns the net price calculated according to the discount table below.

Total Price	Discount
>= 1000	10%
>= 3000	15%
> 5000	20%

Problem-4

Write a function that will take a year as a input parameter and will check the year is leap year or not.

Input	Output
2024	Leap Year
2022	Not Leap Year
2018	Not Leap Year

Problem-5

Write a function that will take a integer as a input and will return the factorial number for this input. ***(using for and while loop)***

Input	Output
1	1
3	6
5	120

Factorial Formula

$$n! = n \times (n-1) \times (n-2) \times \ldots \times 1$$

$$1! = 1$$
$$2! = 2 \times 1 = 2$$
$$3! = 3 \times 2 \times 1 = 6$$
$$4! = 4 \times 3 \times 2 \times 1 = 24$$
$$5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$$

Problem-6

Write a function that will take an array and will return odd sum and even sum.

Input	Output
[3, 5, 8, 4, 25, 12]	Odd sum = 33, Even sum= 24

Do you have any questions?

Send it to me! I hope you learned something new.

Practice problems

1. Write a function that will take a number and will check the number is positive or negative.
2. Write a JavaScript function that accepts a number as a parameter and check the number is prime or not.
3. Write a function named ***findArea()*** that will take base and height of a triangle and will return the area of triangle.
4. Write a function named ***findArea()*** that will take height and width of a rectangle and will return the area of rectangle.
5. Write a function which will take an integer and will return the square of a number.
6. Write a function that will taka an array and calculate the sum of odd numbers greater than 10 and less than 50.

Resources

You can follow these links to learn more about functions, objects and problem solving.

https://www.w3schools.com/js/js_functions.asp

https://www.w3schools.com/js/js_object_definition.asp

https://contactmentor.com/js-function-exercises-solution/

https://www.tutorialspoint.com/javascript/javascript_switch_case.htm

https://www.w3resource.com/javascript-exercises/

Thank you!