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 for decalration variables and it is function scoped thats mean that if there is a variable declared inside block it can

be accessed outside and its hoisting is all the declrations is moved to the first lines of the code but initialized in its

original line so you can reference it but it will return undefined not reference error

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

var is function scoped not block so inside function it accessable only inside the function but if declared inside the block like

if it will be scoped globally outside the block

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

Number , string , bool , null , undefined

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

primitive types only the string , bool , Number , null , undefined but the object based is everthing else and it is collection

of key-value pairs or instance of built-in classes like functions and arrays and objects and regex

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

literal :

```
        var x=5

        var x="omar"

        var x=true
```

constructor:

```
        var x= new Number(5)

        var x = new String("omar")

        var x =new Bool(true)
```

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

because of the value of the variable if you want to do operations on it and comparisons and easier to use

the constructors just compare the reference not the content or the structure but the literal do only the values

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

```
  var x = 123.4567;
  console.log(x.toFixed(2));

  console.log(x.toPrecision(4));

          123.46

          123.5
```

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

Not a Number its a numeric value that represent any thing that not a number

like var x = parseInt("abs")

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

parseInt parse strings to integer

parseFloat parse strings to Float

Number parses to number but the difference between it and parse that if we gave it something that not a number this

return 0 but parse returns NaN

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

implicit casting is made automatically by the engine and it converts values to its common type

you make it yourself like parseing and Number

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

- true + 5

Number 6 -> implict casting true to 1

- "10" - 2

Number 8 -> implicit casting of "10" to 10 and minus it

- 12 - "1a"

NaN because can not parse the la to number

- 5 / 0

infinity because bashnohands omar told us that "unnegotiable"

- 5 + undefined

NaN same as the last one

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

var a = "15.5";

var b = +a;

console.log(b, typeof b);

15.5 number because + is explicit casting like Number

13. What will be the output of:

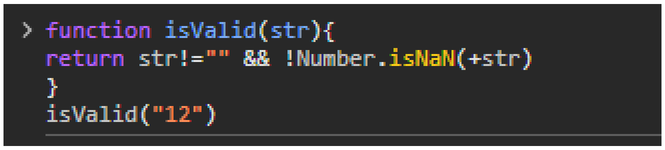
var result = 20 > true < 5 == 1;

console.log(result);

Explain why.

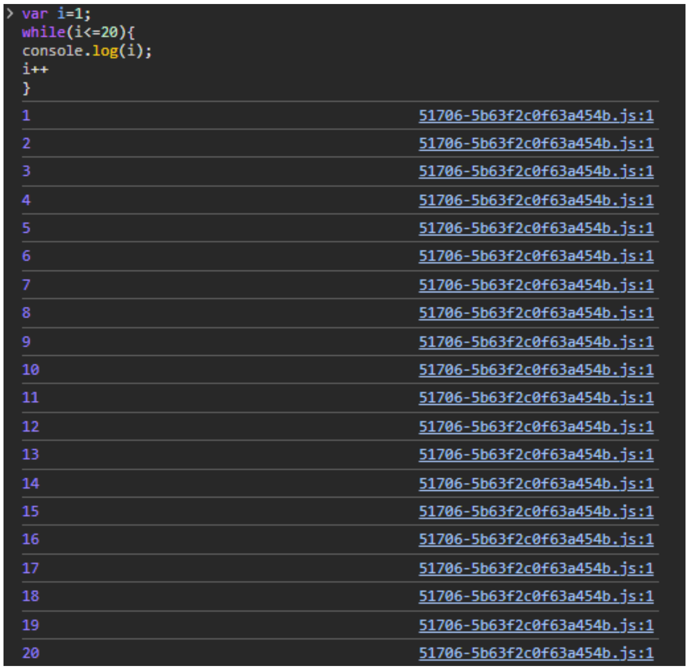
true 20>true =true , true(1)<5 = true , true(1)==1 =true

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



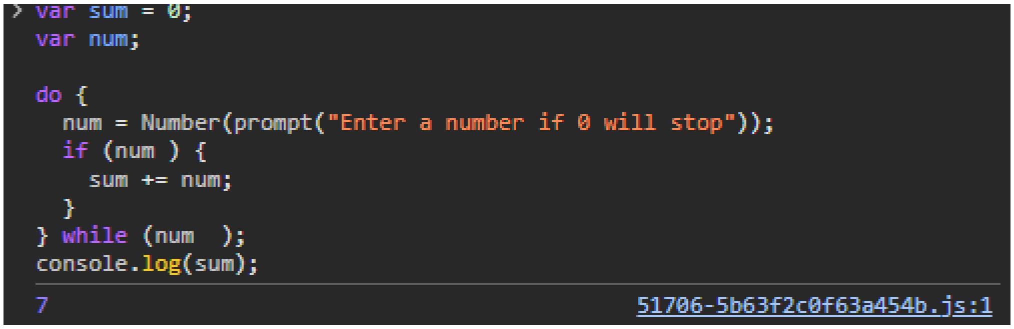
```
> function isValid(str){
  return str!="" && !Number.isNaN(+str)
  }
  isValid("12")
```

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



```
> var i=1;
  while(i<=20){
  console.log(i);
  i++
  }
  1                                      51706-5b63f2c0f63a454b.js:1
  2                                      51706-5b63f2c0f63a454b.js:1
  3                                      51706-5b63f2c0f63a454b.js:1
  4                                      51706-5b63f2c0f63a454b.js:1
  5                                      51706-5b63f2c0f63a454b.js:1
  6                                      51706-5b63f2c0f63a454b.js:1
  7                                      51706-5b63f2c0f63a454b.js:1
  8                                      51706-5b63f2c0f63a454b.js:1
  9                                      51706-5b63f2c0f63a454b.js:1
  10                                     51706-5b63f2c0f63a454b.js:1
  11                                     51706-5b63f2c0f63a454b.js:1
  12                                     51706-5b63f2c0f63a454b.js:1
  13                                     51706-5b63f2c0f63a454b.js:1
  14                                     51706-5b63f2c0f63a454b.js:1
  15                                     51706-5b63f2c0f63a454b.js:1
  16                                     51706-5b63f2c0f63a454b.js:1
  17                                     51706-5b63f2c0f63a454b.js:1
  18                                     51706-5b63f2c0f63a454b.js:1
  19                                     51706-5b63f2c0f63a454b.js:1
  20                                     51706-5b63f2c0f63a454b.js:1
```

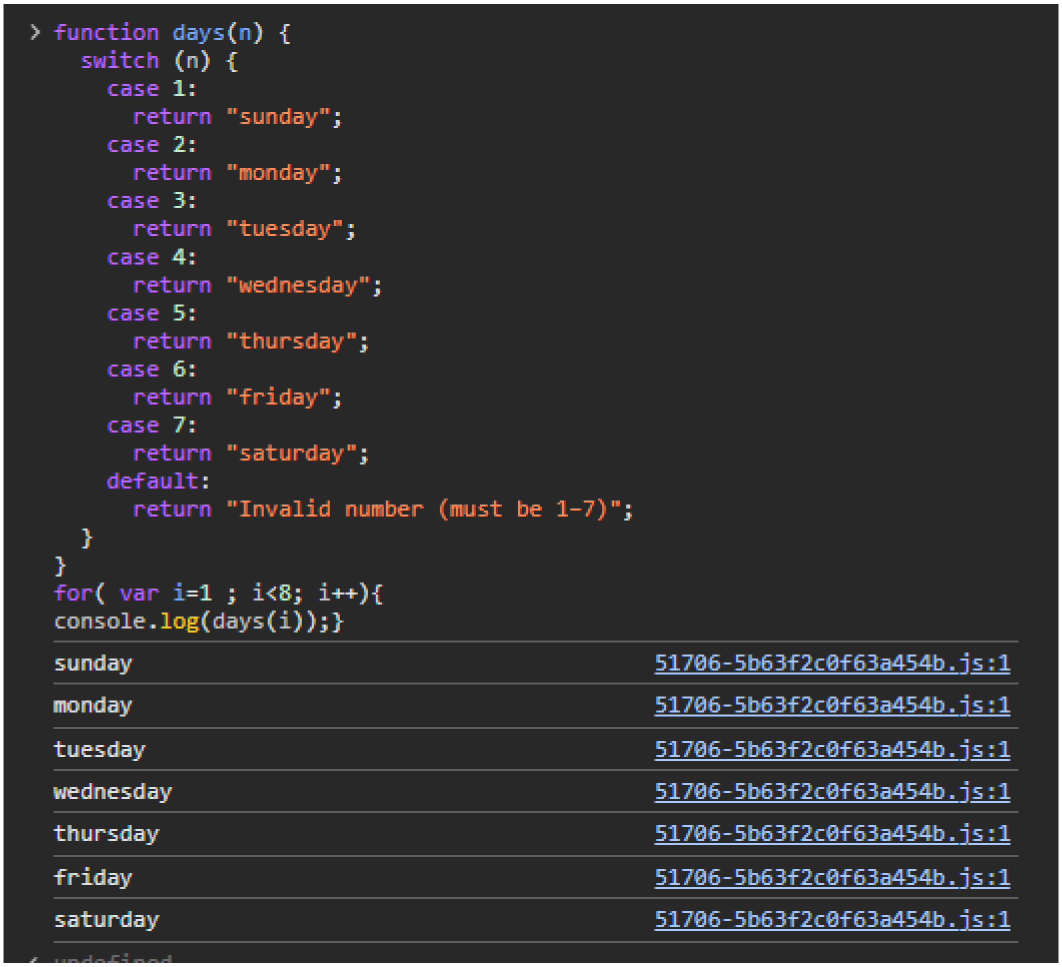
16. Write a program that asks the user to enter numbers until they enter 0, using a do...while loop. After the loop ends, print the sum of all entered numbers (excluding 0).



```
> var sum = 0;
  var num;

  do {
    num = Number(prompt("Enter a number if 0 will stop"));
    if (num ) {
      sum += num;
    }
  } while (num  );
  console.log(sum);
  7                                      51706-5b63f2c0f63a454b.js:1
```

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.



```
> function days(n) {
    switch (n) {
      case 1:
        return "sunday";
      case 2:
        return "monday";
      case 3:
        return "tuesday";
      case 4:
        return "wednesday";
      case 5:
        return "thursday";
      case 6:
        return "friday";
      case 7:
        return "saturday";
      default:
        return "Invalid number (must be 1-7)";
    }
  }
  for( var i=1 ; i<8; i++){
  console.log(days(i));}
  sunday                                          51706-5b63f2c0f63a454b.js:1
  monday                                          51706-5b63f2c0f63a454b.js:1
  tuesday                                         51706-5b63f2c0f63a454b.js:1
  wednesday                                       51706-5b63f2c0f63a454b.js:1
  thursday                                        51706-5b63f2c0f63a454b.js:1
  friday                                          51706-5b63f2c0f63a454b.js:1
  saturday                                        51706-5b63f2c0f63a454b.js:1
< undefined
```