

Scope Exercise

1. Determine what this Javascript code will print out (without running it):

```
x = 1;
var a = 5;
var b = 10;
var c = function(a, b, c) {
  var x = 10;
  document.write(x); //i
  document.write(a); //ii
  var f = function(a, b, c) {
    b = a;
    document.write(b); //iii
    b = c;
    var x = 5;
  }
  f(a,b,c);
  document.write(b); //iv
}
c(8,9,10);
document.write(b);
document.write(x);
```

Answers:

```
c(8,9,10);    ->
               10
               8
               8
               9
document.write(b); -> 10
document.write(x); -> 1
```

2. What is the difference between a method and function?

JavaScript Function JavaScript Methods

Block of codes that performs specific tasks Property of an object that contains function definition

Function can pass the data that is operated and may returned the data Method operates data that contained in a class

Function can be called by its name A method consists of a code that can be called by the name of its object and its method name using dot notation or square bracket notation..

```
function fun(parameters) {
  // Content
}
fun(); // function call
```

```
var student = {
  fullname : function() {
    // Content
  }
};
```

student.fullname() // method call

3.What does 'this' refer to when used in a Java method?

This : refers to the current object in a method or in a constructor.

4. What does 'this' refer to when used in a JavaScript method?

This : it has different values depending on where it is used:

IN METHOD: It refers to owner object

ALONE: It refers to global object

IN A FUNCTION: It refers to global object

IN AN EVENT: It refers to the element that received the event.

5.What does 'this' refer to when used in a JavaScript constructor function?

The value of this, when used in an object, is the object itself.

In a constructor function this does not have a value. It is a substitute for the new object. The value of this will become the new object when a new object is created.

6. Assume object x is the prototype for object y in Javascript. Object x has a method f() containing keyword 'this'. When f is called by x.f(), what does 'this' refer to?

This - refers to X

7.What is a free variable in JavaScript?

Free Variable: A variable that refers to a function that neither its parameters nor local variable

There are lexical scope where a closure is created and free variable is used in javascript.

8.Create an object that has properties with name = "fred" and major="music" and a property that is a function that takes 2 numbers and returns the smallest of the two, or the square of the two if they are equal.

```
var aObj = {
  name : "fred",
  major: "music",
  smallestOfTwo: function(a,b){
    if(a>b){
      return b;
    }
    else if(a==b){
      return a*a;
    }
    else{
      return a;
    }
  }
}
```

9. Write Javascript code for creating three Employee objects using the "new" keyword and a constructor function. Employee objects have the following fields: name, salary, position.

```
function Employee(name, salary, position) {  
    this.name = name;  
    this.salary = salary;  
    this.position = position;  
}  
var emp1 = new Employee("Helu", 5000, "Software-Developer");  
var emp2 = new Employee("Asli", 3000, "Junior-Developer");  
var emp3 = new Employee("Ruti", 9000, "Manager");
```

10. Write a Javascript function that takes any number of input arguments and returns the product of the arguments.

```
function product(x, y, ...more) {  
    var total = x * y;  
    if (more.length > 0) {  
        for (var i = 0; i < more.length; i++) {  
            total *= more[i];  
        }  
    }  
    return total;  
}
```

Another way:

```
function productOfArguments() {  
    let i;  
    let productResult = 1;  
    for (i = 0; i < arguments.length; ++i) {  
        productResult *= arguments[i];  
    }  
    return productResult;  
}
```

11. Write an arrow function that returns the maximum of its three input arguments.

```
var maxOfThree = (a,b,c) =>{  
    let max = Math.max(a,b);  
    return Math.max(c,max);  
}
```