Name : Yadav Vishal Tahsildar

Roll no : 69

Batch : I6

Class : TEIT 2

Sub : IP Lab

Date : 18 Aug 2022

Experiment no : 03

Aim : Java Script Basic

(1) (Using var , let , const)write program for addition, subtraction,division and multiplication.

Theory :

4 Ways to Declare a JavaScript Variable:

Using var

Using let

Using const

Using nothing

Variables are containers for storing data (storing data values).

Example (1)

In this example, `x`, `y`, and `z`, are variables, declared with the `var` keyword:

```
var x = 5;
var y = 6;
var z = x + y;
```

Example (2)

In this example, `x`, `y`, and `z`, are variables, declared with the `let` keyword:

```
let x = 5;
let y = 6;
let z = x + y;
```

Variables defined with let cannot be redeclared.

You cannot accidentally redeclare a variable.

With let you can not do this:

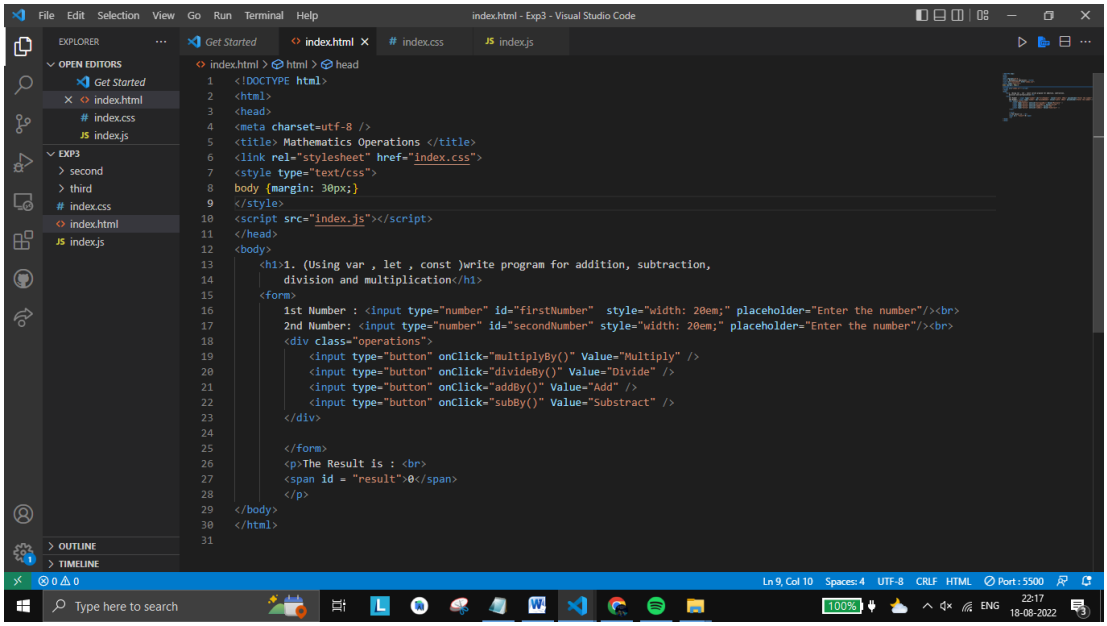
```
let x = "John Doe";

let x = 0;

// SyntaxError: 'x' has already been declared
```

Example (3)

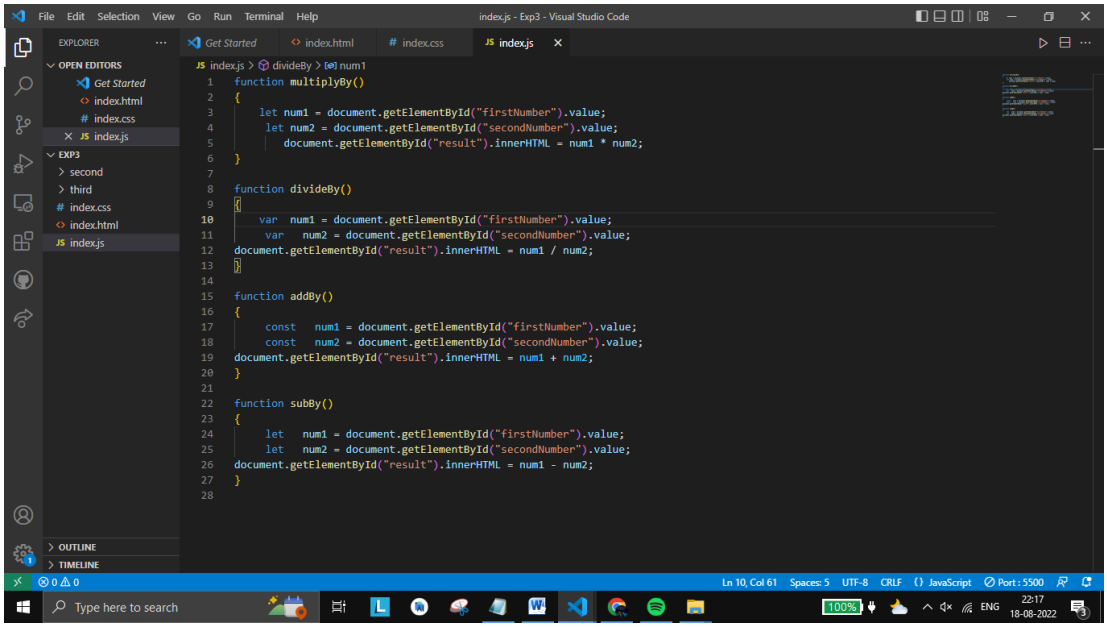
A `const` variable cannot be reassigned:

```
const PI = 3.141592653589793;
PI = 3.14;      // This will give an error
PI = PI + 10;   // This will also give an error
```

Code :

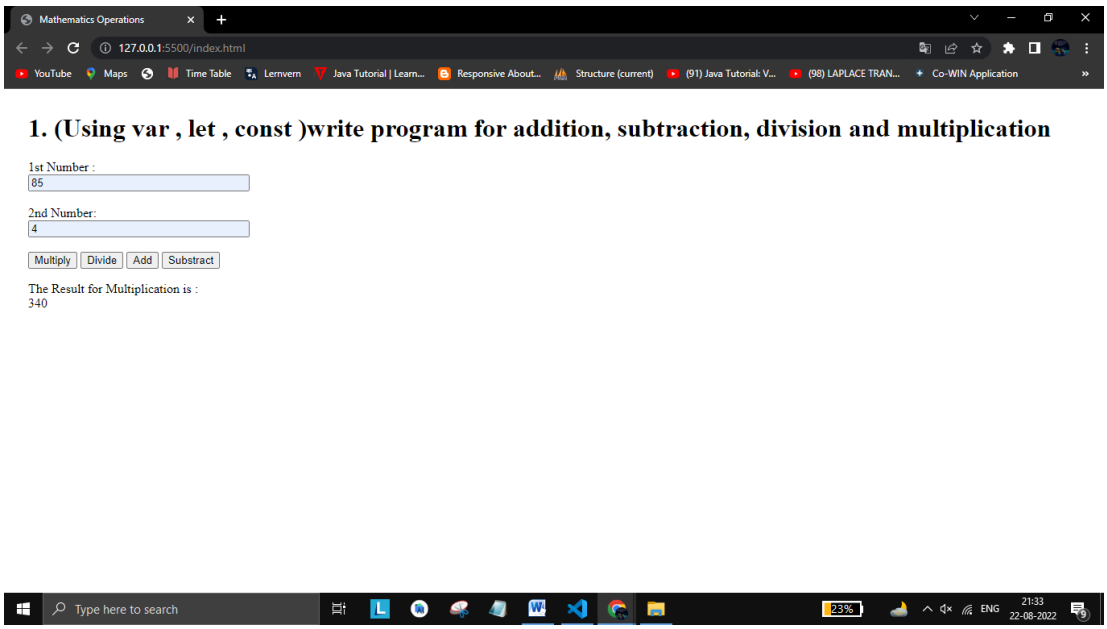


```
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<title> Mathematics Operations </title>
<link rel="stylesheet" href="index.css">
<style type="text/css">
body {margin: 30px;}
</style>
<script src="index.js"></script>
</head>
<body>
    <h1>1. (Using var , let , const )write program for addition, subtraction,
        division and multiplication</h1>
    <form>
        1st Number : <input type="number" id="firstNumber"  style="width: 20em;" placeholder="Enter the number"/><br>
        2nd Number: <input type="number" id="secondNumber" style="width: 20em;" placeholder="Enter the number"/><br>
        <div class="operations">
            <input type="button" onClick="multiplyBy()" Value="Multiply" />
            <input type="button" onClick="divideBy()" Value="Divide" />
            <input type="button" onClick="addBy()" Value="Add" />
            <input type="button" onClick="subBy()" Value="Substract" />
        </div>

        </form>
        <p>The Result is : <br>
        <span id = "result">0</span>
        </p>
</body>
</html>
```



```
function multiplyBy()
{
    let num1 = document.getElementById("firstNumber").value;
     let num2 = document.getElementById("secondNumber").value;
        document.getElementById("result").innerHTML = num1 * num2;
}

function divideBy()
{
    var  num1 = document.getElementById("firstNumber").value;
     var   num2 = document.getElementById("secondNumber").value;
document.getElementById("result").innerHTML = num1 / num2;
}

function addBy()
{
    const   num1 = document.getElementById("firstNumber").value;
    const   num2 = document.getElementById("secondNumber").value;
document.getElementById("result").innerHTML = num1 + num2;
}

function subBy()
{
    let   num1 = document.getElementById("firstNumber").value;
    let   num2 = document.getElementById("secondNumber").value;
document.getElementById("result").innerHTML = num1 - num2;
}
```

Output :



(2) (using conditions FOR, IF ELSE, Break, Continue) write a code for Persons age is eligible for Voting or not.

Theory :

In JavaScript we have the following conditional statements:

Use if to specify a block of code to be executed, if a specified condition is true
Use else to specify a block of code to be executed, if the same condition is false
Use else if to specify a new condition to test, if the first condition is false
Use switch to specify many alternative blocks of code to be executed

Example (1)

```
if (hour < 18) {
  greeting = "Good day";
} else {
  greeting = "Good evening";
}
```

Example (2)

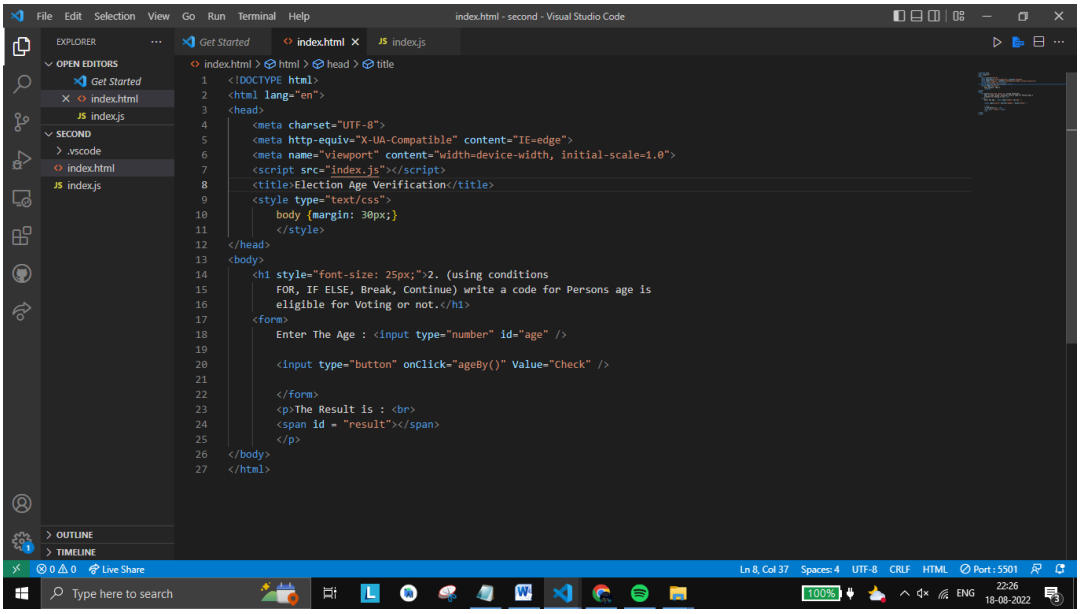
```
if (time < 10) {
  greeting = "Good morning";
} else if (time < 20) {
  greeting = "Good day";
} else {
  greeting = "Good evening";
}
```

Example (3)

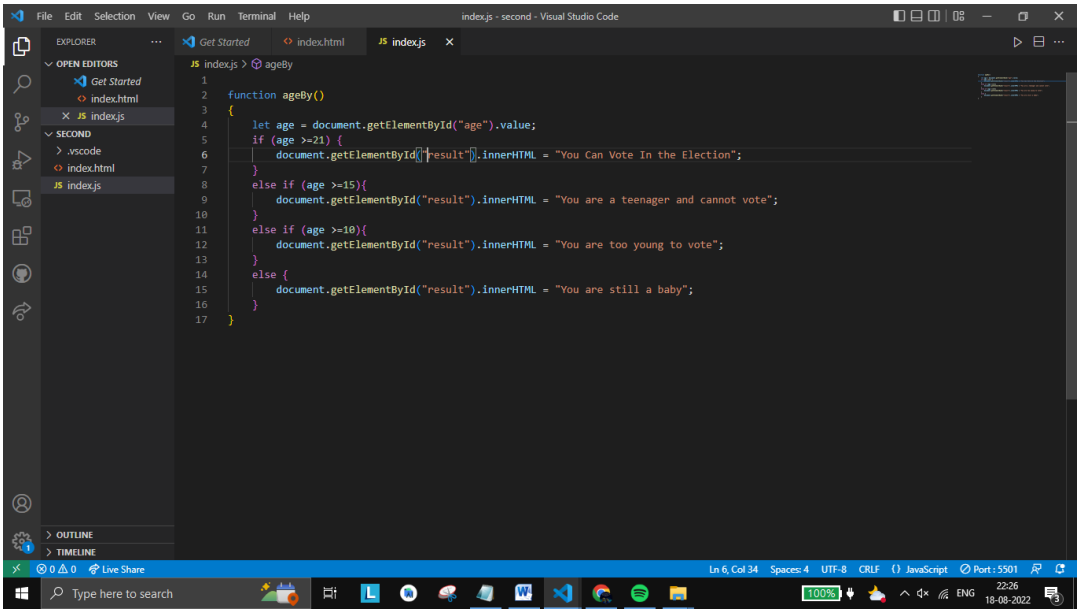
The for statement creates a loop with 3 optional expressions:

```
for (let i = 0; i < 5; i++) {
  text += "The number is " + i + "<br>";
}
```

Code :

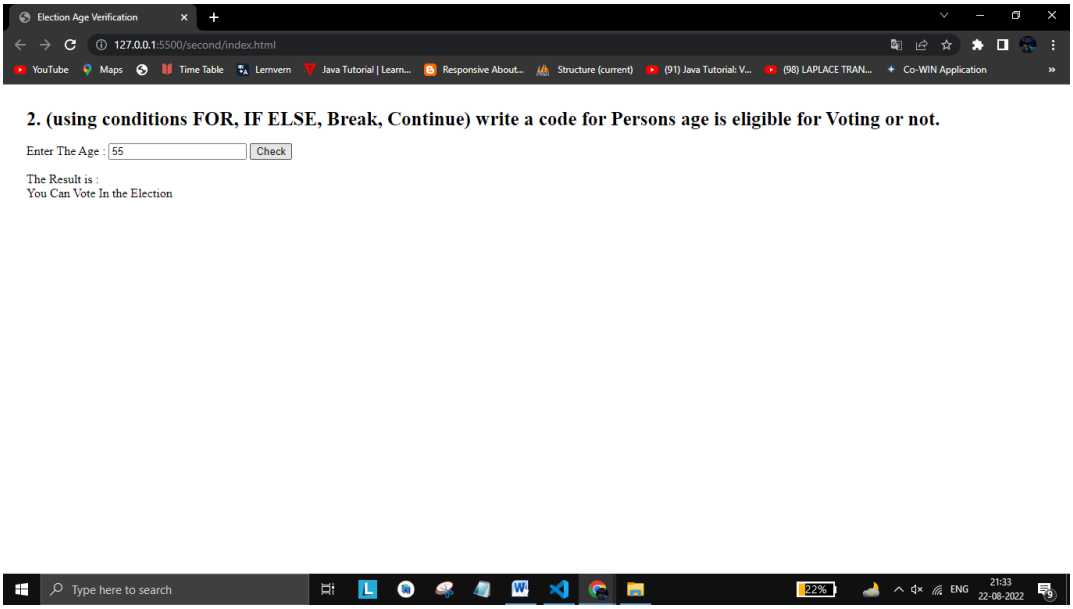


```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <script src="index.js"></script>
    <title>Election Age Verification</title>
    <style type="text/css">
        body {margin: 30px;}
        </style>
</head>
<body>
    <h1 style="font-size: 25px;">2. (using conditions
        FOR, IF ELSE, Break, Continue) write a code for Persons age is
        eligible for Voting or not.</h1>
    <form>
        Enter The Age : <input type="number" id="age" />

        <input type="button" onClick="ageBy()" Value="Check" />

        </form>
        <p>The Result is : <br>
        <span id = "result"></span>
        </p>
</body>
</html>
```



```
function ageBy()
{
    let age = document.getElementById("age").value;
    if (age >=21) {
        document.getElementById("result").innerHTML = "You Can Vote In the Election";
    }
    else if (age >=15){
        document.getElementById("result").innerHTML = "You are a teenager and cannot vote";
    }
    else if (age >=10){
        document.getElementById("result").innerHTML = "You are too young to vote";
    }
    else {
        document.getElementById("result").innerHTML = "You are still a baby";
    }
}
```

Output :



(3) LOOPING (While Loop , DO-while LOOP , Switch Case) Write a Program to find grade of student .

Theory :

JavaScript supports different kinds of loops:

for - loops through a block of code a number of times
for/in - loops through the properties of an object
for/of - loops through the values of an iterable object
while - loops through a block of code while a specified condition is true
do/while - also loops through a block of code while a specified condition is true

Example (1)

The while loop loops through a block of code as long as a specified condition is true.

```
while (i < 10) {
  text += "The number is " + i;
  i++;
}
```

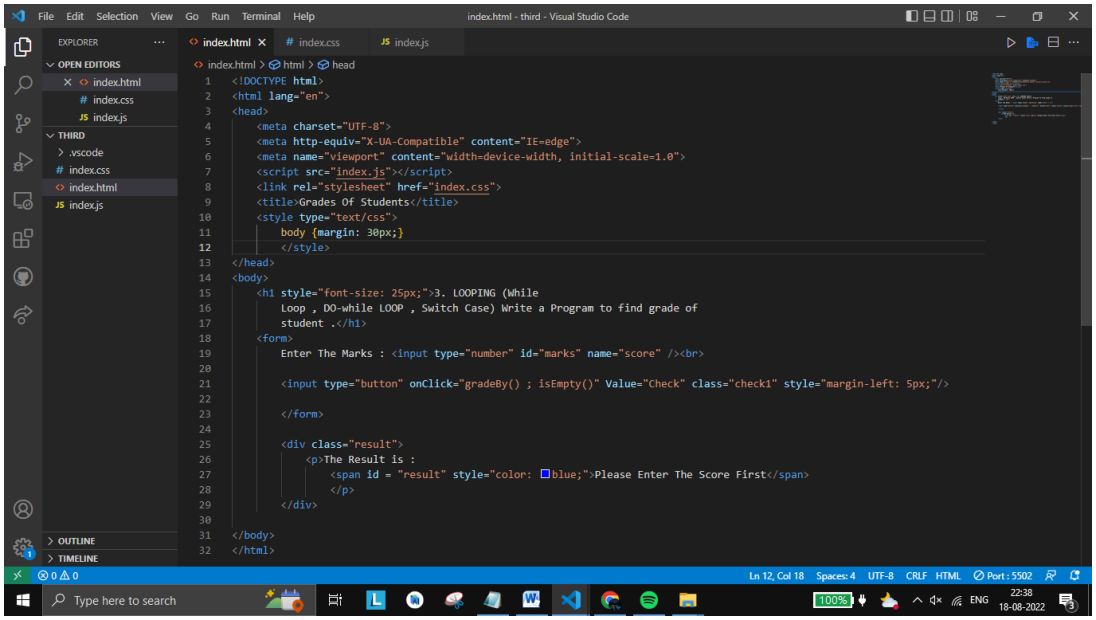
Example (2)

Use the switch statement to select one of many code blocks to be executed.
This is how it works:

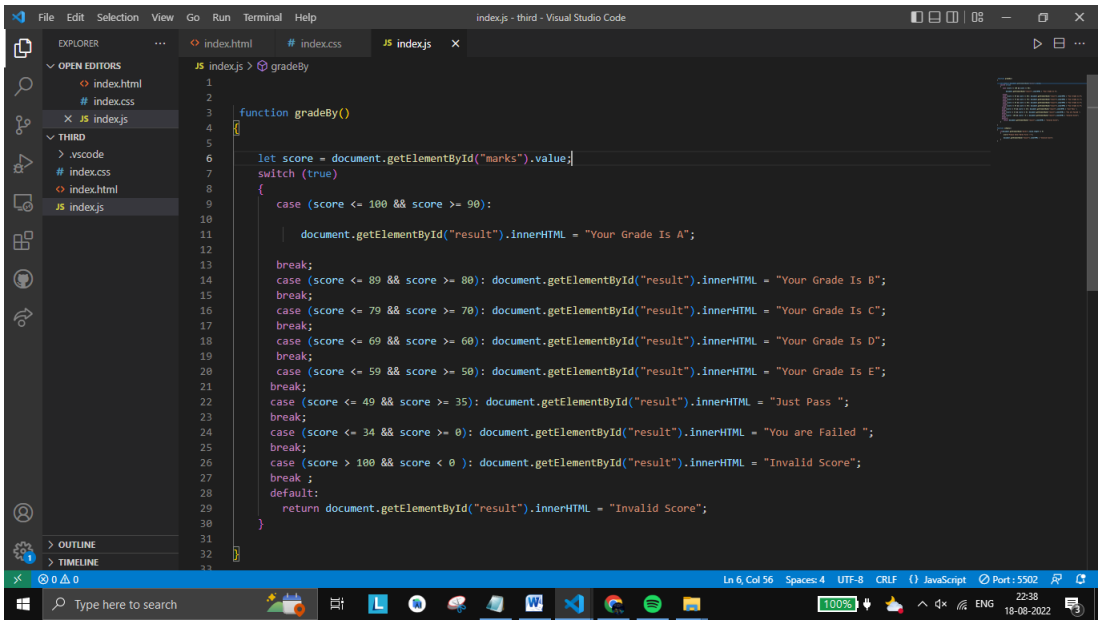
The switch expression is evaluated once.
The value of the expression is compared with the values of each case.
If there is a match, the associated block of code is executed.
If there is no match, the default code block is executed.

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

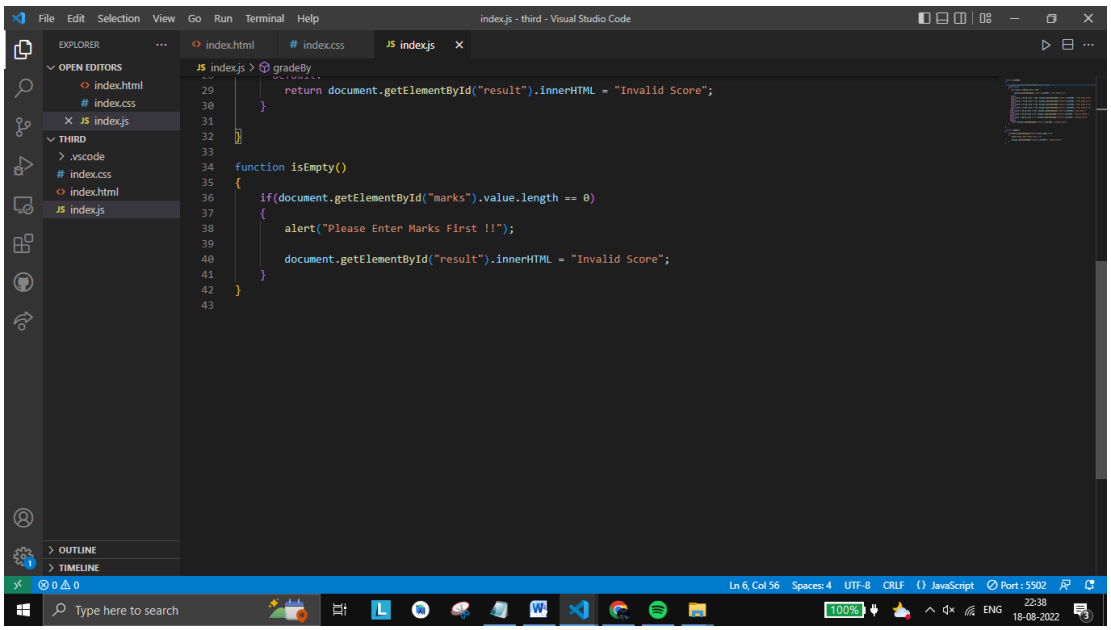
Code :



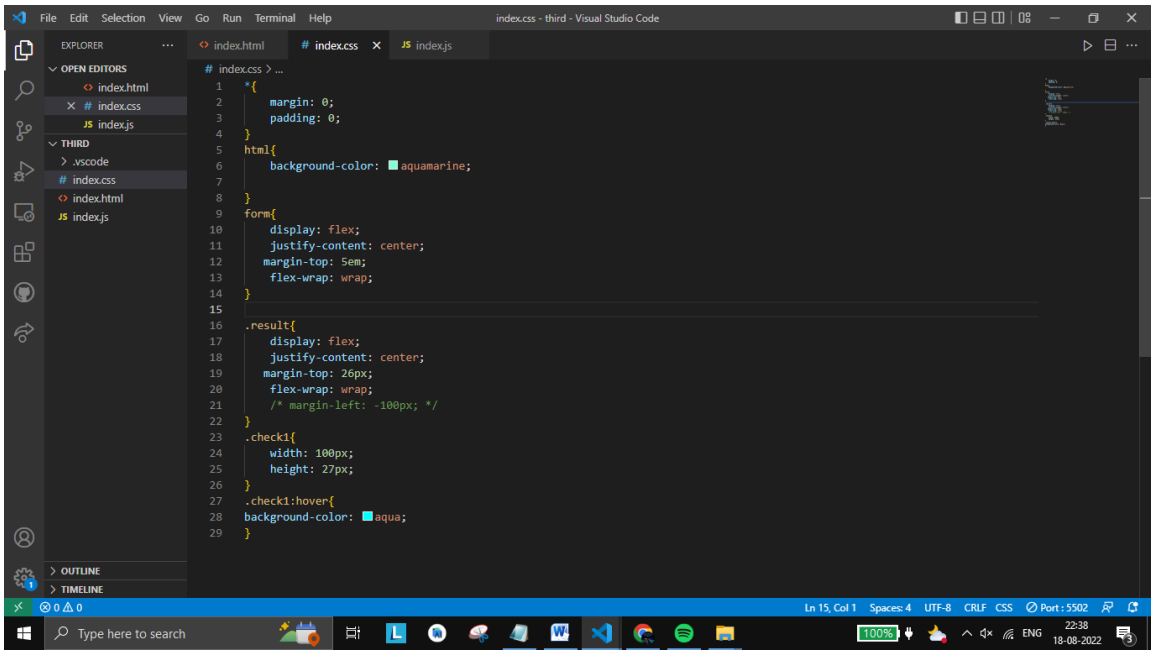
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <script src="index.js"></script>
    <link rel="stylesheet" href="index.css">
    <title>Grades Of Students</title>
    <style type="text/css">
        body {margin: 30px;}
        </style>
</head>
<body>
    <h1 style="font-size: 25px;">3. LOOPING (While
        Loop , DO-while LOOP , Switch Case) Write a Program to find grade of
        student .</h1>
    <form>
        Enter The Marks : <input type="number" id="marks" name="score" /><br>

        <input type="button" onClick="gradeBy() ; isEmpty()" Value="Check" class="check1" style="margin-left: 5px;"/>

        </form>

        <div class="result">
            <p>The Result is :
                <span id = "result" style="color: blue;">Please Enter The Score First</span>
                </p>
        </div>

</body>
</html>
```



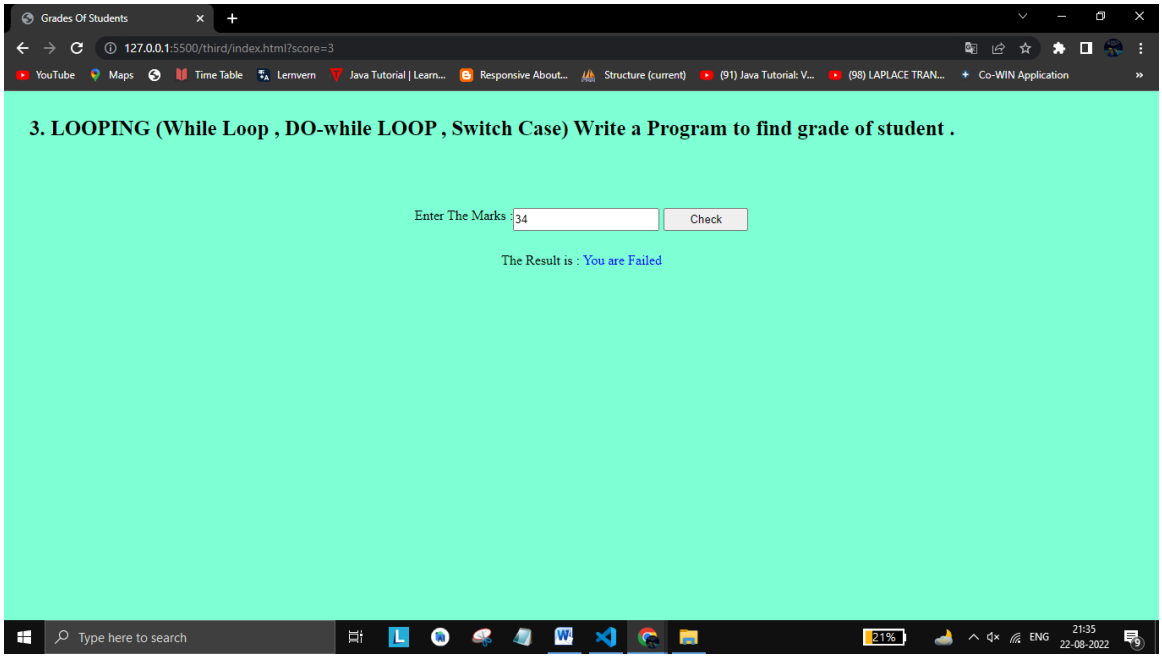
```
function gradeBy()
{

    let score = document.getElementById("marks").value;
    switch (true)
    {
       case (score <= 100 && score >= 90):

           document.getElementById("result").innerHTML = "Your Grade Is A";

        break;
        case (score <= 89 && score >= 80): document.getElementById("result").innerHTML = "Your Grade Is B";
        break;
        case (score <= 79 && score >= 70): document.getElementById("result").innerHTML = "Your Grade Is C";
        break;
        case (score <= 69 && score >= 60): document.getElementById("result").innerHTML = "Your Grade Is D";
        break;
        case (score <= 59 && score >= 50): document.getElementById("result").innerHTML = "Your Grade Is E";
      break;
      case (score <= 49 && score >= 35): document.getElementById("result").innerHTML = "Just Pass ";
      break;
      case (score <= 34 && score >= 0): document.getElementById("result").innerHTML = "You are Failed ";
      break;
      case (score > 100 && score < 0 ): document.getElementById("result").innerHTML = "Invalid Score";
      break ;
      default:
        return document.getElementById("result").innerHTML = "Invalid Score";
    }

}
```



```
        return document.getElementById("result").innerHTML = "Invalid Score";
    }

}

function isEmpty()
{
    if(document.getElementById("marks").value.length == 0)
    {
        alert("Please Enter Marks First !!");

        document.getElementById("result").innerHTML = "Invalid Score";
    }
}
```



Output :



Conclusion : Therefore we have successfully implemented basics of javascript.