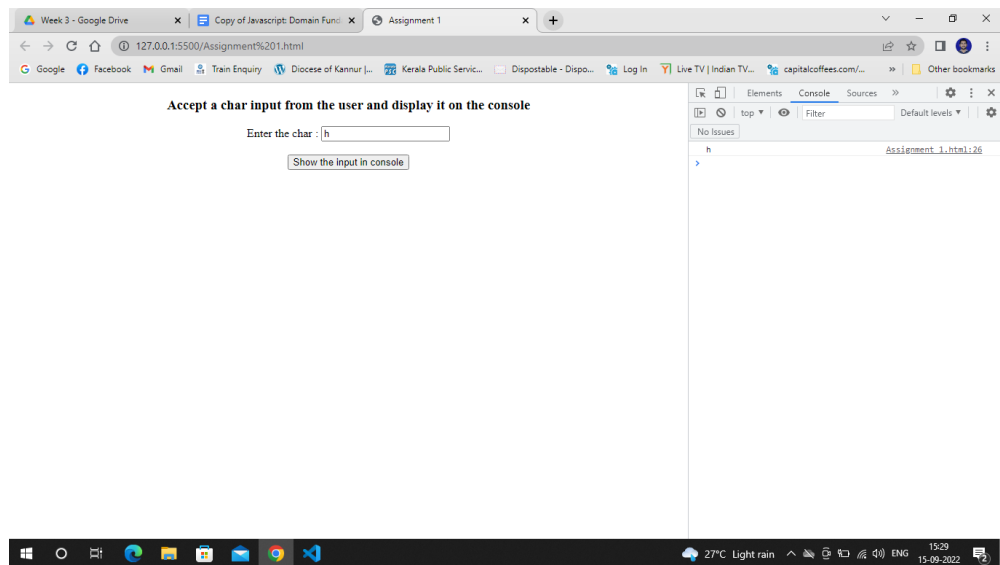# Assignments

1. Accept a char input from the user and display it on the console.

Code of the program & screenshot of the output.

```html
<div style="text-align: center;">
    <h3>Accept a char input from the user and display it on
the console</h3>
</div>
<div style="text-align: center;">
    <span>Enter the char :</span>
<input type="text" id="input">
<br>
<br>
<button onclick="show()">Show the input in console</button>
</div>

<script>
    function show() {
        var n = document.getElementById("input").value;
        console.log(n);
    }
</script>
```

2. Accept two inputs from the user and output their sum.

Variable	Data Type
Number 1	Integer
Number 2	Float
Sum	Float

Code of the program & screenshot of the output.

```
<body>
    <div style="text-align: center;">
        <h3>Accept two inputs from the user and output their
    sum.</h3>
    </div>
    <div style="text-align: center;">
        <div>
```

```html
        <span>Enter the 1st Number : </span>
        <input type="text" name="num1" id="num1">
        </div>
        <br>
        <div>
            <span>Enter the 2nd Number : </span>
        <input type="text" name="num2" id="num2">
        </div>
        <br>
        <div>
            <button onclick="sum()">Sum</button>
        </div>
        <div>
            <h4>Sum of Two Numbers is : <span
    id="result"></span></h4>
        </div>
    </div>

    <script>
        function sum(){
            var num1 =
    Number(document.getElementById('num1').value);
            var num2 =
    Number(document.getElementById("num2").value);

            let sum = num1+num2;
            console.log(sum);
            document.getElementById("result").innerHTML= sum;
        }
    </script>

</body>
```
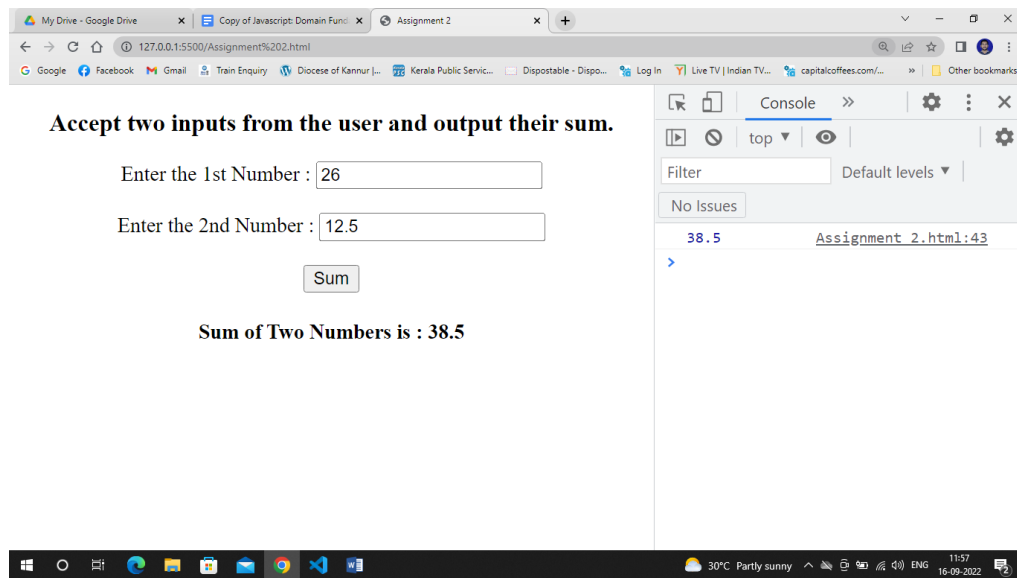
Accept two inputs from the user and output their sum.

Enter the 1st Number : 26

Enter the 2nd Number : 12.5

Sum

Sum of Two Numbers is : 38.5

3. Write a program to find the simple interest.

    a.   Program should accept 3 inputs from the user and calculate simple interest for the given inputs. Formula: $SI=(P*R*n)/100)$

Variable	Data Type
Principal amount (P)	Integer
Interest rate (R)	Float
Number of years (n)	Float
Simple Interest (SI)	Float

Code of the program & screenshot of the output.

```html
<body>
    <div style="text-align: center;">
        <h3>Accept two inputs from the user and output their
    sum.</h3>
    </div>
    <div style="text-align: center;">
        <span>Principal Amount : </span>
        <input type="text" id="principal">
        <br><br>

        <span>Interest Rate</span>
        <input type="text" id="interest">
        <br><br>

        <span>Number of Years</span>
        <input type="text" id="year">
        <br><br>

        <button onclick="cal()">Calculate</button>

        <h4>Simple Intest is : <span id="si"></span></h4>
    </div>

    <script>
        function cal(){
            var p =
    Number(document.getElementById("principal").value);
        var i = Number(document.getElementById("interest").value);
        var n = Number(document.getElementById("year").value);

        let simple = (p*i*n)/100;
        console.log("Simple Interest is : "+simple);
        document.getElementById("si").innerHTML = simple;
        }
    </script>
</body>
```
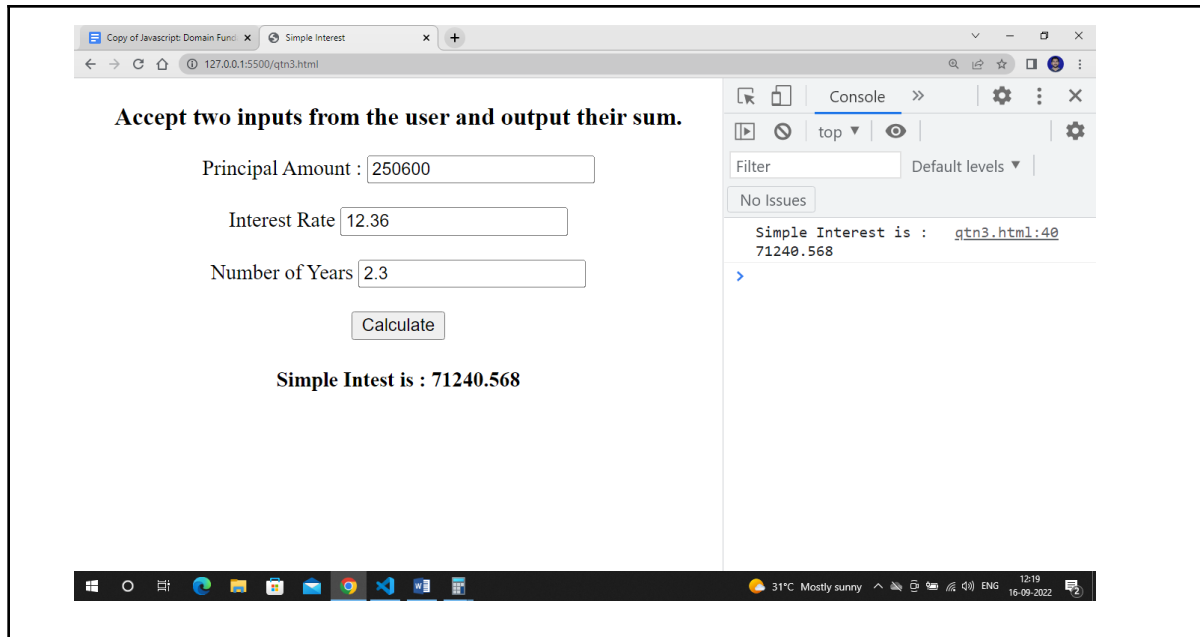
Accept two inputs from the user and output their sum.

Principal Amount : 250600

Interest Rate 12.36

Number of Years 2.3

Calculate

Simple Intest is : 71240.568

Console »

Filter   Default levels ▼

No Issues

Simple Interest is :   qtn3.html:40
71240.568

31°C Mostly sunny   ENG 12:19 16-09-2022

4. Write a program to check whether a student has passed or failed in a subject after he or she enters their mark (pass mark for a subject is 50 out of 100).

   a. Program should accept an input from the user and output a message as "Passed" or "Failed"

Variable	Data type
mark	float

Code of the program & screenshot of the output.

```
<body>
    <div style="text-align: center;">
        <h3>Write a program to check whether a student has passed
    or failed in a subject after he    or she enters their mark
    (pass mark for a subject is 50 out of 100).</h3>
    </div>
    <div style="text-align: center;">
        <span>Ente the Student mark</span>
```

```html
        <input type="text" name="" id="mark">
        <button id="check">Check</button>
        <h4 id="result"></h4>
    </div>

    <script>
        const btn = document.getElementById("check");

        btn.addEventListener("click",function onclick() {
            let mark = document.getElementById("mark").value;

            if(mark>=50){
                console.log("Passed");
                document.getElementById("result").innerHTML =
"Passed";
            }else{
                console.log("Failed");
                document.getElementById("result").innerHTML =
"Failed";
            }
        });
    </script>


</body>
```

Write a program to check whether a student has passed or failed in a subject after he or she enters their mark (pass mark for a subject is 50 out of 100).

Ente the Student mark | 74.3 | Check

Passed

5. Write a program to show the grade obtained by a student after he/she enters their total mark percentage.

    a. Program should accept an input from the user and display their grade as follows

Mark	Grade
> 90	A
80-89	B
70-79	C
60-69	D
50-59	E
< 50	Failed

Variable	Data type
Total mark	float

Code of the program & screenshot of the output.

```
<body>
    <div style="text-align: center;">
```

```html
      <h3>Write a program to show the grade obtained by a
student after he/she enters their total mark percentage</h3>
 </div>
 <div style="text-align: center;">
      <span>Total Percentage of Mark</span>
      <input type="text" name="" id="percentage">

      <button id="submit">Submit</button>
      <br><br>

      <h4 id="result"></h4>
 </div>

 <script>
      const btn = document.getElementById("submit");

      btn.addEventListener("click", function grade(){
          let p = document.getElementById("percentage").value;

          if(p>=90){
              console.log("Grade for : "+p+" A")
              document.getElementById("result").innerHTML =
"Grade for : "+p+" A";
          } else if(p>=80){
              console.log("Grade for : "+p+" B")
              document.getElementById("result").innerHTML =
"Grade for : "+p+" B";
          }else if(p>=70){
              console.log("Grade for : "+p+" C")
              document.getElementById("result").innerHTML =
"Grade for : "+p+" C";
          }else if(p>=60){
              console.log("Grade for : "+p+" D")
              document.getElementById("result").innerHTML =
"Grade for : "+p+" D";
          }else if(p>=50){
```
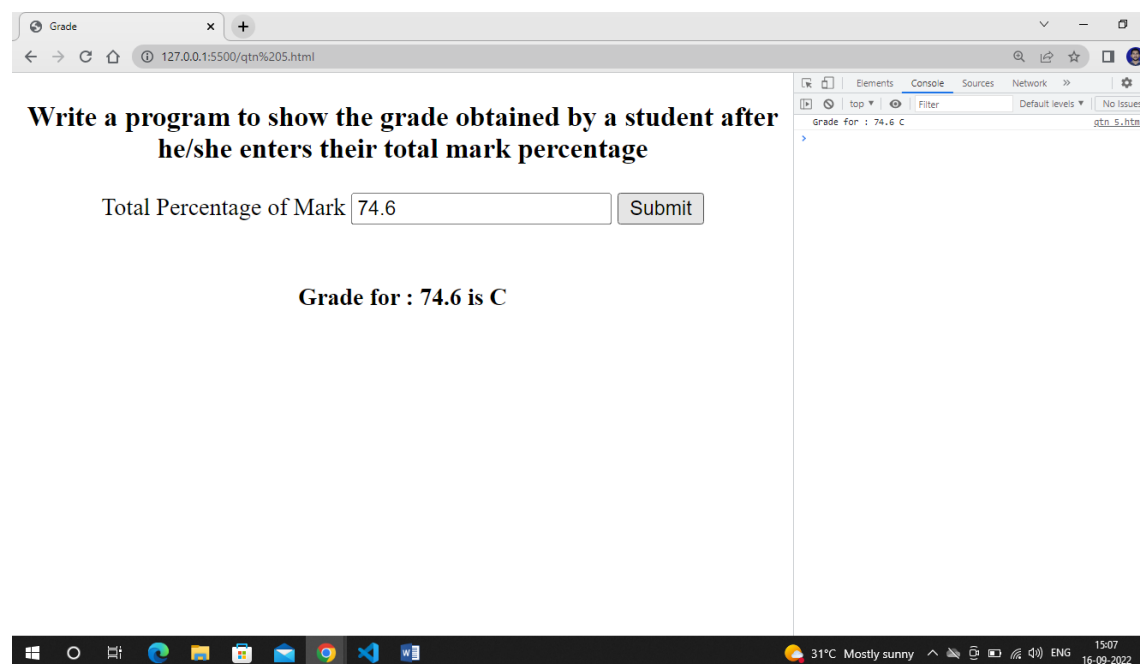
```
            console.log("Grade for :  "+p+" E")
            document.getElementById("result").innerHTML =
    "Grade for :  "+p+" E";
          }else{
            console.log("Failed");
            document.getElementById("result").innerHTML =
    "Failed";
          }
       })
    </script>

</body>
```

Write a program to show the grade obtained by a student after he/she enters their total mark percentage

Total Percentage of Mark 74.6   Submit

Grade for : 74.6 is C

6. Using the 'switch case' write a program to accept an input number from the user and output the day as follows.

Input	Output

1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday
Any other input	Invalid Entry

Code of the program & screenshot of the output.

```html
<body>
    <div style="text-align: center;">
        <h3>Using the 'switch case' write a program to accept an
  input number from the user and output the day as
          follows</h3>
    </div>
    <div style="text-align: center;">
        <span>Enter the number 1 to 7 check the day</span>
        <input type="text" name="" id="number">
        <br><br>

        <button id="btn">Check</button>
        <h4 id="day"></h4>
    </div>

    <script>
        const btn = document.getElementById("btn");
```

```javascript
btn.addEventListener("click", function day() {
    var num =
Number(document.getElementById("number").value);
    switch (num) {
        case 1:
            document.getElementById("day").innerHTML =
"Sunday";

            console.log("Sunday")
            break;
        case 2:
            document.getElementById("day").innerHTML =
"Monday";

            console.log("Monday");
            break;
        case 3:
            document.getElementById("day").innerHTML =
"Tuesday";

            console.log("Tuesday");
            break;
        case 4:
            document.getElementById("day").innerHTML =
"Wednesday";

            console.log("Wednesday");
            break;
        case 5:
            document.getElementById("day").innerHTML =
"Thursday";

            console.log("Thursday");
            break;
        case 6:
            document.getElementById("day").innerHTML =
"Friday";

            console.log("Friday");
            break;
        case 7:
```

```
                    document.getElementById("day").innerHTML =
    "Saturday";
                    console.log("Saturday");
                    break;
                default:
                    document.getElementById("day").innerHTML =
    "Invalid Entry";
                    console.log("Invalid Entry");
                    break;
            }
        });
    </script>


</body>
```
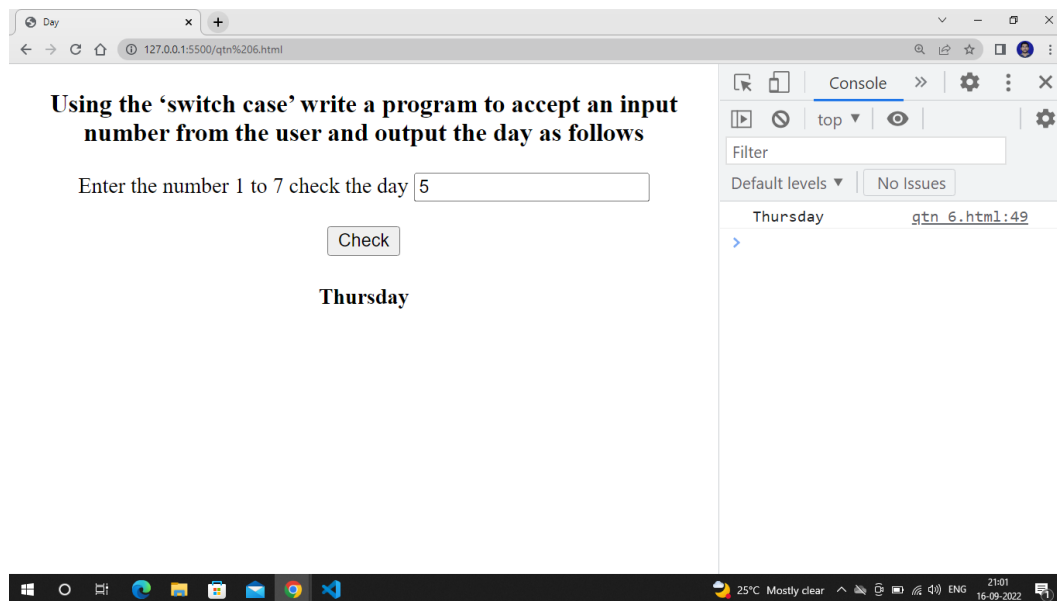

Using the 'switch case' write a program to accept an input number from the user and output the day as follows

Enter the number 1 to 7 check the day [5]

[Check]

Thursday

Console output:
Thursday   qtn_6.html:49

---

7. Write a program to print the multiplication table of given numbers.

   a.   Accept an input from the user and display its multiplication table

       Eg:

       Output: Enter a number

Input: 5

Output:

1 x 5 = 5

2 x 5 = 10

3 x 5 = 15

4 x 5 = 20

5 x 5 = 25

6 x 5 = 30

7 x 5 = 35

8 x 5 = 40

9 x 5 = 45

10 x 5 = 50
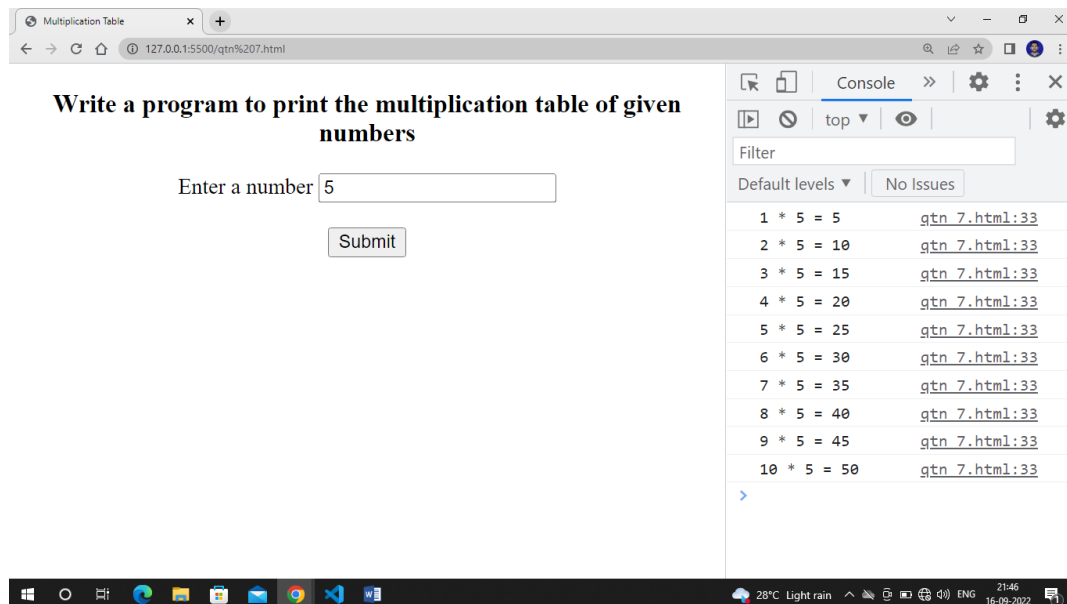
Code of the program & screenshot of the output.

```html
<body>
    <div style="text-align: center;">
        <h3>Write a program to print the multiplication table of
    given numbers</h3>
    </div>
    <div style="text-align: center;">
        <span>Enter a number</span>
        <input type="text" name="" id="number">
        <br><br>
        <button id="btn">Submit</button>
    </div>
    <script>
        var btn = document.getElementById("btn");
```

```
        btn.addEventListener("click", function multiplication(){
            var num =
    Number(document.getElementById("number").value);
            for(i=1;i<=10;i++){
                result = i*num;
                console.log(i+" * "+num+" = "+result);
            }
        })
    </script>
</body>
```


8. Write a program to find the sum of all the odd numbers for a given limit

    a.   Program should accept an input as limit from the user and display the sum of all the odd numbers within that limit

        For example if the input limit is 10 then the result is 1+3+5+7+9 = 25

        Output: Enter a limit

        Input: 10

Output: Sum of odd numbers = 25

Code of the program & screenshot of the output.

```html
<body>
    <div style="text-align: center;">
        <h3>Write a program to find the sum of all the odd numbers
    for a given limit</h3>
    </div>
    <div style="text-align: center;">
        <label>Enter a Limit</label>
        <input type="text" name="" id="limit">
        <button onclick="cal()">Submit</button>
        <br><br>
        <label for="">Sum of Odd Number is : <span
    id="result"></span></label>
    </div>

    <script>
        function cal(){
            let limit =
    Number(document.getElementById("limit").value);
            var sum = 0;
            for(i=1;i<=limit;i++){
                if(i%2 != 0){
                    sum=sum+i;
                }
            }
            document.getElementById("result").innerHTML = sum;
            console.log("Sum of odd numbers = "+sum);
        }
    </script>
</body>
```
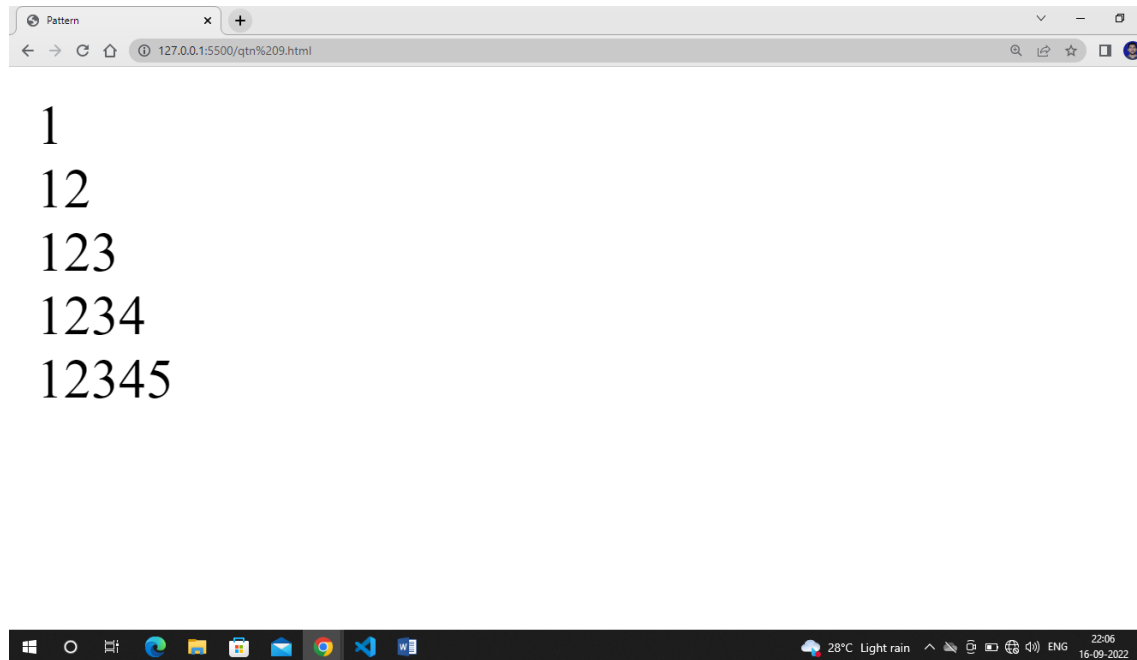
Write a program to find the sum of all the odd numbers for a given limit

Enter a Limit 10   Submit

Sum of Odd Number is : 25
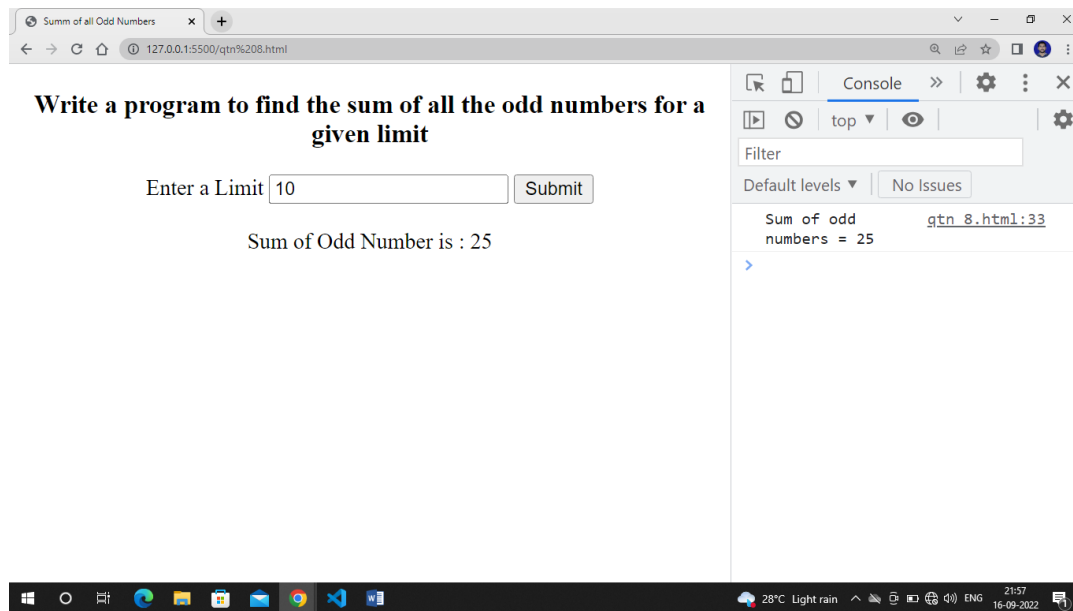
9. Write a program to print the following pattern (**hint**: use nested loop)

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Code of the program & screenshot of the output.

```
<script>
    for(i=1;i<=5;i++){
        for(j=1;j<=i;j++){
            console.log(j);
            document.write(j);
        }
        document.write("<br>")
```

```
        }
    </script>
```



```
1
12
123
1234
12345
```

10. Write a program to interchange the values of two arrays.

    a. Program should accept an array from the user, swap the values of two arrays and display it on the console

    Eg: **Output**: Enter the size of arrays

    Input: 5

    Output: Enter the values of Array 1

    Input: 10, 20, 30, 40, 50

    Output: Enter the values of Array 2

    Input: 15, 25, 35, 45, 55

    Output: Arrays after swapping:

Array1: 15, 25, 35, 45, 55

Array2: 10, 20, 30, 40, 50

Code of the program & screenshot of the output.

```html
<body>
    <div style="text-align: center;">
        <h3>Write a program to interchange the values of two
arrays</h3>
    </div>
    <div style="text-align: center;">
        <label>Enter the size of an Arrays</label>
        <input type="number" name="" id="size">
        <button onclick="size()">OK</button><br><br>

        <label>Enter the size of 1st Array</label>
        <input type="number" id="a1" disabled>
        <button onclick="save1()">Save</button><br><br>

        <label>Enter the size of 2nd Array</label>
        <input type="number" id="a2" disabled>
        <button onclick="save2()">Save</button><br><br>
        <!-- <button onclick="display()">Display
Array</button><br><br> -->

        <label style="color: red">Array 1 : </label><span
id="array1"></span>
        <br>
        <label style="color: red">Array 2 : </label><span
id="array2"></span>

        <div>
            <br>
            <button onclick="swap()">Swap</button>
        </div>
        <p>After Swaping</p>
```

```html
        <div>Array 1 : <span id="swap1"></span></div>
        <div>Array 2 : <span id="swap2"></span></div>
    </div>
    <script>
        // let a1 = document.getElementById("a1");
        var array1 = [];
        var array2 = [];
        function size() {
            let size =
Number(document.getElementById("size").value);
            if (size > 0) {
                document.getElementById("size").disabled = true;
                document.getElementById("a1").disabled = false;
            } else {
                document.getElementById("a1").disabled = true;
            }
        }
        var k=0;
        function save1() {

            let size =
Number(document.getElementById("size").value);

            if(k<size){
                var a1 =
Number(document.getElementById("a1").value);
                array1.push(a1);
                k = k+1;
                document.getElementById("array1").innerHTML =
array1.join(" , ");
            }else{
                document.getElementById("a1").disabled = true;
                document.getElementById("a2").disabled = false;
                k = 0;
            }
        }
```

```javascript
        function save2() {

            let size =
    Number(document.getElementById("size").value);

            if(k<size){
                var a2 =
    Number(document.getElementById("a2").value);
                array2.push(a2);
                k = k+1;
                document.getElementById("array2").innerHTML =
    array2.join(" , ");
            }else{
                document.getElementById("a2").disabled = true;
                k = 0;
            }
        }
        function swap(){
            var temp = [];

            temp = array1;
            array1 = array2;
            array2 = temp;

            document.getElementById("swap1").innerHTML
    =array1.join(",");
            document.getElementById("swap2").innerHTML
    =array2.join(",");
        }
    </script>
</body>
```

Write a program to interchange the values of two arrays

Enter the size of an Arrays   5   [OK]

Enter the size of 1st Array   50   [Save]

Enter the size of 2nd Array   55   [Save]

Array 1 : 10 , 20 , 30 , 40 , 50
Array 2 : 15 , 25 , 35 , 45 , 55

[Swap]

After Swaping

Array 1 : 15,25,35,45,55
Array 2 : 10,20,30,40,50

---

11. Write a program to find the number of even numbers in an array

    a. Program should accept an array and display the number of even numbers contained in that array

    Eg: **Output**: Enter the size of an array

    Input: 5

    Output: Enter the values of array

    Input: 11, 20, 34, 50, 33

    Output: Number of even numbers in the given array is 3

Code of the program & screenshot of the output.

```
<body>
    <div style="text-align: center;">
        <h3>Write a program to find the number of even numbers in
    an array</h3>
    </div>
    <div style="text-align: center;">
```

```html
<label>Enter the size of an Array</label>
<input type="text" name="" id="size">
<br><br>
<label>Enter the values of an Array</label>
<input type="text" name="" id="avalue">
<button onclick="save()">Save</button>
<div>
    <br>
    <button onclick="check()">Chcek</button>
</div>
<div>Values in Array : <span id="array1"></span></div>
<div>Number of even numbers in the given array is: <span
id="even"></span></div>
</div>
<script>
    var k=0;
    var array = [];
    var even = [];
    function save(){
        let size =
Number(document.getElementById("size").value);
        var value =
Number(document.getElementById("avalue").value);
        if(k<size){
            array.push(value);
            document.getElementById("array1").innerHTML=array;
            k = k+1;
        }

    }
    function check(){
        var count =0;
        for(i=0;i<array.length;i++){
            if(array[i]%2==0){
                count = count+1;
            }
```
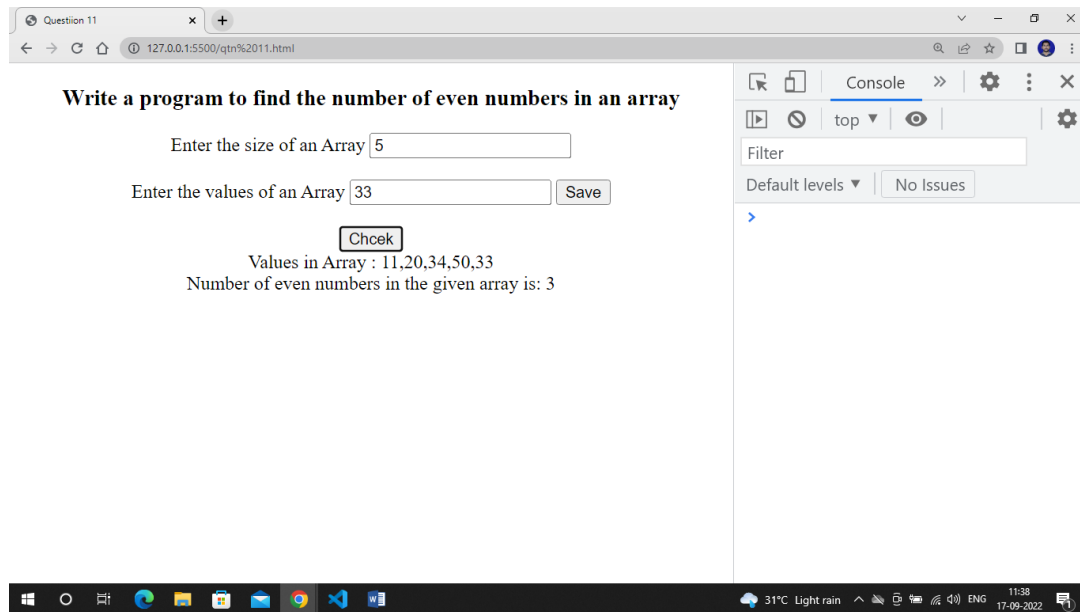
```
            }
            document.getElementById("even").innerHTML = count;
        }
    </script>
</body>
```

Write a program to find the number of even numbers in an array

Enter the size of an Array [5]

Enter the values of an Array [33]   [Save]

[Chcek]

Values in Array : 11,20,34,50,33

Number of even numbers in the given array is: 3

31°C Light rain   ENG 11:38 17-09-2022

12. Write a program to sort an array in descending order

    a. Program should accept and array, sort the array values in descending order and display it

      Eg: **Output**: Enter the size of an array

      Input: 5

      Output: Enter the values of array

      Input: 20, 10, 50, 30, 40

      Output: Sorted array:

      50, 40, 30, 20, 10

Code of the program & screenshot of the output.

```
<body>
    <div style="text-align: center;">
        <h3>Write a program to sort an array in descending
order</h3>
    </div>
    <div style="text-align: center;">
        <label>Enter the size of an Array</label>
        <input type="text" id="size">
        <br><br>
        <label>Enter the values of an Array</label>
        <input type="text" id="values">
        <button id="btnSave">Save</button>
        <br><br>
        <label>Array Values : <span id="array"></span></label>
        <button id="btnSort">Sort</button>
        <div>
            <br>
            <label>Sorted Array</label>
            <span id="sorted"></span>
        </div>
    </div>
    <script>

        let btnSave = document.getElementById("btnSave");
        let btnSort = document.getElementById("btnSort");
        var k = 0;
        var array = [];
        btnSave.addEventListener("click", function save() {
            let size =
Number(document.getElementById("size").value);
            var v =
Number(document.getElementById("values").value);
            if (k < size) {
                array.push(v);
```

```
                    document.getElementById("array").innerHTML =
  array;

                    k = k + 1;

                }

        });

        btnSort.addEventListener("click", function sort() {

            for (i = 0; i < array.length; i++) {

                for (j = i + 1; j < array.length; j++) {

                    if (array[i] < array[j]) {

                        temp = array[i];

                        array[i] = array[j];

                        array[j] = temp;

                    }

                }


            }

            document.getElementById("sorted").innerHTML = array;

        });


    </script>
</body>
```

Write a program to sort an array in descending order

Enter the size of an Array 5

Enter the values of an Array 40   Save

Array Values : 20,10,50,30,40   Sort

Sorted Array 50,40,30,20,10

31°C Partly sunny   ENG   12:35 17-09-2022

---
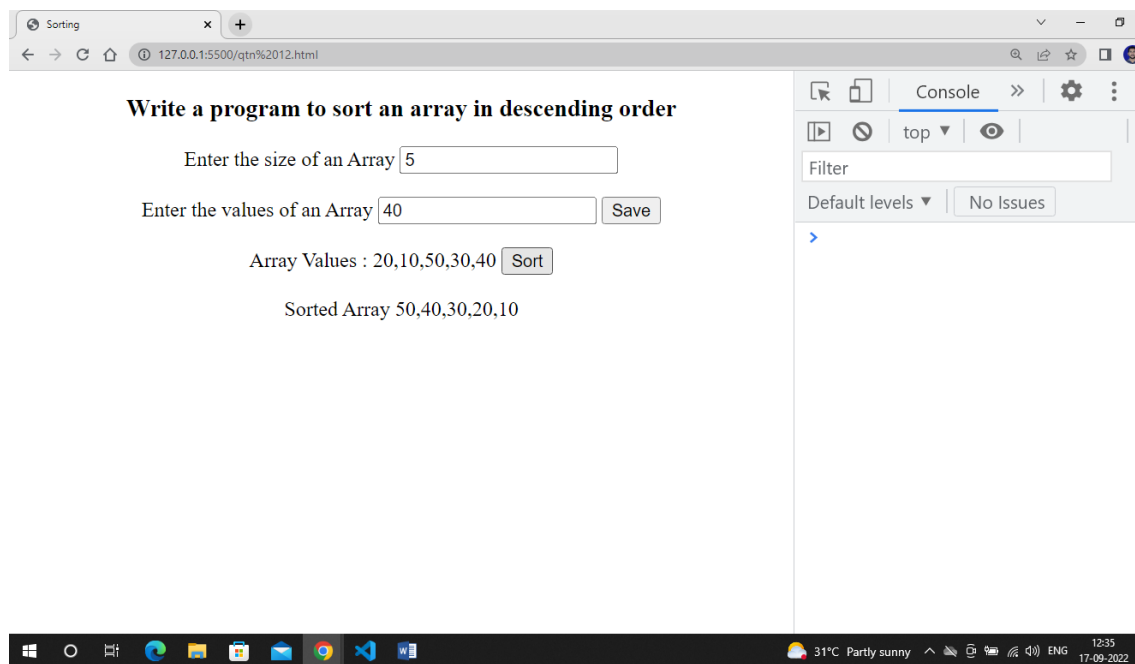
13. Write a program to identify whether a string is a palindrome or not

    a. A string is a palindrome if it reads the same backward or forward eg: MALAYALAM

       Program should accept a string and display whether the string is a palindrome or not

       Eg: **Output**: Enter a string

       Input: MALAYALAM

       Output: Entered string is a palindrome

       Eg 2: **Output**: Enter a string

       Input: HELLO

       Output: Entered string is not a palindrome

Code of the program & screenshot of the output.

```html
<body>
    <div style="text-align: center;">
        <h3>Write a program to sort an array in descending
  order</h3>
    </div>
    <div style="text-align: center;">
        <label>Enter a String : </label>
        <input type="text" name="" id="str">
        <button id="btn">Check</button>
        <div id="result"></div>
    </div>
    <script>
        let btn = document.getElementById("btn");
        btn.addEventListener("click", function palindrome() {
            var text = document.getElementById("str").value;
            const len = text.length;
            for (let i = 0; i < len / 2; i++) {
                if (text[i] !== text[len - 1 - i]) {
                    document.getElementById("result").innerHTML =
  ("Entered string is not a palindrome");
                }
            }
            document.getElementById("result").innerHTML =
  ("Entered string is a palindrome");
        })
    </script>

</body>
```

Write a program to sort an array in descending order

Enter a String : malayalam   Check

Entered string is a palindrome
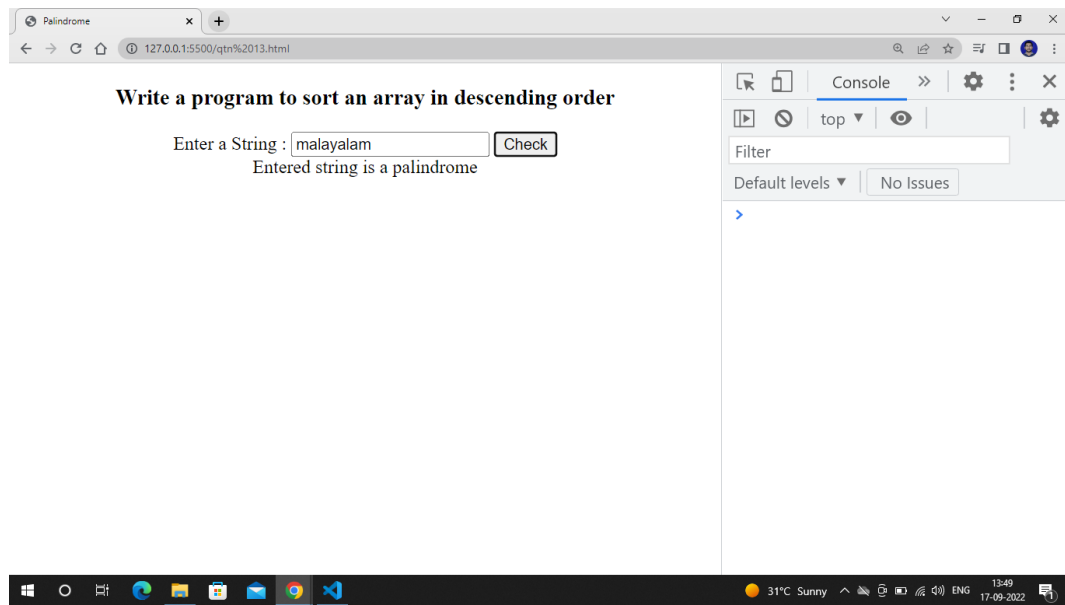
14. Write a program to add to two dimensional arrays

    a. Program should accept two 2D arrays and display its sum

       Eg: **Output**: Enter the size of arrays

       Input: 3

       Output: Enter the values of array 1

       Input:

       1 2 3

       4 5 6

       7 8 9

       Output: Enter the values of array 2

       Input:

       10 20 30

40 50 60

70 80 90

Output: Sum of 2 arrays is:

11 22 33

44 55 66

77 88 99

Code of the program & screenshot of the output.

```javascript
var prompt = require('prompt-sync')();

array1 = [];
array2 = [];
sum = [];

let limit = prompt("Enter the size");
console.log("Enter 1st Array Values");
for(let i=0;i<limit;i++){
    array1[i] =[];
    for(let j=0;j<limit;j++){
        array1[i][j] = prompt();
    }
}
console.log("Enter 2nd Array Values");
for(let i=0;i<limit;i++){
    array2[i] =[];
    for(let j=0;j<limit;j++){
        array2[i][j] = prompt();
    }
}
console.log("First Array");
console.table(array1);
console.log("Second Array");
```

```javascript
console.table(array2);
//Array value Adding
for(i=0;i<limit;i++){
    sum[i] =[];
    for(j=0;j<limit;j++){
        sum[i][j] = parseInt(array1[i][j]) +
   parseInt(array2[i][j]);
    }
}
console.log("After Add");
console.table(sum);
```

```
PS C:\Brototype\Week 3\Task Code and Output> node "c:\Brototype\Week 3\Task Code
Enter the size3
Enter 1st Array Values
1
2
3
4
5
6
7
8
9
Enter 2nd Array Values
10
20
30
40
50
60
70
80
90
First Array

┌─────────┬─────┬─────┬─────┐
│ (index) │  0  │  1  │  2  │
├─────────┼─────┼─────┼─────┤
│    0    │ '1' │ '2' │ '3' │
│    1    │ '4' │ '5' │ '6' │
│    2    │ '7' │ '8' │ '9' │
└─────────┴─────┴─────┴─────┘

Second Array

┌─────────┬──────┬──────┬──────┐
│ (index) │  0   │  1   │  2   │
├─────────┼──────┼──────┼──────┤
│    0    │ '10' │ '20' │ '30' │
│    1    │ '40' │ '50' │ '60' │
│    2    │ '70' │ '80' │ '90' │
└─────────┴──────┴──────┴──────┘

After Add

┌─────────┬────┬────┬────┐
│ (index) │ 0  │ 1  │ 2  │
├─────────┼────┼────┼────┤
│    0    │ 11 │ 22 │ 33 │
│    1    │ 44 │ 55 │ 66 │
│    2    │ 77 │ 88 │ 99 │
└─────────┴────┴────┴────┘

PS C:\Brototype\Week 3\Task Code and Output>
```

Ln 34, Col 20   Spaces: 4   UTF-8   CRLF   {} JavaScript   Go Live

15. Write a program to accept an array and display it on the console using functions

    a. Program should contain 3 functions including main() function

main()

1. Declare an array

2. Call function getArray()

3. Call function displayArray()

getArray()

1. Get values to the array

displayArray()

1. Display the array values

Code of the program & screenshot of the output.
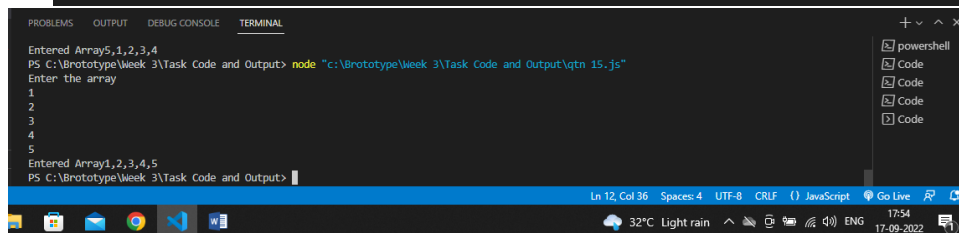
```javascript
var prompt = require("prompt-sync")();


limit = 5;
a = [];
function getArray(){
    console.log("Enter the array");
    for(let i=0;i<limit;i++){
        a[i] = prompt();
    }
}
function displayArray(){
    console.log("Entered Array"+a);
}
getArray();
displayArray();
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

```
Entered Array5,1,2,3,4
PS C:\Brototype\Week 3\Task Code and Output> node "c:\Brototype\Week 3\Task Code and Output\qtn 15.js"
Enter the array
1
2
3
4
5
Entered Array1,2,3,4,5
PS C:\Brototype\Week 3\Task Code and Output>
```

16. Write a program to check whether a given number is prime or not

    a. Program should accept an input from the user and display whether the number is prime or not
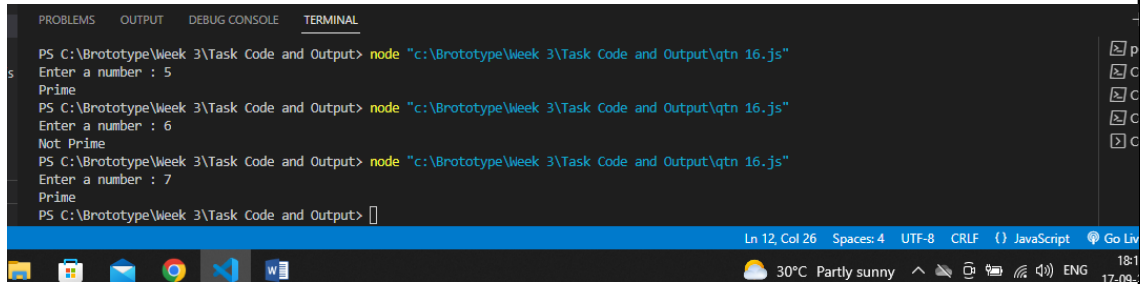
       Eg: **Output**: Enter a number

       Input: 7

       Output: Entered number is a Prime number

Code of the program & screenshot of the output.

```javascript
var prompt = require("prompt-sync")();

let number = prompt("Enter a number : ");
let flag=0;
for(i=2;i<number;i++){
    if(number%i==0){
        flag =1;
        break;
    }
}
if(flag==0){
    console.log("Prime");
}else{
    console.log("Not Prime");
}
```

17. Write a menu driven program to do the basic mathematical operations such as addition, subtraction, multiplication and division (**hint**: use if else ladder or switch)

    a. Program should have 4 functions named addition(), subtraction(), multiplication() and division()

    b. Should create a class object and call the appropriate function as user prefers in the main function
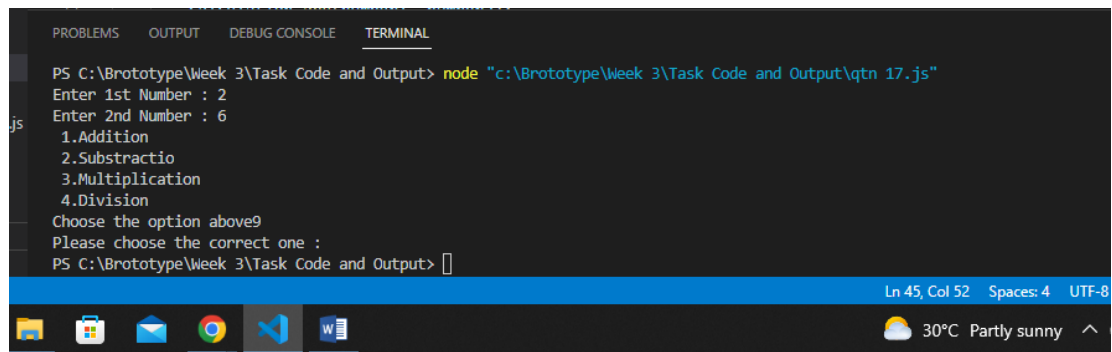
Code of the program & screenshot of the output.

```javascript
const prompt = require("prompt-sync")();


let number1 = prompt("Enter 1st Number : ");
number1 = parseFloat(number1);
let number2 = prompt("Enter 2nd Number : ");
number2 = parseFloat(number2);
let total;
console.log(" 1.Addition\n 2.Substractio\n 3.Multiplication\n
   4.Division");
let choose = prompt("Choose the option above");
choose = parseInt(choose);

class Calculation {
    add(number1, number2) {
        total = number1 + number2;
        console.log("Sum : "+total);
    }
```

```javascript
    substraction(number1,number2){
        total = number1 - number2;
        console.log("Substraction : "+total);
    }
    multiplication(number1,number2){
        total = number1 * number2;
        console.log("Multiplication : "+total);
    }
    divide(number1,number2){
        total = number1 / number2;
        console.log("Divide : "+total)
    }
}
let calculation = new Calculation();
switch (choose) {
    case 1:
        calculation.add(number1, number2);
        break;
    case 2:
        calculation.substraction(number1, number2);
        break;
    case 3:
        calculation.multiplication(number1, number2);
        break;
    case 4:
        calculation.divide(number1, number2);
        break;
    default:
        console.log("Please choose the correct one!");
}
```

18. Grades are computed using a weighted average. Suppose that the written test counts 70%, lab exams 20% and assignments 10%.

If Arun has a score of

Written test = 81

Lab exams = 68

Assignments = 92

Arun's overall grade = (81x70)/100 + (68x20)/100 + (92x10)/100 = 79.5

Write a program to find the grade of a student during his academic year.

    a. Program should accept the scores for written test, lab exams and assignments
    b. Output the grade of a student (using weighted average)

Eg:

Enter the marks scored by the students
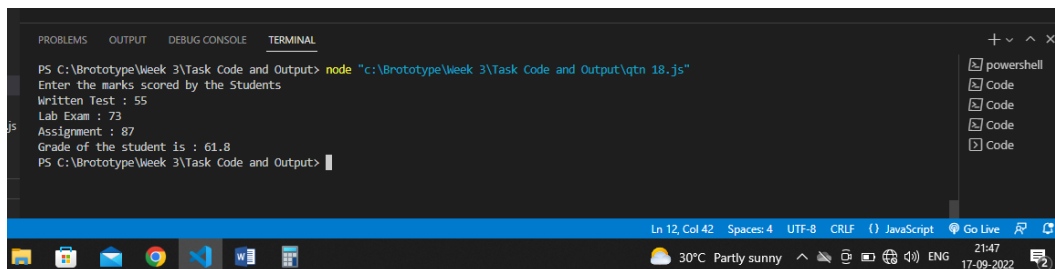
Written test = 55

Lab exams = 73

Assignments = 87

Grade of the student is 61.8

Code of the program & screenshot of the output.

```javascript
const prompt = require("prompt-sync")();

console.log("Enter the marks scored by the Students");
let written = prompt("Written Test : ");
written = parseFloat(written);
let lab = prompt("Lab Exam : ");
lab = parseFloat(lab);
let assignment = prompt("Assignment : ");
assignment = parseFloat(assignment);

let grade = (written*70)/100 + (lab*20)/100 + (assignment*10)/100;
console.log("Grade of the student is : "+grade);
```

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

PS C:\Brototype\Week 3\Task Code and Output> node "c:\Brototype\Week 3\Task Code and Output\qtn 18.js"
Enter the marks scored by the Students
Written Test : 55
Lab Exam : 73
Assignment : 87
Grade of the student is : 61.8
PS C:\Brototype\Week 3\Task Code and Output>
```

```
Ln 12, Col 42   Spaces: 4   UTF-8   CRLF   () JavaScript   Go Live

30°C  Partly sunny   ENG   21:47   17-09-2022
```

19. Income tax is calculated as per the following table

Annual Income	Tax percentage
Up to 2.5 Lakhs	No Tax
Above 2.5 Lakhs to 5 Lakhs	5%

Above 5 Lakhs to 10 Lakhs	20%
Above 10 Lakhs to 50 Lakhs	30%

Write a program to find out the income tax amount of a person.

a. Program should accept annual income of a person

Output the amount of tax he has to pay

Eg 1:

Enter the annual income

495000

Income tax amount = 24750.00

Eg 2:

Enter the annual income

500000

Income tax amount = 25000.00

Code of the program & screenshot of the output.

```javascript
const prompt = require("prompt-sync")();

console.log("Enter the annual income");
let income = prompt();
income = parseFloat(income);
let tax;
if(income<=250000){
    console.log("No Tax");
}else if(income=>250000 && income<=500000){
    tax = (income*5)/100;
    console.log("income Tax Amount : "+tax);
}else if(income>500000 && income<=1000000){
    tax = (income*20)/100;
```

```
      console.log("income Tax Amount : "+tax);
}else if(income>1000000 && income<=5000000){
    tax = (income*30)/100;
    console.log("income Tax Amount : "+tax);
}else{
    console.log("Income is exceed");
}
```

20. Write a program to print the following pattern using for loop

1

2   3

4   5   6

7   8   9   10

Code of the program & screenshot of the output.

```
let k=1;
let string ="";
for(let i=0;i<5;i++){
    for(let j=0;j<i;j++){
        string += k +" ";
        k =k+1;
    }
```

```
    string += "\n";
}
console.log(string);
```
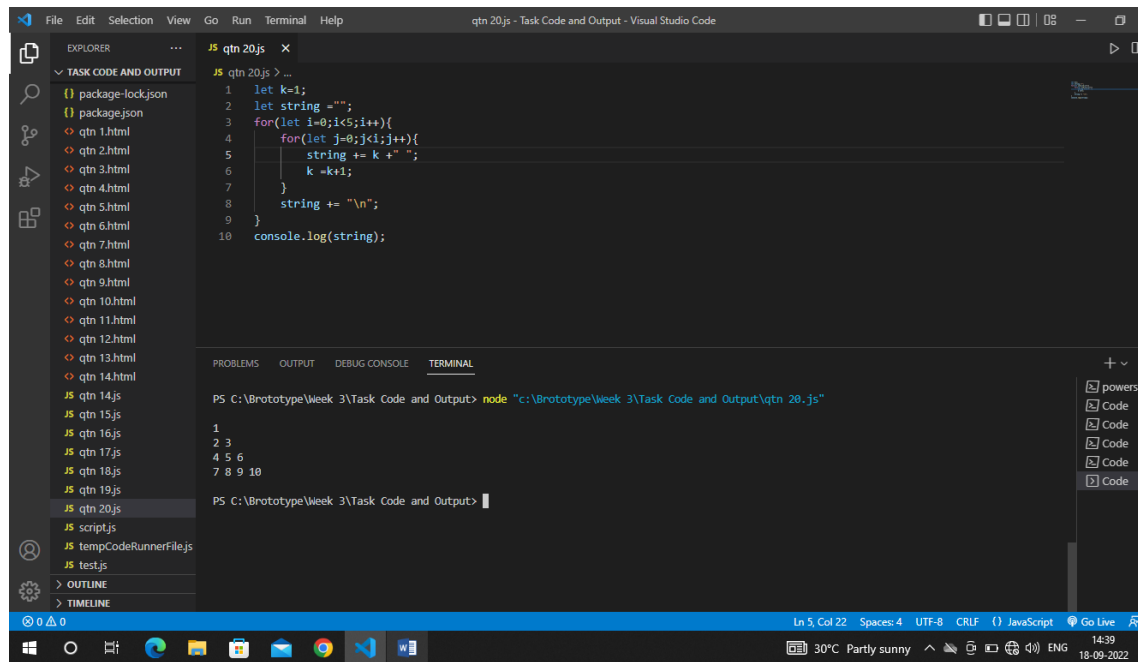

21. Write a program to multiply the adjacent values of an array and store it in an another array

     a. Program should accept an array

     b. Multiply the adjacent values

     c. Store the result into another array

     Eg:

     Enter the array limit

     5

     Enter the values of array

1	2	3	4	5

Output

2	6	12	20

Code of the program & screenshot of the output.

```javascript
const prompt = require("prompt-sync")();
let value = [];
var limit = prompt("Enter the array Limit : ")
limit = parseInt(limit);
console.log("Enter the values of Array");
for(let i=0;i<limit;i++){
    value[i] = prompt();
    value[i] = parseInt(value[i]);
}
let mult = [];
console.log("Output");
for(i=0;i<limit-1;i++){
    mult[i] = value[i]*value[i+1];
}
console.log(mult);
```

```
File  Edit  Selection  View  Go  Run  Terminal  Help                qtn 21.js - Task Code and Output - Visual Studio Code

EXPLORER              JS qtn 20.js        JS qtn 14.js        JS qtn 21.js  X

TASK CODE AND OUTPUT   JS qtn 21.js >
{} package-lock.json    1   const prompt = require("prompt-sync")();
{} package.json         2   let value = [];
<> qtn 1.html           3   var limit = prompt("Enter the array Limit : ")
<> qtn 2.html           4   limit = parseInt(limit);
<> qtn 3.html           5   console.log("Enter the values of Array");
<> qtn 4.html           6   for(let i=0;i<limit;i++){
<> qtn 5.html           7       value[i] = prompt();
<> qtn 6.html           8       value[i] = parseInt(value[i]);
<> qtn 7.html           9   }
<> qtn 8.html          10   let mult = [];
<> qtn 9.html          11   console.log("Output");
<> qtn 10.html         12   for(i=0;i<limit-1;i++){
<> qtn 11.html         13       mult[i] = value[i]*value[i+1];
<> qtn 12.html         14   }
<> qtn 13.html         15   console.log(mult);
<> qtn 14.html
JS qtn 14.js         PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL
JS qtn 15.js
JS qtn 16.js         PS C:\Brototype\Week 3\Task Code and Output> node "c:\Brototype\Week 3\Task Code and Output\qtn 21.js"
JS qtn 17.js         Enter the array Limit : 5
JS qtn 18.js         Enter the values of Array
JS qtn 19.js         1
JS qtn 20.js         2
JS qtn 21.js         3
JS script.js         4
JS tempCodeRunnerFile.js  5
                     Output
> OUTLINE            [ 2, 6, 12, 20 ]
> TIMELINE           PS C:\Brototype\Week 3\Task Code and Output>
```

22. Write a program to add the values of two 2D arrays

    a. Program should contains 3 functions including the main function

main()

1. Call function getArray()
2. Call function addArray()
3. Call function displayArray()

getArray()

1. Get values to the array

getArray()

1. Add array 1 and array 2

displayArray()

1. Display the array values

Eg:

Enter the size of array

2

Enter the values of array 1

1   2

3   4

Enter the values of array 2

5   6

7   8

Output:

Sum of array 1 and array 2:

6   8

10   12

Code of the program & screenshot of the output

```javascript
const prompt = require("prompt-sync")();
let arr1 = [];
let arr2 = [];
let sum = [];
let size = prompt("Enter the size of an Array");
size = parseInt(size);
getArray();
addArray();
displayArray();
```

```javascript
function getArray() {
    console.log("Enter the values of 1st Array");
    for (i = 0; i < size; i++) {
        arr1[i] = [];
        for (j = 0; j < size; j++) {
            arr1[i][j] = prompt();
            arr1[i][j] = parseFloat(arr1[i][j]);
        }
    }
    console.log("Enter the values of 2st Array");
    for (i = 0; i < size; i++) {
        arr2[i] = [];
        for (j = 0; j < size; j++) {
            arr2[i][j] = prompt();
            arr2[i][j] = parseFloat(arr2[i][j]);
        }
    }
}
function addArray() {
    for (i = 0; i < size; i++) {
        sum[i] =[];
        for(j=0;j<size;j++){
            sum[i][j] = arr1[i][j] + arr2[i][j];
        }
    }
}
function displayArray() {
    console.log("Sum of array 1 and array 2");
    console.table(sum);
}
```

23. Write an object oriented program to store and display the values of a 2D array

    a. Program should contains 3 functions including the main function

    main()

        1. Declare an array
        2. Call function getArray()
        3. Call function displayArray()

    getArray()

        1. Get values to the array

    displayArray()

        1. Display the array values

    Eg:

    Enter the size of array

3

Enter the array values

1	2	3
4	5	6
7	8	9

Array elements are:

1	2	3
4	5	6
7	8	9

Code of the program & screenshot of the output

```javascript
const prompt = require("prompt-sync")();
let array=[];
let size = prompt("Enter the size of an Array");
size = parseInt(size);

console.log("Enter the array Valuies");
for(i=0;i<size;i++){
    array[i] = [];
    for(j=0;j<size;j++){
        array[i][j] = prompt();
        array[i][j] = parseFloat(array[i][j]);
    }
}
console.log("Array Elements Are :");
console.table(array);
```

24. Write a menu driven program to calculate the area of a given object.

    a. Program should contain two classes

        i. Class 1: MyClass

        ii. Class 2: Area

    b. Class MyClass should inherit class Area and should contain the following functions

        i. main()

        ii. circle()

        iii. square()

        iv. rectangle()

        v. triangle()

    c. Class Area should contain the following functions to calculate the area of different objects

        i. circle()

        ii. square()

        iii. rectangle()

        iv. triangle()

Class MyClass extends Area{

    public static void main(string args[]){

    }

```
        circle() {

        }

        square() {

        }

        rectangle() {

        }

        triangle() {

        }

}

Class Area{

        circle(){

        }

        square(){

        }

        rectangle() {

        }

        triangle() {

        }
```

```
}
```

Eg 1:

Enter your choice

1. Circle
2. Square
3. Rectangle
4. Triangle

2

Enter the length

2

Output

Area of the square is: 4

Eg 2:

Enter your choice

1. Circle
2. Square
3. Rectangle
4. Triangle

1

Enter the radius

3

Output

Area of the circle is: 28.26

Code of the program & screenshot of the output

```html
<body>
    <h4>enter your choice</h4>
    <h5>1.circle</h5>
    <h5>2.square</h5>
    <h5>3.rectangle</h5>
    <h5>4.triangle</h5>
    <input type="number" id="ch" />
    <button onclick="subm()">OK</button><br /><br />
    <div id="space1"></div>
    <input type="number" id="num1" />
    <div id="space2"></div>

    <input type="number" id="num2" /><br /><br />

    <button onclick="main()">Area</button>
    <div id="space3"></div>
    <input type="number" name="" id="res" />

    <script>
      function subm() {
        let ch = Number(document.getElementById("ch").value);
        switch (ch) {
          case 1:
            document.getElementById("space1").innerHTML = "enter
  the radius";
```

```javascript
            document.getElementById("num2").disabled = true;

            break;
        case 2:
            document.getElementById("space1").innerHTML =
              "enter the size of side";
            document.getElementById("num2").disabled = true;

            break;
        case 3:
            document.getElementById("space1").innerHTML = "enter
the length ";
            document.getElementById("space2").innerHTML = "enter
the breadth";

            break;
        case 4:
            document.getElementById("space1").innerHTML = "enter
the height ";
            document.getElementById("space2").innerHTML =
              "enter the base length";

            break;
        default:
            alert("Invalid input");
            break;
    }
  }
  function main() {
    let num1;
    let num2;
    let res;

    let ch = Number(document.getElementById("ch").value);
    class myClass {
      circle() {
```

```javascript
      num1 = Number(document.getElementById("num1").value);
    }
    square() {
      num1 = Number(document.getElementById("num1").value);
    }
    rectangle() {
      num1 = Number(document.getElementById("num1").value);

      num2 = Number(document.getElementById("num2").value);
    }
    triangle() {
      num1 = Number(document.getElementById("num1").value);

      num2 = Number(document.getElementById("num2").value);
    }
  }


  class area extends myClass {
    circle() {
      const pi = 3.14;
      res = pi * num1 * num1;
      document.getElementById("space3").innerHTML = "Area of
circle is";
      document.getElementById("res").value = res;
    }
    square() {
      res = num1 * num1;
      document.getElementById("space3").innerHTML = "Area of
square is";
      document.getElementById("res").value = res;
    }
    rectangle() {
      res = num1 * num2;
      document.getElementById("space3").innerHTML = "Area of
square is";
      document.getElementById("res").value = res;
```

```
            }
          triangle() {
            res = (1 / 2) * num1 * num2;
            document.getElementById("space3").innerHTML = "Area of
square is";
            document.getElementById("res").value = res;
          }
        }
      let obj = new area();
      let obj1 = new myClass();
      switch (ch) {
        case 1:
          obj1.circle();
          obj.circle();
          break;
        case 2:
          obj1.square();
          obj.square();
          break;
        case 3:
          obj1.rectangle();
          obj.rectangle();
          break;
        case 4:
          obj1.triangle();
          obj.triangle();
          break;
        default:
          alert("Invalid input");
          break;
        }
      }
    </script>

</body>
```

enter your choice

1.circle

2.square

3.rectangle

4.triangle

[1] [OK]

enter the radius
[3]
[ ]

[Area]
Area of circle is
[28.259999999999998]

25. Write a Javascript program to display the status (I.e. display book name, author name & reading status) of books. You are given an object library in the code's template. It contains a list of books with the above mentioned properties.Your task is to display the following:

- If the book is unread:
  You still need to read '<book_name>' by <author_name>.
- If the book is read:
  Already read '<book_name>' by <author_name>.

  var library = [

  {

  title: 'Bill Gates',

  author: 'The Road Ahead',

  readingStatus: true

```
        },

        {

            title: 'Steve Jobs',

            author: 'Walter Isaacson',

            readingStatus: true

        },

        {

            title: 'Mockingjay: The Final Book of The Hunger Games',

            author: 'Suzanne Collins',

            readingStatus: false

        }

    ];
```

Code of the program & screenshot of the output.

```html
<!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">
    <title>Question 5</title>
</head>
<body>
    <h4>Enter the book name</h4>
```

```html
<input type="text" id="input" />
<button onclick="check()">check</button>
<div id="space"></div>

<script>
  function check() {
    let title;
    let author;

    let library = [
      {
        title: "Bill Gates",
        author: "The Road Ahead",
        readingStatus: true,
      },
      {
        title: "Steve Jobs",
        author: "Walter Isaacson",
        readingStatus: true,
      },
      {
        title: "Mockingjay: The Final Book of The Hunger
Games",
        author: "Suzanne Collins",
        readingStatus: false,
      },
    ];

    let flag = 0;
    let str = String(document.getElementById("input").value);
    let len = library.length;
    for (let i = 0; i < len; i++) {
      if (library[i].title == str) {
        if (library[i].readingStatus == true) {
          document.getElementById(
            "space"
```
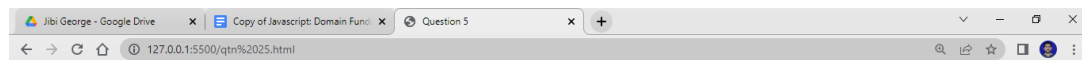
```
            ).innerHTML = `Already readed ${library[i].title},
by ${library[i].author}`;
            } else {
                document.getElementById(
                    "space"
                ).innerHTML = `You still need to read
${library[i].title}, by ${library[i].author}`;
            }

            break;
        } else {
            document.getElementById("space").innerHTML =
                "does not match of any book";
        }
    }
    </script>

</body>
</html>
```

Enter the book name

Steve Jobs   check
Already readed Steve Jobs, by Walter Isaacson

26. Given a variable named my_string, *try* reversing the string using my_string.split().reverse().join() and then print the reversed string to the console. If the *try* clause has an error, print the error message to the console. Finally, print the *typeof* of the my_string variable to the console.

Output format:

The statement to print in the *try*block is:

Reversed string is : ${my_string}

The statement to print in the *catch*block is:

Error : ${err.message}

The statement to print in the *finally* block is:

Type of my_string is : ${typeof my_string}

Eg:

a) Sample Input 0

"1234"

Sample Output 0

Reversed string is : 4321

Type of my_string is : string

b) Sample Input 1

Number(1234)

Sample Output 1

Error : my_string.split is not a function

Type of my_string is : number

Code of the program & screenshot of the output.

```html
<!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">
    <title>Question 26</title>
</head>
<body>
    <h5>1.split string</h5>
    <h5>2.reverse string</h5>
    <h5>3.join string</h5>
    <h4>enter your choice</h4>
    <input type="number" name="" id="ch" />
    <button onclick="oper()">Ok</button>
    <h4>Enter a string</h4>
    <input type="text" name="" id="input" />
    <input type="text" name="" id="input1" />
    <button onclick="operate()">change</button>

    <div id="space"></div>
    <div id="space2"></div>

    <script>
      function oper() {
        let ch = Number(document.getElementById("ch").value);
        switch (ch) {
          case 1:
            document.getElementById("input1").disabled = true;
```

```javascript
            break;
         case 2:
            document.getElementById("input1").disabled = true;
            break;
         case 3:
            document.getElementById("input1").enabled = true;
            break;
         default:
            alert("invalid input");
            break;
      }
   }


   function operate() {
      let ch = Number(document.getElementById("ch").value);
      let str;
      switch (ch) {
         case 1:
            str = document.getElementById("input").value;

            let splitString = str.split("");
            document.getElementById("space").innerHTML =
splitString;

            break;

         case 2:
            str = String(document.getElementById("input").value);
            try {
               console.log(str.split("").reverse().join(""));
            } catch (e) {
               console.log(e.message);
            } finally {
               console.log(typeof str);
            }
```

```
            let reverseString = str.split("").reverse().join("");
            document.getElementById("space").innerHTML =
    reverseString;
            break;


        case 3:
            str = document.getElementById("input").value;
            let str1 = document.getElementById("input1").value;
            let joinString = str.concat(str1);
            document.getElementById("space").innerHTML =
    joinString;
            break;
        }
    }
    </script>


</body>
</html>
```

1.split string

2.reverse string

3.join string

enter your choice

[2] [Ok]

Enter a string

[hello] [   ] [change]
olleh

27. Given a variable named userHeight, you must throw errors under the following

conditions:

- notANumberError- When userHeight is NaN
- HugeHeightError – When userHeight is greater than 200
- TinyHeightError - When userHeight is less than 40

Eg:

a) Sample Input 0

test

Sample Output 0

notANumberError

b) Sample Input 1

250

Sample Output 1

hugeHeightError

c) Sample Input 2

0

Sample Output 2

tinyHeightError

d) If userHeight is valid print 'valid'

Code of the program & screenshot of the output.

```html
<!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">
    <title>Question 27</title>
```

```html
</head>
<body>
    <h5>Enter your height</h5>
    <input type="text" name="" id="input">
    <button onclick="show()">Check</button>
    <div id="space"></div>

    <script>
        function show(){
            let input =
    Number(document.getElementById("input").value);
            if(input>5&&input<70){
                document.getElementById("space").innerHTML="Height
    is "+input;
            }else{

            try{
                if(isNaN(input))throw "NotANumberError";
                if(input<5)throw "TinyHeightError";
                if(input>70)throw "HugeHeightError";


            }
            catch(err){
                document.getElementById("space").innerHTML="input
    is "+err;
            }
        }
        }
    </script>

</body>
</html>
```
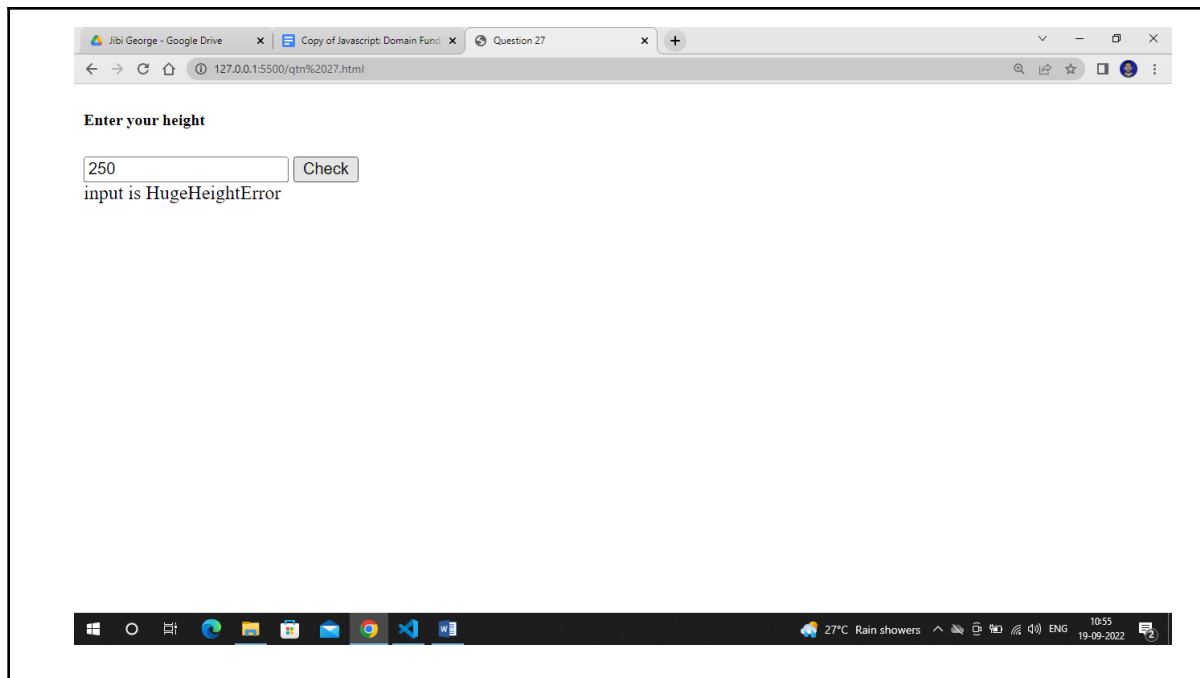
Enter your height

| 250 | Check |

input is HugeHeightError

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---

28. Create a constructor function that satisfies the following conditions:

    a. The name of the constructor function should be *Car*.

    b. It should take three parameters: *name, mileage* and *max_speed*.

    c. Store these parameter values in their respective *this*keywords: *this.name, this.mileage* and *this.max_speed*.
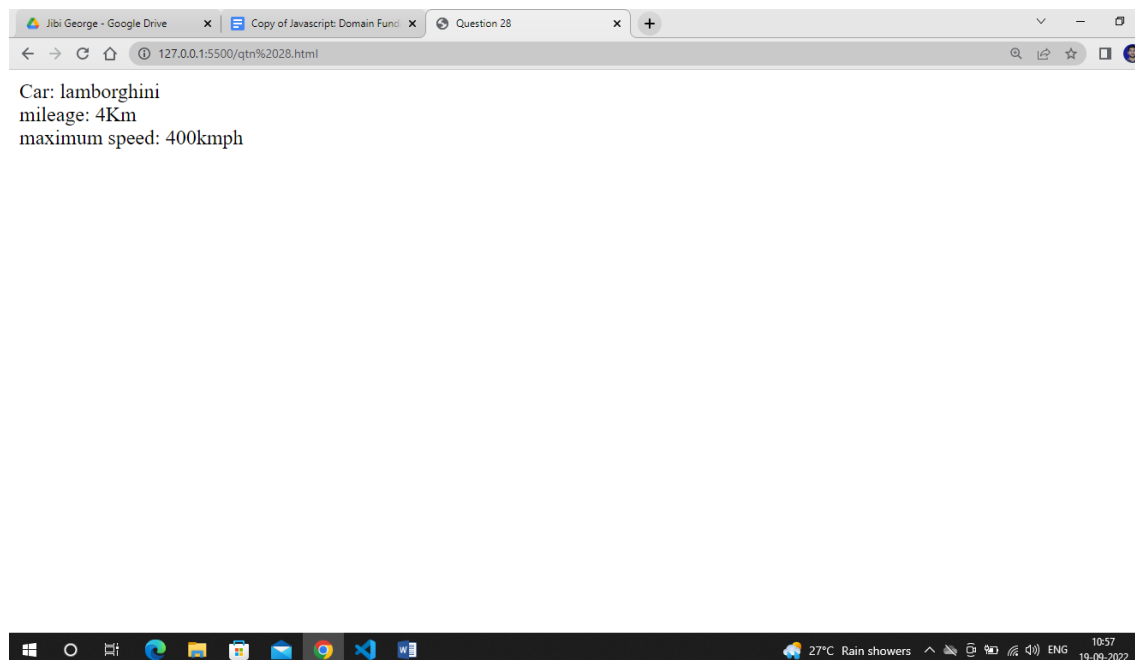

Code of the program & screenshot of the output.

```html
<!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">
    <title>Question 28</title>
```

```
</head>
<body>
    <script>
        function Car(name,mileage,max_speed){
            this.name=name;
            this.mileage=mileage;
            this.max_speed=max_speed;
        }
        let car=new Car('lamborghini',4,400);
        document.write("Car:     "+car.name+"<br>mileage:
    "+car.mileage+"Km<br>maximum speed:   "+car.max_speed+"kmph")
    </script>
</body>
</html>
```

Car: lamborghini
mileage: 4Km
maximum speed: 400kmph

29. Write a myFilter function that takes 2 parameters: myArray and callback. Here, myArray is an array of numbers and callback is a function that takes the elements of myArray as its parameter and returns a boolean true if the sum of the number is even or false if the sum of the number is odd.

The myFilter function should return the sum of the array.

a) **Sample Input**

   12345

b) **Sample Output**

   15

Code of the program & screenshot of the output.

```html
<body>
    <label for="">sum of array elements are</label>

    <div id="space"></div>
    <label for="">Elements are</label>
    <div id="space1"></div>
</body>

</html>

<script>
    var s = [1, 3, 5];

    Array.prototype.myFilter = function (callback) {
        var newArray = [];
        var newArray1 = [];

        for (var i = 0; i < this.length; i++) {
            if (callback(this[i]) === true) {
                newArray.push(this[i]);
            }
            document.getElementById("space1").innerHTML =
    newArray;
        }
```

```javascript
        var temp = 0;

        for (var i = 0; i < newArray.length; i++) {
            temp = temp + newArray[i];
        }

        if (temp % 2 != 0) {
            document.getElementById("space").innerHTML = temp;

            return temp;
        }

        return newArray;
    };

    var new_s = s.myFilter(function (item) {
        return item % 2 === 1;
    });
</script>

</body>
```

sum of array elements are
9
Elements are
1,3,5