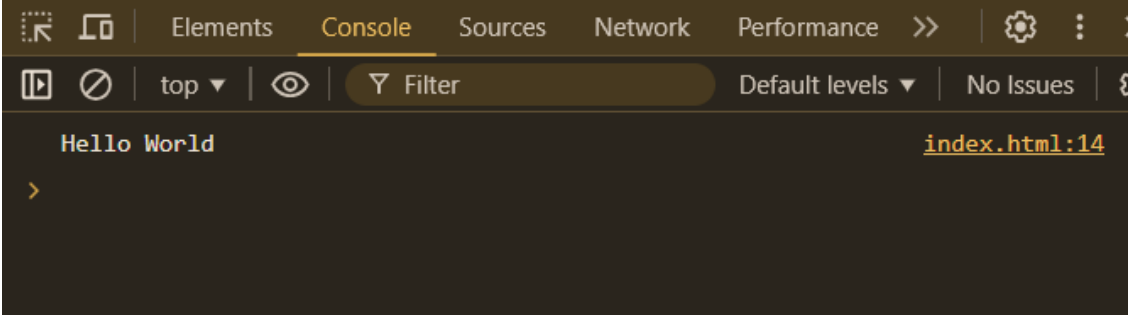


Assignments

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

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
</head>
<body>
  <input type="text" id="text">
  <button onclick="submit()">Submit</button>
  <script>
    function submit(){
      let text =document.getElementById("text").value;
      console.log(text);
    }
  </script>
</body>
</html>
```



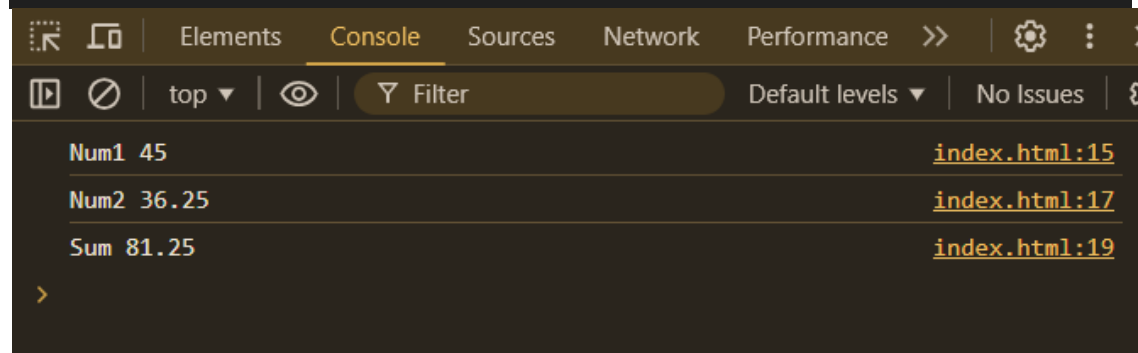
The screenshot shows the bottom portion of a web browser window. The developer tools are open, with the 'Console' tab selected. The console displays the message 'Hello World' in a light blue font, with a yellow arrow icon to its left. To the right of the message, the source is identified as 'index.html:14'. Above the console, the developer tools toolbar is visible, showing tabs for 'Elements', 'Console', 'Sources', 'Network', and 'Performance'. The 'Console' tab is active, and the 'Filter' button is visible. The 'No Issues' status is also shown.

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

Variable	Data Type
Number 1	Integer
Number 2	Float
Sum	Float

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
</head>
<body>
  <input type="number" id="num1" placeholder="number1">
  <input type="number" id="num2" placeholder="number2">
  <button onclick="submit()">Submit</button>
  <script>
    function submit(){
      const num1 =
Number(document.getElementById("num1").value);
      console.log("Num1 "+num1)
```

```
        const num2 =
Number(document.getElementById("num2").value);
        console.log("Num2 "+num2)
        const sum = num1+num2;
        console.log("Sum "+sum)
    }
</script>
</body>
</html>
```



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: $SI = (P \times R \times n) / 100$

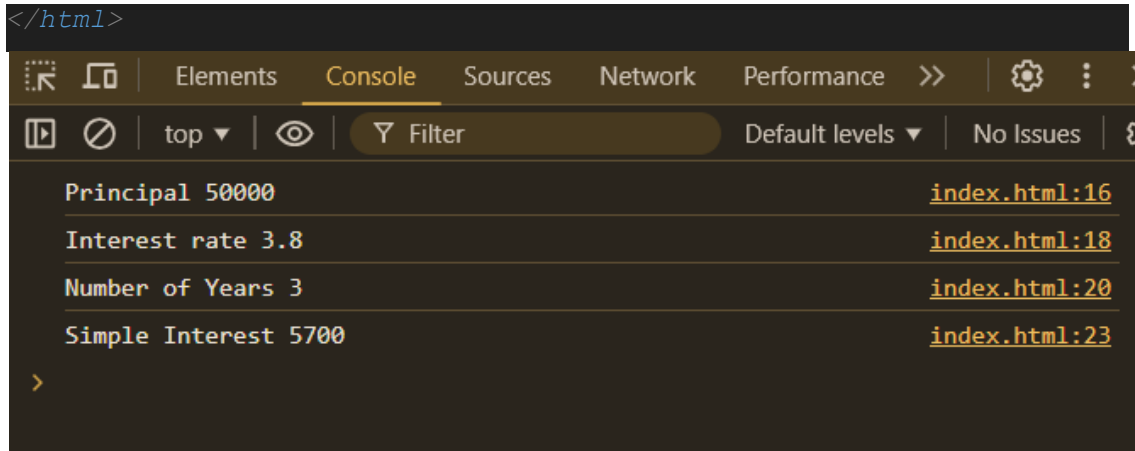
Variable	Data Type
Principal amount (P)	Integer
Interest rate (R)	Float
Number of years (n)	Float

Simple Interest (SI)	Float
----------------------	-------

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
</head>
<body>
  <input type="number" id="principal" placeholder="Principal">
  <input type="number" id="interestRate" placeholder="Interest
Rate">
  <input type="number" id="years" placeholder="Number of years">
  <button onclick="submit()">Submit</button>
  <script>
    function submit(){
      const principal =
Number(document.getElementById("principal").value);
      console.log("Principal "+principal)
      const interestRate =
Number(document.getElementById("interestRate").value);
      console.log("Interest rate "+interestRate)
      const years =
Number(document.getElementById("years").value);
      console.log("Number of Years "+years)

      const si=(principal*interestRate*years)/100;
      console.log("Simple Interest "+si)
    }
  </script>
</body>
```

```
</html>
```



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

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
</head>
<body>
  <input type="number" id="mark" placeholder="Enter your mark">
```

```
<button onclick="submit()">Submit</button>

<!-- javascript -->
<script>
    function submit(){
        const mark = document.getElementById("mark").value
        console.log("Mark = "+mark)
        if(mark>50 && mark<=100){
            console.log("You are passed")
        } else if(mark <= 50){
            console.log("You are failed")
        } else {
            console.log("Enter valid mark")
        }
    }
</script>
</body>
</html>
```

Elements Console Sources Network Performance >> | ⚙️ ⋮ >

📄 🔍 top ▼ | 👁️ | 🏠 Filter Default levels ▼ | No Issues | ⚙️

Mark = 75	index.html:17
You are passed	index.html:19
Mark = 150	index.html:17
Enter valid mark	index.html:23
Mark = 42	index.html:17
You are failed	index.html:21

>

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

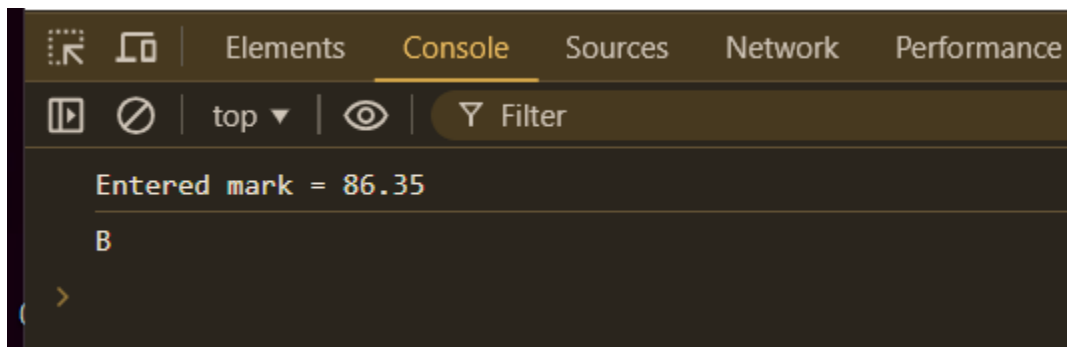
- a. Program should accept an input from the user and display their grade as follows

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

Variable	Data type
Total mark	float

```
const mark = prompt("Enter the mark ");
console.log("Entered mark = "+mark);

if(mark>=90 && mark<=100){
    console.log("A");
}else if(mark>=80 && mark<90){
    console.log("B");
}else if(mark>=70 && mark<80){
    console.log("C");
}else if(mark>=60 && mark<70){
    console.log("D");
}else if(mark>=50 && mark<60){
    console.log("E");
}else if(mark<50 && mark>=0){
    console.log("Failed");
}else{
    console.log("Enter valid mark");
}
```



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

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
</head>
<body>
  <input type="number" id="day" placeholder="Enter a number">
  <button onclick="submit()">Submit</button>

  <!-- javascript -->
  <script>
    function submit(){
      const day =
Number(document.getElementById("day").value)
      console.log("Day = "+day);
    }
  </script>
</body>
</html>
```

```
switch (day){
  case 1:
    console.log("Sunday");
    break;

  case 2:
    console.log("Monday");
    break;

  case 3:
    console.log("Tuesday");
    break;

  case 4:
    console.log("Wednesday");
    break;

  case 5:
    console.log("Thursday");
    break;

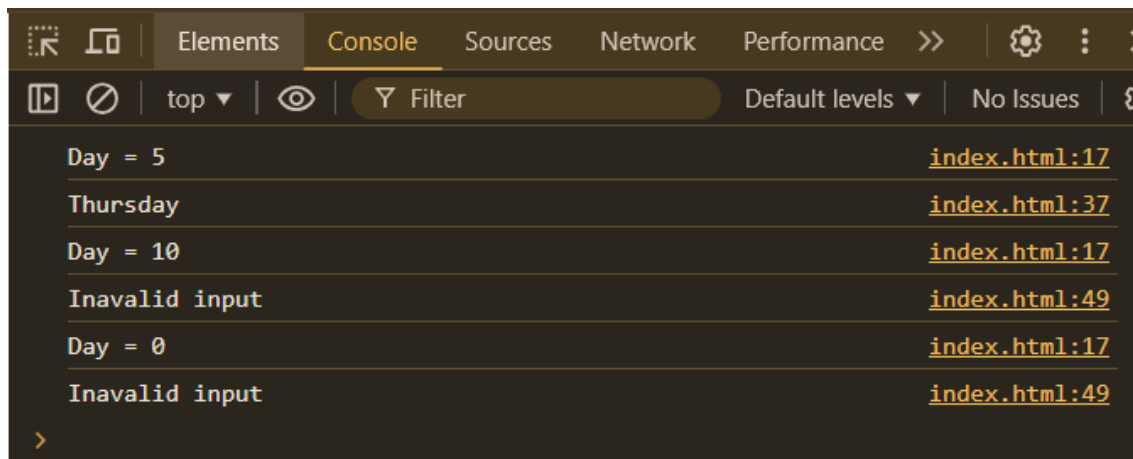
  case 6:
    console.log("Friday");
    break;

  case 7:
    console.log("Saturday");
    break;

  default :
    console.log("Inavalid input");
}

}

</script>
</body>
</html>
```



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

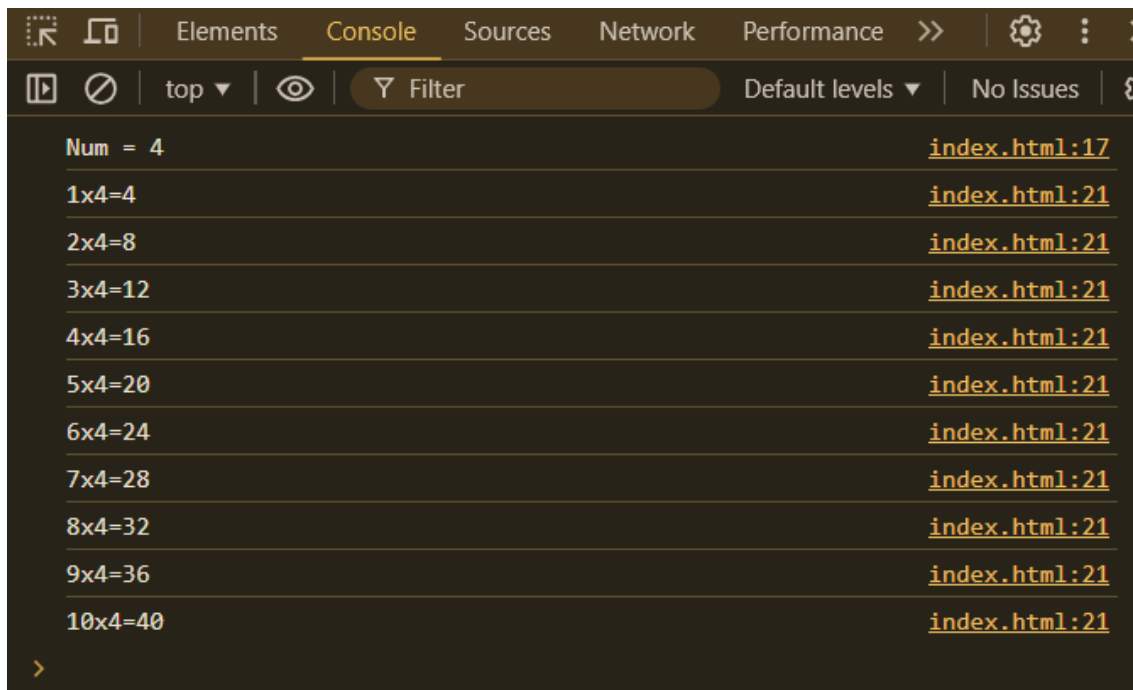
$$9 \times 5 = 45$$

$$10 \times 5 = 50$$

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>Document</title>
</head>
<body>
  <input type="number" id="num" placeholder="Enter a number">
  <button onclick="submit()">Submit</button>

  <!-- javascript -->
  <script>
    function submit(){
      const num = document.getElementById("num").value
      console.log("Num = "+num);

      for (let i = 1; i <= 10; i++){
        const result = i*num;
        console.log(i +"x"+ num +"=" + result);
      }
    }
  </script>
</body>
</html>
```



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

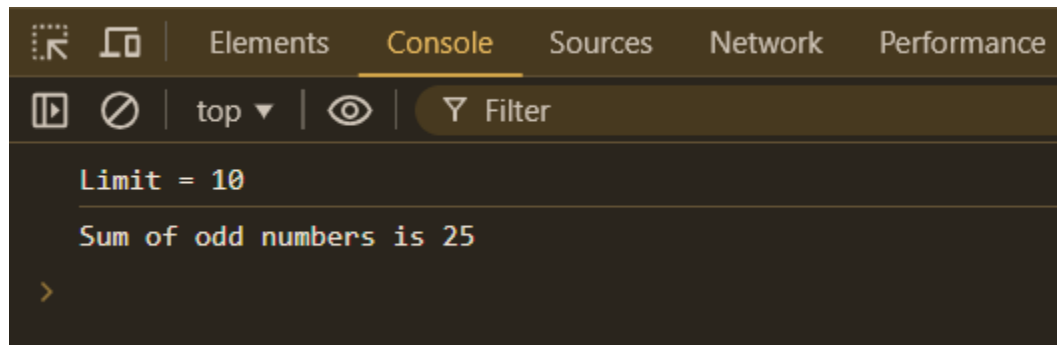
Input: 10

Output: Sum of odd numbers = 25

```
const limit = prompt("Enter the limit")
console.log("Limit = "+limit);

let sum=0;
for (let i=1;i<=limit;i++){
    if(i%2!=0) {
```

```
        sum+=i
    }
}
console.log("Sum of odd numbers is "+sum);
```



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
```

```
for (let i=1;i<=5;i++){
    let row = "";
    for (let j=1;j<=i;j++){
        row+=j;
    }
    console.log(row);
}
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

```
[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAM
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

```
function swapArrays(arr1, arr2) {

    let temp = arr1.slice();
    arr1.length = 0;
    arr1.push(...arr2);
```

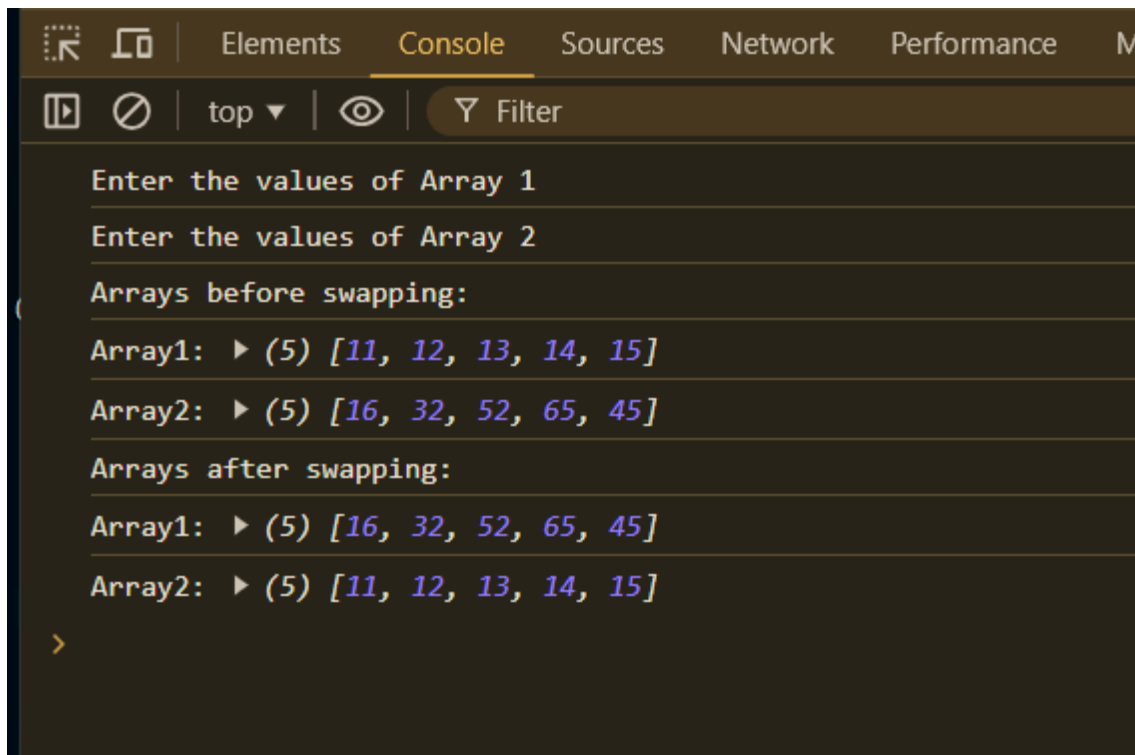
```
    arr2.length = 0;
    arr2.push(...temp);
}

function getArrayInput(size, arrayNumber) {
    const array = [];
    console.log(`Enter the values of Array ${arrayNumber}`);
    for (let i = 0; i < size; i++) {
        const value = parseInt(prompt(`Enter value ${i + 1}: `),
10);
        array.push(value);
    }
    return array;
}

const size = parseInt(prompt("Enter the size of arrays: "));

const array1 = getArrayInput(size, 1);
const array2 = getArrayInput(size, 2);

console.log("Arrays before swapping:");
console.log("Array1:", array1);
console.log("Array2:", array2);
```

The screenshot shows a web browser's developer console with the 'Console' tab selected. The console displays the following output:

```
Enter the values of Array 1
Enter the values of Array 2
Arrays before swapping:
Array1: ▶ (5) [11, 12, 13, 14, 15]
Array2: ▶ (5) [16, 32, 52, 65, 45]
Arrays after swapping:
Array1: ▶ (5) [16, 32, 52, 65, 45]
Array2: ▶ (5) [11, 12, 13, 14, 15]
>
```

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

```
function evenCount() {  
    let arr = [1,2,3,3,4,5,5,4,4,7,8,9,1,0,1,2,15]  
    let count=0;
```

```
for (let i=0;i<arr.length;i++) {  
    if(arr[i]%2===0) {  
        count++;  
    }  
}  
  
console.log("Number of even numbers in the array is "+count);  
}  
  
evenCount();
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAMPLE\script.js"
Number of even numbers in the array is 7

[Done] exited with code=0 in 0.152 seconds

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

- a. Program should accept an 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

```
function arrSort(arr) {  
    let temp;  
    for(let i=0;i<arr.length;i++) {  
        for(let j=i+1;j<arr.length;j++) {  
            if(arr[i]<arr[j]) {  
                temp=arr[i]
```

```

        arr[i]=arr[j]
        arr[j]=temp
    }
}
}
console.log(arr);
}

let arr = [142,54,258,65,55,489,105]
arrSort(arr);

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAMPLE\script.js"

```

[
  489, 258, 142, 105,
  65,  55,  54
]

```

[Done] exited with code=0 in 0.161 seconds

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

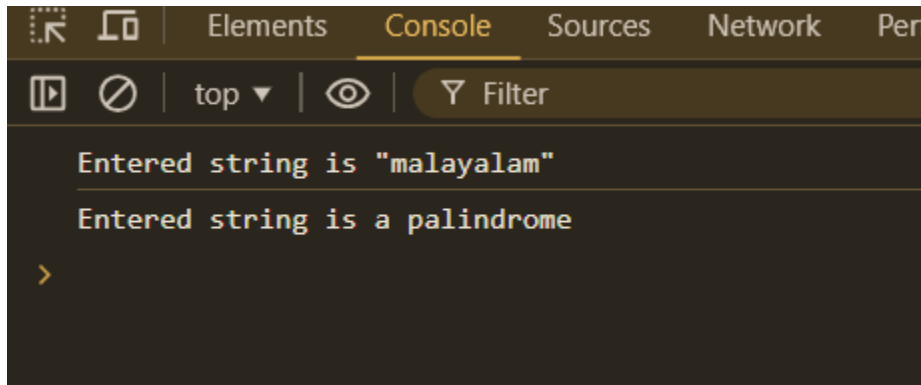
Output: Entered string is a palindrome

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

Input: HELLO

Output: Entered string is not a palindrome

```
function isPalindrome(str) {  
  
    const string1 = str.toLowerCase();  
  
    const string2 = string1.split('').reverse().join('');  
  
    return string1 === string2;  
}  
  
const inputStr = prompt("Enter a string: ");  
console.log("Entered string is \""+inputStr+"\"");  
  
if (isPalindrome(inputStr)) {  
    console.log("Entered string is a palindrome");  
} else {  
    console.log("Entered string is not 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

```
class TwoDArray {  
    constructor(size) {  
        this.size = size;  
        this.array = [];  
    }  
}
```

```

getArray(arrayNumber) {
  console.log(`Enter the values of array ${arrayNumber}:`);
  for (let i = 0; i < this.size; i++) {
    this.array[i] = [];
    for (let j = 0; j < this.size; j++) {
      const value = parseInt(prompt(`Enter value for element [${i + 1}][${j + 1}]:`));
      this.array[i][j] = value;
    }
  }
}

```

```

static addArrays(array1, array2) {
  const result = [];
  for (let i = 0; i < array1.length; i++) {
    result[i] = [];
    for (let j = 0; j < array1[i].length; j++) {
      result[i][j] = array1[i][j] + array2[i][j];
    }
  }
  return result;
}

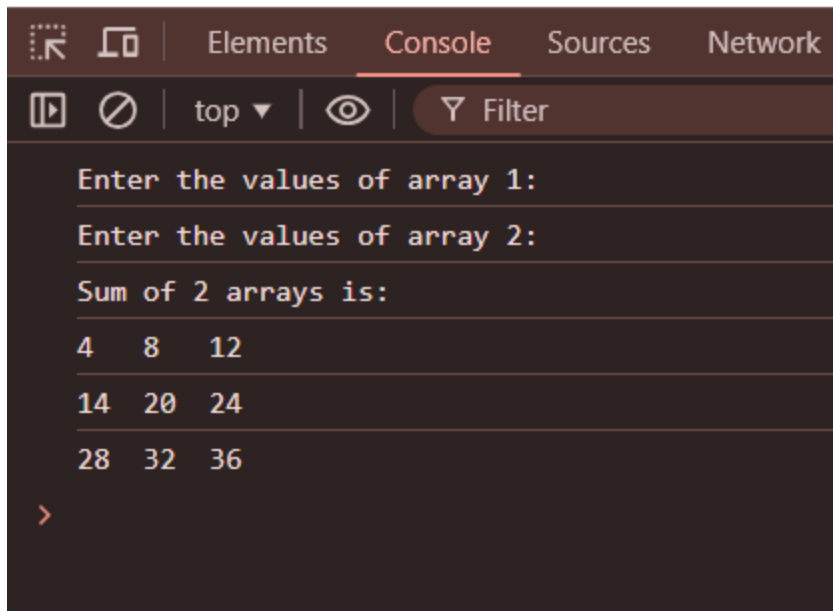
```

```

static displayArray(array) {
  console.log("Sum of 2 arrays is:");
  for (let i = 0; i < array.length; i++) {
    console.log(array[i].join("t"));
  }
}

```

```
main() {  
    const size = parseInt(prompt("Enter the size of arrays:"));  
    if (isNaN(size) || size <= 0) {  
        console.log("Please enter a valid size.");  
        return;  
    }  
  
    const array1 = new TwoDArray(size);  
    array1.getArray(1);  
  
    const array2 = new TwoDArray(size);  
    array2.getArray(2);  
  
    const sumArray = TwoDArray.addArrays(array1.array, array2.array);  
    TwoDArray.displayArray(sumArray);  
}  
  
const arrayInstance = new TwoDArray();  
arrayInstance.main();
```



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

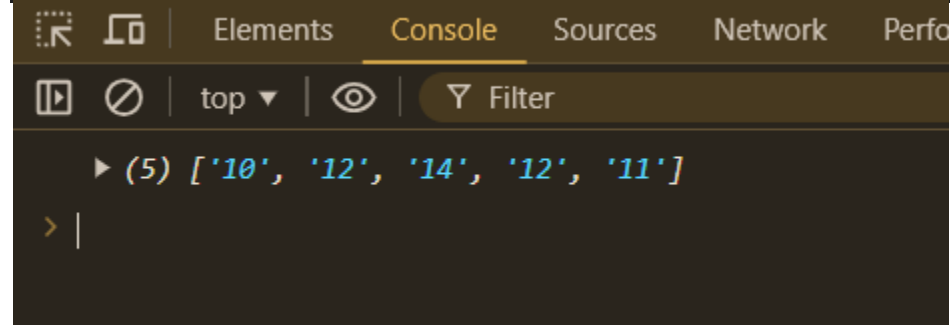
```
function getArray(arr) {  
    const size = prompt("Enter the size ")  
    for(let i=0;i<size;i++){  
        const value = prompt("Enter the values")
```



```
        arr.push(value)
    }
    return arr;
}

function displayArray(arr){
    console.log(arr);
}

const arr = []
getArray(arr);
displayArray(arr);
```



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

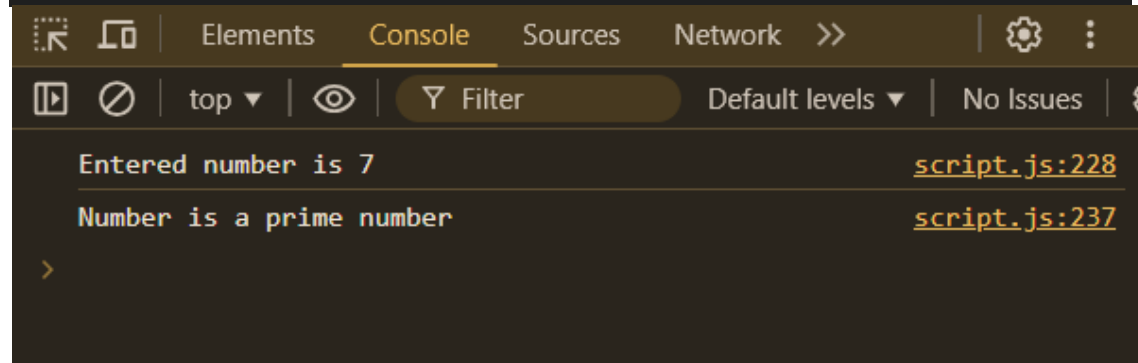
Eg: **Output:** Enter a number

Input: 7

Output: Entered number is a Prime number

```
const num = prompt("Enter a number");
let count=0;
for(let i=1;i<=num;i++){
    if(num%i===0){
        count++;
    }
}
```

```
}  
if (count===2){  
    console.log("Number is a prime number");  
}else {  
    console.log("Number is not a prime number");  
}  
}
```



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

```
class Calculator {  
    addition(a, b) {  
        return a + b;  
    }  
  
    subtraction(a, b) {  
        return a - b;  
    }  
  
    multiplication(a, b) {
```

```

        return a * b;
    }

    division(a, b) {
        if (b === 0) {
            return "Error: Division by zero is not allowed.";
        }
        return a / b;
    }
}

function main() {
    const calculator = new Calculator();

    const menu = `
Choose an operation:
1. Addition
2. Subtraction
3. Multiplication
4. Division
`;

    const choice = prompt(menu);
    console.log("Choice = "+choice);

    if (choice >= 1 && choice <= 4) {
        const num1 = parseFloat(prompt("Enter the first
number:"));
        console.log("Number 1 = "+num1);
        const num2 = parseFloat(prompt("Enter the second
number:"));
        console.log("Number 2 = "+num2);

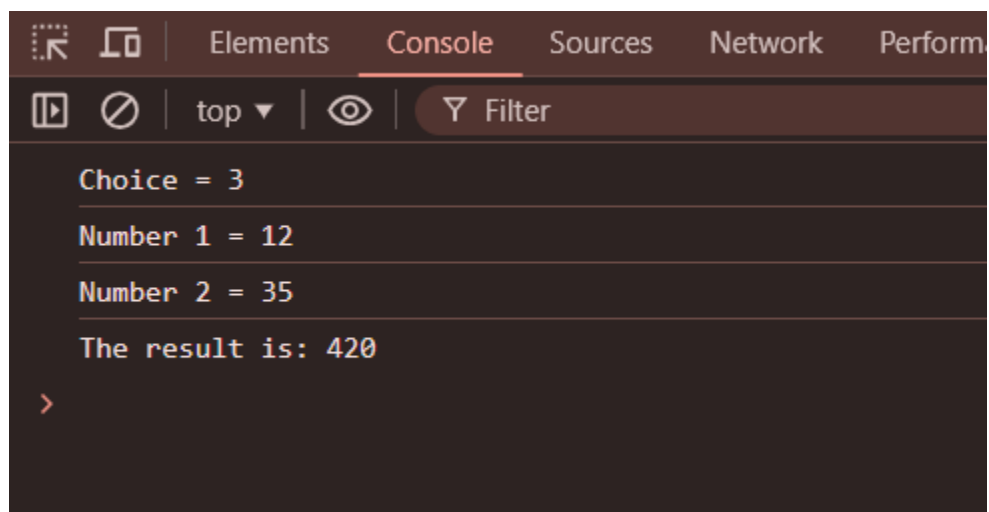
        let result;
        switch (choice) {
            case '1':
                result = calculator.addition(num1, num2);
                break;

```

```
        case '2':
            result = calculator.subtraction(num1, num2);
            break;
        case '3':
            result = calculator.multiplication(num1, num2);
            break;
        case '4':
            result = calculator.division(num1, num2);
            break;
        default:
            console.log("Invalid choice.");
            return;
    }

    console.log(`The result is: ${result}`);
} else {
    console.log("Invalid choice. Please select a number
between 1 and 4.");
}
}

main();
```



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 = $(81 \times 70)/100 + (68 \times 20)/100 + (92 \times 10)/100 = 79.5$

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

```
let test = prompt("Enter written test mark ")
console.log("Written test = "+test);
let lab = prompt("Enter your lab mark")
console.log("Lab exams = "+lab);
let assignment = prompt("Enter yor assignment mark")
console.log("Assignment = "+assignment);
```

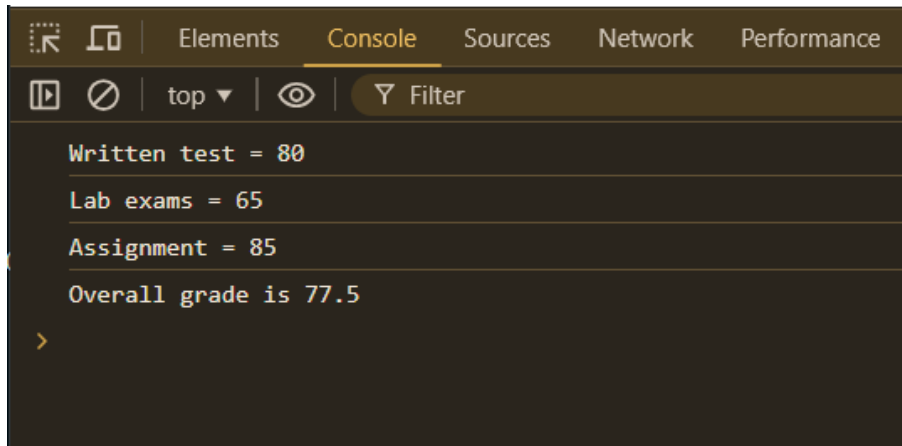
```

let testGrade = (test*70)/100;
let labGrade = (lab*20)/100;
let assignmentGrade = (assignment*10)/100;

let overallGrade = testGrade+labGrade+assignmentGrade

console.log("Overall grade is "+overallGrade);

```



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.

- 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

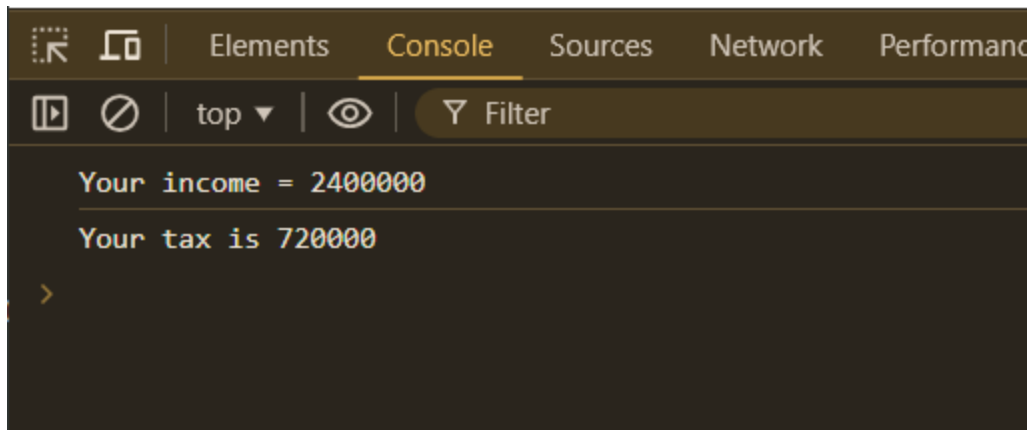
Income tax amount = 25000.00

```
let income = prompt("Enter your income")
console.log("Your income = "+income);

let tax;

if (income<=250000){
    tax = "No Tax";
}else if(income>250000 && income<=500000){
    tax = income*0.05;
}else if(income>500000 && income<=1000000){
    tax = income*0.2;
}else if(income>1000000 && income<=5000000){
    tax = income*0.3;
}

console.log("Your tax is "+tax);
```



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

```
1
2   3
4   5   6
7   8   9   10
```

```
let num=1;
for (let i=1;i<=4;i++){
  let output = "";
  for(let j=1;j<=i;j++){
    Output += num + "\t"
    num++;
  }
  console.log(output);
}
```



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORT
[Running] node "c:\Users\ASWIN RAJEEV\OneDrive
1
2 3
4 5 6
7 8 9 10

[Done] exited with code=0 in 0.13 seconds
```

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

- Program should accept an array
- Multiply the adjacent values
- 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

```
function multiplyAdjacentValues(array) {
```

```

    let result = [];
    for (let i = 0; i < array.length - 1; i++) {
        result.push(array[i] * array[i + 1]);
    }
    return result;
}

function main() {

    const limit = parseInt(prompt("Enter the array limit:"));
    console.log("Array limit = "+limit);

    if (isNaN(limit) || limit <= 1) {
        console.log("Please enter a valid array limit greater than 1.");
        return;
    }

    let array = [];
    for (let i = 0; i < limit; i++) {
        const value = parseInt(prompt(`Enter value ${i + 1}:`));
        if (isNaN(value)) {
            console.log("Please enter a valid number.");
            return;
        }

        array.push(value);
    }

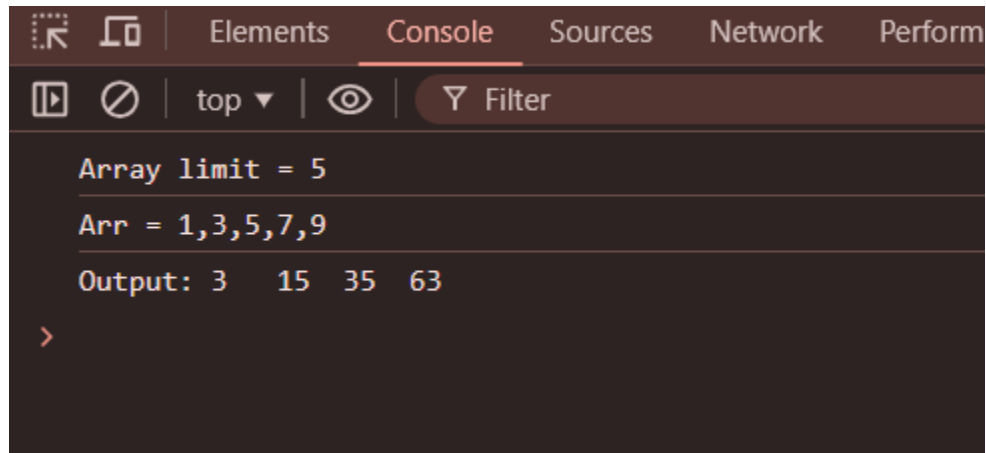
    console.log("Arr = "+array);

    const resultArray = multiplyAdjacentValues(array);

    console.log("Output:", resultArray.join("\t"));
}

```

```
main();
```



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

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

```
class TwoDArray {  
    constructor() {  
        this.array = [];  
    }  
  
    getArray(size) {
```

```

        for (let i = 0; i < size; i++) {
            this.array[i] = [];
            for (let j = 0; j < size; j++) {
                const value = parseInt(prompt(`Enter value for
element [${i + 1}][${j + 1}]:`));
                this.array[i][j] = value;
            }
        }
    }

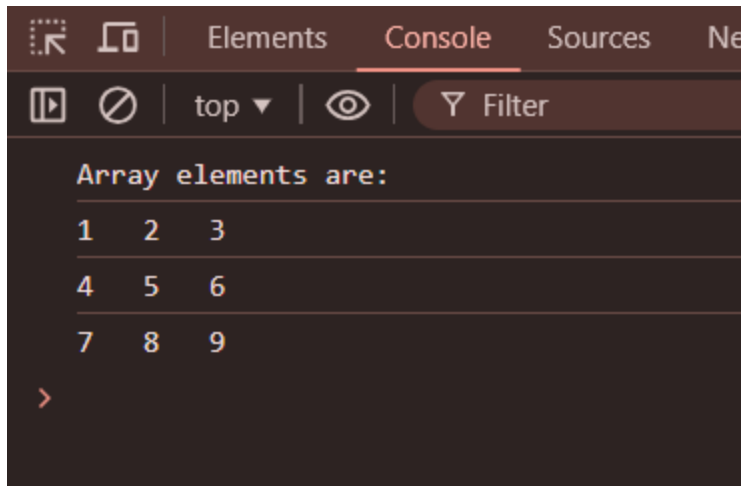
    displayArray() {
        console.log("Array elements are:");
        for (let i = 0; i < this.array.length; i++) {
            console.log(this.array[i].join("\t"));
        }
    }

    main() {
        const size = parseInt(prompt("Enter the size of the
array:"));
        if (isNaN(size) || size <= 0) {
            console.log("Please enter a valid size.");
            return;
        }

        this.getArray(size);
        this.displayArray();
    }
}

const arrayInstance = new TwoDArray();
arrayInstance.main();

```

A screenshot of a web browser's developer console. The console has tabs for 'Elements', 'Console', 'Sources', and 'Network'. The 'Console' tab is active, showing a message 'Array elements are:' followed by a table of numbers. The table has three rows and three columns. The first row contains '1', '2', and '3'. The second row contains '4', '5', and '6'. The third row contains '7', '8', and '9'. Below the table is a red prompt character '>'.

Array elements are:		
1	2	3
4	5	6
7	8	9

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

```
class Area {
    calculateCircle(radius) {
        return Math.PI * Math.pow(radius, 2);
    }

    calculateSquare(length) {
        return Math.pow(length, 2);
    }

    calculateRectangle(length, width) {
        return length * width;
    }

    calculateTriangle(base, height) {
        return 0.5 * base * height;
    }
}

class MyClass extends Area {
    main() {
        const menu = `
        Enter your choice:
        1. Circle
        2. Square
        3. Rectangle
        4. Triangle
    `;
    }
}
```

```
`;  
  
const choice = parseInt(prompt(menu));  
  
console.log("Choice = "+choice);  
  
switch (choice) {  
    case 1:  
        this.getCircleArea();  
        break;  
    case 2:  
        this.getSquareArea();  
        break;  
    case 3:  
        this.getRectangleArea();  
        break;  
    case 4:  
        this.getTriangleArea();  
        break;  
    default:  
        console.log("Invalid choice.");  
}  
}  
  
getCircleArea() {  
    const radius = parseFloat(prompt("Enter the radius:"));  
    if (isNaN(radius) || radius <= 0) {  
        console.log("Please enter a valid radius.");  
        return;  
    }  
    const area = this.calculateCircle(radius);  
    console.log(`Area of the circle is: ${area.toFixed(2)}`);  
}  
  
getSquareArea() {  
    const length = parseFloat(prompt("Enter the length:"));  
    if (isNaN(length) || length <= 0) {  
        console.log("Please enter a valid length.");  
    }  
}
```

```

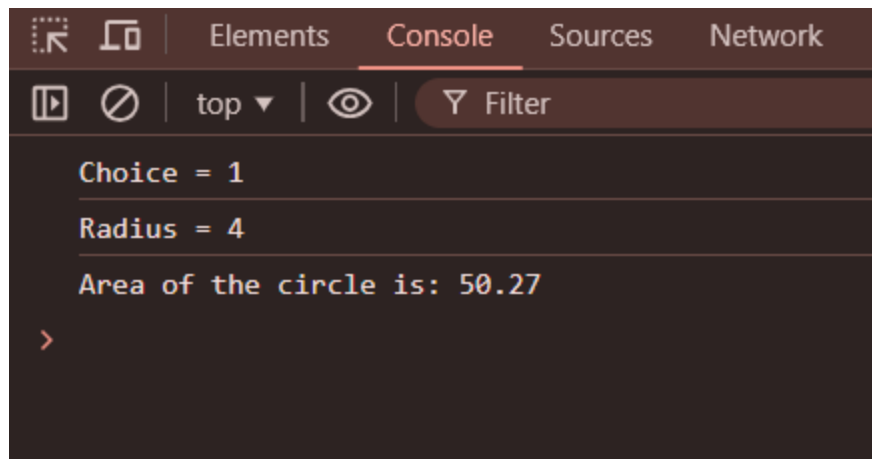
        return;
    }
    const area = this.calculateSquare(length);
    console.log(`Area of the square is: ${area.toFixed(2)}`);
}

getRectangleArea() {
    const length = parseFloat(prompt("Enter the length:"));
    const width = parseFloat(prompt("Enter the width:"));
    if (isNaN(length) || isNaN(width) || length <= 0 || width
<= 0) {
        console.log("Please enter valid dimensions.");
        return;
    }
    const area = this.calculateRectangle(length, width);
    console.log(`Area of the rectangle is:
${area.toFixed(2)}`);
}

getTriangleArea() {
    const base = parseFloat(prompt("Enter the base:"));
    const height = parseFloat(prompt("Enter the height:"));
    if (isNaN(base) || isNaN(height) || base <= 0 || height <=
0) {
        console.log("Please enter valid dimensions.");
        return;
    }
    const area = this.calculateTriangle(base, height);
    console.log(`Area of the triangle is:
${area.toFixed(2)}`);
}
}

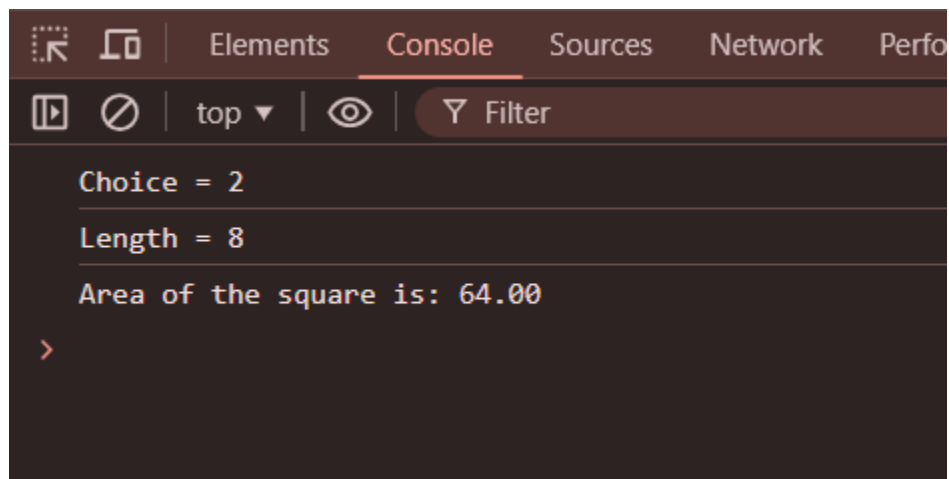
const myClassInstance = new MyClass();
myClassInstance.main();

```



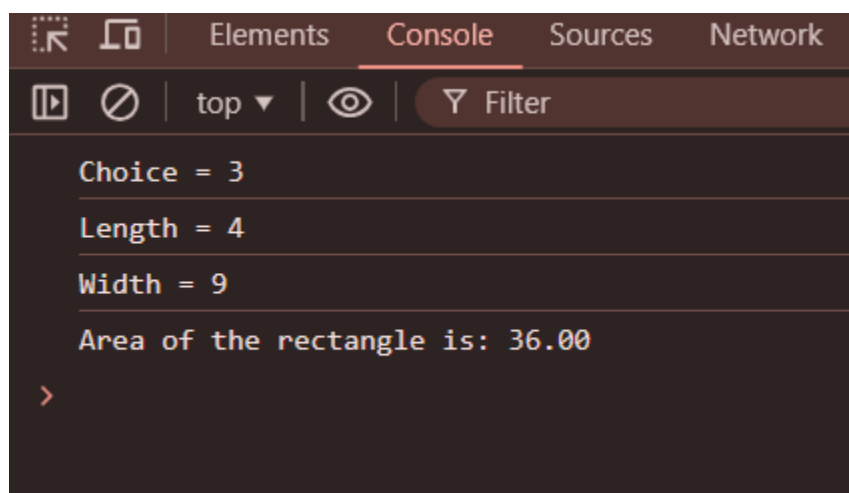
A screenshot of the Chrome DevTools Console. The 'Console' tab is selected. The output shows three lines of text: 'Choice = 1', 'Radius = 4', and 'Area of the circle is: 50.27'. A red prompt character '>' is on the next line.

```
Choice = 1
Radius = 4
Area of the circle is: 50.27
>
```



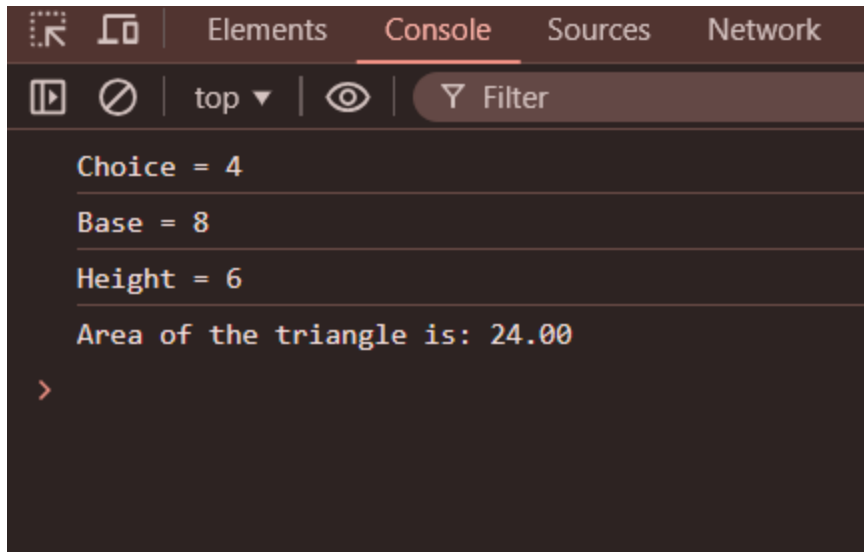
A screenshot of the Chrome DevTools Console. The 'Console' tab is selected. The output shows three lines of text: 'Choice = 2', 'Length = 8', and 'Area of the square is: 64.00'. A red prompt character '>' is on the next line.

```
Choice = 2
Length = 8
Area of the square is: 64.00
>
```



A screenshot of the Chrome DevTools Console. The 'Console' tab is selected. The output shows four lines of text: 'Choice = 3', 'Length = 4', 'Width = 9', and 'Area of the rectangle is: 36.00'. A red prompt character '>' is on the next line.

```
Choice = 3
Length = 4
Width = 9
Area of the rectangle is: 36.00
>
```



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  
  
    }  
  
  ];
```

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

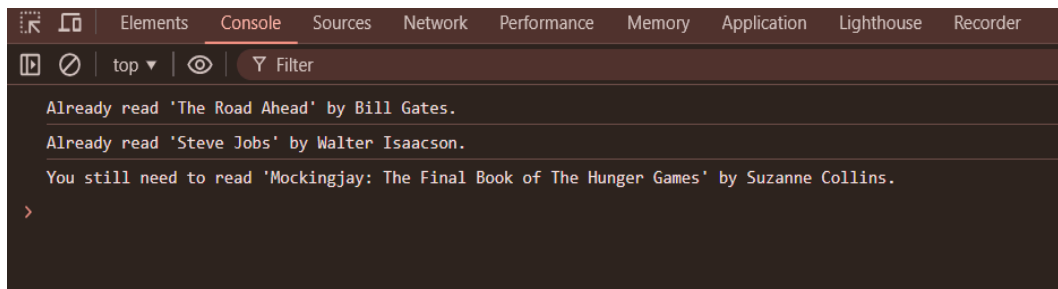
```

        readingStatus: false
    }
];

function displayReadingStatus(library) {
    library.forEach(function(book) {
        if (book.readingStatus) {
            console.log(`Already read '${book.title}' by
${book.author}.`);
        } else {
            console.log(`You still need to read '${book.title}' by
${book.author}.`);
        }
    });
}

displayReadingStatus(library);

```



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

```
function stringReverse() {  
  try {  
    myString = myString.split("").reverse().join('')
```

```
        console.log(`Reveresed string is ${myString}`);
    } catch (error) {
        console.log(`Error: ${myString} is not a string`);
    }
    finally {
        console.log(`Type of the string is ${typeof(myString)}`);
    }
}

let myString = "Hello"



console.log("Entered string is "+myString);

stringReverse();
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Code   

```
[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAMPLE\script.js"
Entered string is 12345
Error: 12345 is not a string
Type of the string is number

[Done] exited with code=0 in 0.126 seconds
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Code   

```
[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAMPLE\script.js"
Entered string is Hello
Reveresed string is olleH
Type of the string is string

[Done] exited with code=0 in 0.133 seconds
```

27. Given a variable named `my_height`, you must throw errors under the following conditions:

- `notANumberError`- When `my_height` is NaN
- `HugeHeightError` – When `my_height` is greater than
- `TinyHeight Error` - When `my_height` is less than

Eg:

a) Sample Input 0

seven

Sample Output 0

`notANumberError`

b) Sample Input 1

77

Sample Output 1

`hugeHeightError`

c) Sample Input 2

0

Sample Output 2

`tinyHeightError`

d) Sample Input 3

8

Sample Output 3

8

```
function heightCheck(height) {  
  if(isNaN(height)) {  
    throw new Error("Not a Number");  
  }else if(height>75){  
    throw new Error("Huge Hieight");  
  }else if(height<5){
```

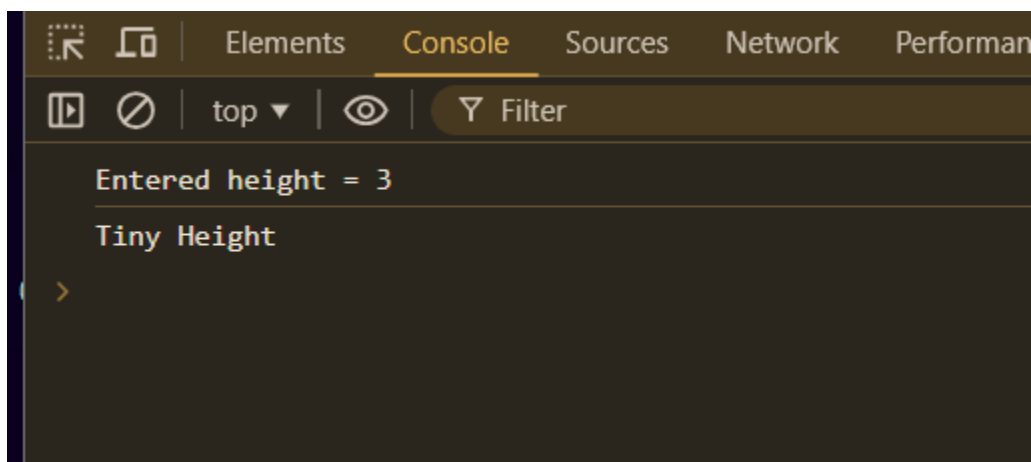
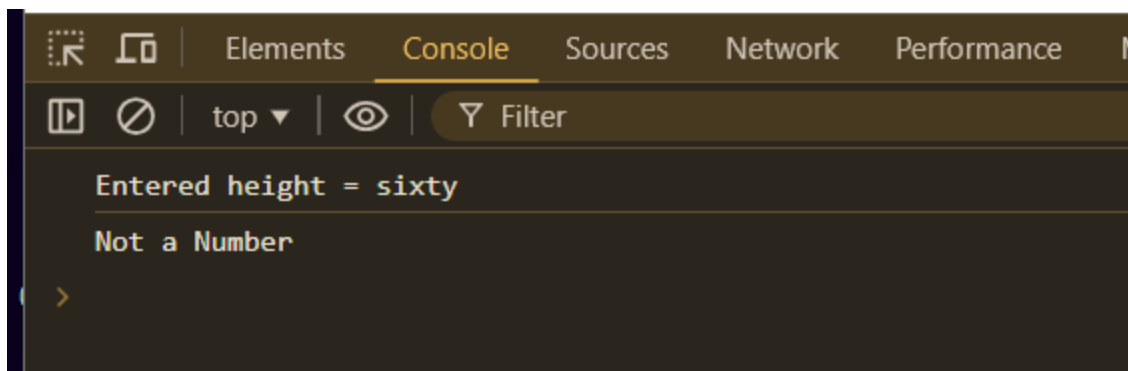
```

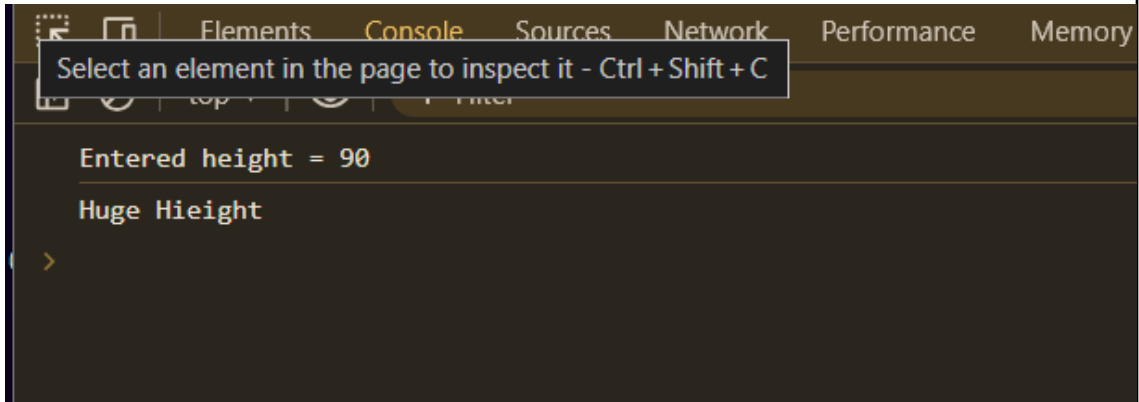
        throw new Error("Tiny Height");
    }
}

const myHeight = prompt("Enter your height")
console.log("Entered height = "+myHeight);

try {
    console.log(heightCheck(myHeight));
} catch (error) {
    console.log(error.message);
}

```





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*.

```
function Car(name, mileage, max_speed) {  
    this.name = name;  
    this.mileage = mileage;  
    this.max_speed = max_speed;  
}  
  
const myCar = new Car('Toyota Corolla', 30000, 180);  
console.log(myCar.name);  
console.log(myCar.mileage);  
console.log(myCar.max_speed);
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  Code
[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAMI
Toyota Corolla
30000
180

[Done] exited with code=0 in 0.144 seconds
```

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

```
function myFilter(myArray, callback) {
  let sum = myArray.reduce((acc, num) => acc + num, 0);
  return sum;
}

function isEven(num) {
  return num % 2 === 0;
}

let inputArray = [1, 2, 3, 4, 5];
```

```
let result = myFilter(inputArray, isEven);  
console.log(result);
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

```
[Running] node "c:\Users\ASWIN RAJEEV\OneDrive\Desktop\SAMI  
15
```

```
[Done] exited with code=0 in 0.119 seconds  
|
```