# Name : Mostafa Mohamed Abd Elatif Elelemy

## JavaScript Assignment – Lecture 1

Instructions: Answer all questions. Write code where required and explain your answers clearly.

Part 1: Variables and Scope

**1. Explain how var works in JavaScript. What is variable hoisting? Give a code example.**

var: is a way to declaare a variables

var num = 10;

Hosting : moves all declarations to the top

var num

console.log(num);  //will print undefinid

var num = 10;  //the initialzation here

**2. What is the scope of a variable declared with var inside a function? What about inside a block (e.g., an if statement)?**

the scope of variable is local inside the function

and if it in block like (if) it stays global scope

**3. List all JavaScript primitive types in ES5. Give an example of each.**

num :> var age = 26;

string :> var name = "mostafa";

boolean :> var isnan = true;

undefind :> var num ;

console.log(num);

null :> var data = null;

console.log(typeof data);

**4. What is the difference between a primitive type and an object type? Give an example where this difference is important.**

primitive type like string is simple and immutable values

ex:  var str = "hola";

str[0] = "H";

console.log(str); / it will print hola not Hola

object type is more complex and reference like array and function

**5. Create a number, string, and boolean using both literal and constructor syntax. Show the difference in their types using typeof.**

literal syntax :>

var num = 10

var str = "mostafa"

var isnan = true

constructor syntax

var num = new Number(32)

var str = new String(“mostafa”)

var isnan = new Boolean(true)

**6. Why is it generally recommended to use literals instead of constructors for primitive types?**

Because the literals is lightweight, fast, and simple.

**7. Given the following code, what will be the output? Explain why.**

```
var x = 123.4567;
console.log(x.toFixed(2)); // return 2 decimal places (as a string)
console.log(x.toPrecision(4)); // fix the total number to 4 and print it as string
```

**8. What is NaN? How can you check if a value is NaN? Give an example.**

Is not a number

To check we use isNaN

Ex :> var result = "hola" * 5;

console.log(result);

**9. What is the difference between parseInt, parseFloat, and Number? Give an example for each.**

Parseint : convert string to an integer

Ex :> var some = parseint(“3242,231”);

Console.log(some);

parseFloat : convert string to float

ex :> var some= parseFloat("123.45px");

console.log(some);

number : convert the entire string

ex:> var some = Number(“232.424”);

console.log(some);

**10. What is the difference between implicit and explicit type casting? Give an example of each.**

is when converting a value from type to another

Implicit it done automatically by js

Ex :> var result = “10” + 5;

Console.log(result);

Explicit : in this is done manually by me using function like parsint and parsefloat

Ex :> var str = "10";

var num = parseInt(str);

console.log(num + 5);

**11. What will be the result and type of the following expressions? Explain your answer.**

- true + 5  :> 5
- "10" – 2 :> 8
- 12 - "1a" :> NaN
- 5 / 0 :> infinity
- 5 + undefined :> NaN

**12. What will be logged to the console in the following code? Explain each step**.

var a = "15.5"; // let it to be string

var b = +a;  // convert it to number

console.log(b, typeof b); // print it and the type of it

it will print (15.5 'number')

explain because + convert it to number

**13. What will be the output of:**

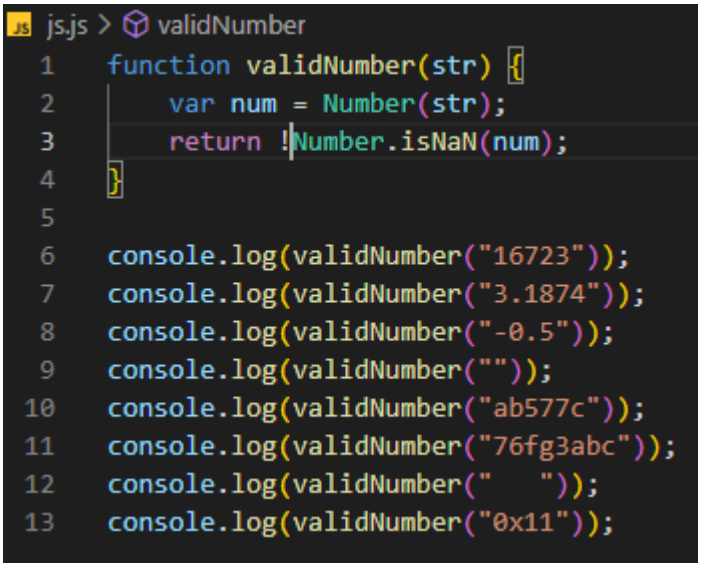
var result = 20 > true < 5 == 1;

console.log(result);

it will print true

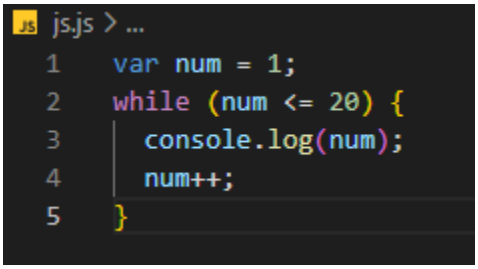
Explain why. because every condition(step) get true

**14. Write a function that takes a string and returns true if it can be converted to a valid number, and false otherwise.**



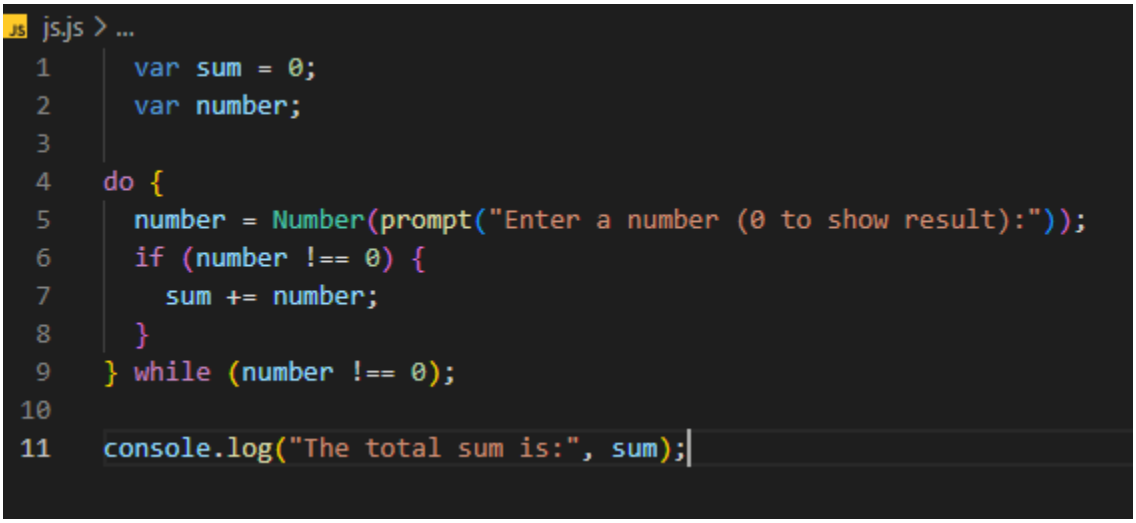
```
function validNumber(str) {
    var num = Number(str);
    return !Number.isNaN(num);
}

console.log(validNumber("16723"));
console.log(validNumber("3.1874"));
console.log(validNumber("-0.5"));
console.log(validNumber(""));
console.log(validNumber("ab577c"));
console.log(validNumber("76fg3abc"));
console.log(validNumber("    "));
console.log(validNumber("0x11"));
```

**15. Write a program that prints all numbers from 1 to 20 using a while loop.**



```
var num = 1;
while (num <= 20) {
  console.log(num);
  num++;
}
```

**16. Write a program that asks the user to enter numbers until they enter 0, using a do...while loop. After the loop ends, print the sum of all entered numbers (excluding 0).**



**17. Write a program that takes a number from 1 to 7 and prints the corresponding day of the week using a switch statement. Use a for loop to test your program with all numbers from 1 to 7.**