Variable:

1.What is javascript?

Ans:Javascript is a scripting programming language.

2.How does javascript work?

Ans:When the browser loads the page, the browser has a built-in interpreter that reads the JavaScript code it finds in the page and runs it.

3.What is variable?

Ans:variable is a thing that can very or change;

4.Declare a variable?

Ans:five things need to declare a variable;

 (i)var keyword;(ll)variable name (iii)equal sign (iv)value and (v)semicolon;

```
var name = mosarof;
```

5.Type of variable?

i)numeric. II)string iii)boolean;

6.How can we check the type of variable;

```
var number = 5;
console.log(typeof (number));
```

Output:number;

```
var x = "5";
console.log(typeof (x));
```

output : string

7.what is primitive and non-primitive data-type;

Ans:

8.Naming convention of js variable;

Can Not

  i)we can't write at first position a number to declare a variable;

  ii)we can't use dash to declare a variable;

  iii)we can't use comma , for declare a variable;

Can

i)we can use the number at the last position and middle position for declare a variable;

```javascript
var user21bsc21 = 21;
console.log(user21bsc21);
```

ii)we can use the under scroll to declare a variable;

```javascript
var his_name = "mosarof";
console.log(his_name);
```

iii)we should write this way: **hisNameIs = "Rubel";**

Camel case: recommended;

```javascript
hisNameIs
```

```javascript
IsHeTeacher
```

Snake case:
```javascript
var is_he_teacher = 'rahim';
console.log(is_he_teacher);
```

8.Arithmetic operator:
+, -, * ,/ ,%,

Addition: +
```javascript
var num1 = 20;
var num2 = 30;
var sum = num1 + num2;
console.log(sum);
console.log(typeof (sum));
```

Subtraction: -

```javascript
var x = prompt("enter your first Number: ");
var y = prompt("enter your second number: ");
var sum = x - y;
console.log(sum);
```

Multiplication: *

```javascript
var num1 = prompt("enter Your first number: ");
var num2 = prompt("enter your second number: ");
var multi = num1 * num2;
console.log(" Multiplication is: "+multi);
```

Divided: /

```javascript
var num1 = prompt("enter Your first number: ");
var num2 = prompt("enter your second number: ");
var bagfol = num1 / num2;
console.log("Bagfol = "+bagfol);
```

Reminder: %

```javascript
var num1 = prompt("enter Your first number: ");
var num2 = prompt("enter your second number: ");
var bagses = num1 % num2;
console.log("Bagses = "+bagses);
```

9.All shortHand:

```javascript
price += 10;
price = price + 10;


price -= 10;
```

```
price = price - 10;
price *= 5;
price = price * 5;


x /= 2;
x = x / 2;


rahim %= 20;
rahim = rahim % 20;
```

10. ++, - -
    ++ means increase 1 with existing value;
    - - means decrease 1 with existing value;
11.
  i)parseInt(); convert string to integer;
  ii)parseFloat(); we will use parseFloat when number is string and Float;
Example:

String to number by parseInt();
```
var player = 'Tamim Iqbal';
console.log(player);
console.log(typeof (player));
```

Output: Tamim Iqbal
       string
**if we want to convert string to integer then we will write;
        var player = 'Tamim Iqbal';
```
var player = parseInt(player);
console.log(typeof (player));
```

Output :number;
String to number by parseFloat();

```
var num = "20.30";
var num = parseFloat(num);
```

```
console.log(typeof (num));
```

First num was a string but right now it is a number;

12.toFixed();
How many numbers we want to see after a decimal;

```
var num1 = .1;
var num2 = .2;
var multiplication = num1 * num2;
console.log(multiplication.toFixed(2));
```

<u>Array</u>

1.What is the purpose of array?
Ans: When we print something more time then we use array;
2.How to declare an array in js?
And:it's like a variable but an array contains many things and array content
must have to be into quotation and all elements will stay in the curly
bracket;
```
 var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
```

```
3.how much number of elements in an array, creat a program;
Ans:
```
```
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
console.log(players.length)
```

```
Output:5;
4.What is an index?
Ans:index is an element serial number of an array
and it always starts from 0;
```

5.Find an **element of an array by index number;**

```javascript
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
var player = players[3];
console.log(player);
```

Output:Rubel;

6.How to set an element of an array by index number?

```javascript
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
players[0] = 'Mashrafee';
console.log(players);
```
Output:['Mashrafee', 'tamim', 'Shanto', 'Rubel', 'Anamul']
**And normal output:['shakib', 'tamim', 'Shanto',
'Rubel', 'Anamul'];**
```
7.Get the index number by the element of an array;
Ans:
```
```javascript
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
var indexNumber = players.indexOf('Rubel');
console.log(indexNumber);
```
output:3;

8.What does it mean when you get undefined while getting the value of an element by index;

```
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
var player = players[5];
console.log(player);
```

output:undefined;

এখানে **undefined** দেখানোর কারন হলো,আমরা **players array** এর ভিতর থেকে **5** নাম্বার ইনডেক্স কে খুঁজেছি।কিন্তু এরে এর ভিতর **0** থেকে **4** নাম্বার ইনডেক্স পযর্ন্ত আছে। যেহতু **5** নাম্বার **index** নেই তাই **undefined** দেখিয়েছে।

9.How can we add an element at the last position in an array?
push( );

```
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
players.push("Rony Talukder");
console.log(players);
```

output:['shakib', 'tamim', 'Shanto', 'Rubel', 'Anamul', 'Rony Talukder'];

10.How can we remove an element at the last position in an array?
pop( );

```
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
players.pop();
console.log(players);
```

output:['shakib', 'tamim', 'Shanto', 'Rubel']

pop( ); always remove the last number element of an array that's why we don't write value in pop( );

11.Add an element at the first position of an array;

unshift( );

```
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
players.unshift('aita hobe tomar nam')
console.log(players);
```

Output:
[
** 'aita hobe tomar nam',**
** 'shakib',**
** 'tamim',**
** 'Shanto',**
** 'Rubel',**
** 'Anamul'**
]

12.Remove an element at the first position of an array;

shift( );

```
var players = ['shakib', 'tamim', 'Shanto', 'Rubel',
'Anamul'];
players.shift('shakib');
console.log(players);
```

Putput: ['tamim', 'Shanto', 'Rubel', 'Anamul'];

Condition

Relational Operator: >, >=, <, <=, == , ===, !=, !==;

Note: Relational and logical operator always print output as a boolean;

1.What is the meaning of relational operator?

Ans:

```
console.log(5 > 3);
```

Output:true;

```
console.log(5 < 3);
```

Output:false;

```
console.log(5>=3)
```

Output:true;

Double Equal: ==

```
console.log(5 = = 5);
```

Output:true;

Note: double equal sign (= =) always check only value but don't check data type;

```
console.log(5 = = "5");
```

Output:true;

Note:There first value and last value is same but data type is not same .double equal == only check value but don't check data type that's why it's true;

Threefol equal:===

```
console.log(5 = = = "5");
```

Output:false;
Note:There first value and last value is same but data type is not same
.threefol equal === always check value and data type so first and last
value is not same that's what its false;

Not equal: !=

Not equal (!=) only check value;not data type;

```
console.log(5!=5)
```

Output:true;

Not double equal: != =

```
console.log(5!=="5")
```

Output:true;
Note:not double equal !=== always check value
and data type;

2.Meaning of $$;

It's mean all condition have to be true if all   condition is true
then output will be true;

```
console.log(2 > 1 && 5 < 10);
```

Output: true;2 condition is true that's what output is true;

```
var money = 1000;
var flowerPrice = 300;
var person = true;
if (money > flowerPrice && person == true) {
    console.log("I will propose her")
}
else {
    console.log("ami take propose korbona");
}
```

Output:i will propose her; because two condition is true;

3.Meaning of or ||
 It's mean minimum one condition have to be true;then
output will be true;

```
var money = 10;
var flowerPrice = 300;
var person = true;
if (money > flowerPrice || person == true) {
    console.log("I will propose her")
}
else {
    console.log("ami take propose korbona");
}
```
Output:i will propose her; because one condition is true;

4 .If i have more than 80000 take ,then i will buy a mac;

If i have more than 60000 taka, then i will buy a gaming laptop;

If i have more than 40000 taka, then i will buy a lenovo Yoga;

If i have more than 20000 taka, then i will buy a used laptop;

Otherwise ami amar vangga phontai chalabo;

```javascript
var money =12000;

if (money > 80000) {
    console.log("i will buy a mac");
}
else if (money > 60000) {
    console.log("i will buy a gaming laptop");
}
else if (money > 40000) {
    console.log("i will buy a lenovo yoga")
}
else if (money > 20000) {
    console.log("i will buy a used laptop");
}
else {
    console.log("ami amar vagga phontai chalabo");
}
```

Output: ami amar vangga phontai chalabo;

Loop

1.Display "Ajke amar mon valo nei" for 39 times;

```
for (var x = 1; x <= 39; x ++){

    console.log("ajke amar mon valo nai");

}
```

Output: Ajke amar on valo nai, it will be print for 39 times;

2.Prict number 58 to 98;

```
for (var x = 58; x <= 98; x ++){

    console.log(x);

}
```

Output:58,59,60,61,........98

3.Print all even number from 412 to 456;

```
var number = 412;

while (number <= 456) {

    console.log(number);

    number = number + 2;

}
```

Output: 412,414.116.....454,456;

4.Show all odd number from 581 to 623;

```javascript
for (startNumber = 581; startNumber <= 623;
startNumber += 2){
    console.log(startNumber);
}
```

Output: 581, 583, 587…….623;

5.Difference between for loop and while loop;

i)for loop: starting number, condition and updated part put together;

ii)while loop: starting number is declared first then condition is declared into while loop and into body we write updated part;

6.Declear an array for all the topics that you have learned last few days display then as output by using loop;

```javascript
var items = ['html', 'css', 'javascript',
'bootstrap'];
for (i = 0; i < items.length; i++){
    var item = items[i];
    console.log(item);
}
```

Output:
html
css
javascript
Bootstrap

7.Creat an array for all the mobile phones.Display all the elements of the array by using a while loop;

```javascript
var mobailes = ['nokia', 'vivo', 'samsung',
'walton', 'motorwala', 'Realme', 'oppo'];


var x = 0;
while (x < mobailes.length) {
    var mobaile = mobailes[x];
    console.log(mobaile);
    x++
}
```

Output:
nokia
vivo
samsung
walton
motorwala
Realme
oppo

8.Run a loop from 30 to 86. This loop stops if the values get higher than 44;

```
for (var x = 30; x <= 86; x++){
    if (x > 44) {
        break;
    }
    console.log(x);
}
```
Output:34,35,..........44;

9.write the price of the book that you have .Display the prices if the prices lower than 200;

```
for (x = 0; x < prices.length; x++){
    var price = prices[x];
    if (price >= 200) {
        continue;
    }
    console.log(price);
}
```
output:100
20
40
50
21
88
89
33
35

44