

National Institute of Technology, Tiruchirappalli



Department of Computer Applications

Web Technology and its Applications Lab *Lab 3*

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Implement in java script for the following programs. Take input from the user only. (Output must be submitted in screenshot only)

1. To check if the given number is prime or not.

```
// 1. To check if the given number is prime or not.
```

```
function isPrime(num) {  
  
    if (num <= 1)  
  
        return false;  
  
    for (let i=2; i<=Math.sqrt(num); i++){  
  
        if (num % i == 0)  
  
            return false;  
  
    }  
  
    return true;  
}  
  
let num = window.prompt("Enter a number: ");  
  
if (isPrime(num))  
  
    alert(`${num} is Prime`);  
  
else  
  
    alert(`${num} is NOT Prime`);
```

🌐 127.0.0.1:5500

Enter a number:

OK Cancel

🌐 127.0.0.1:5500

34 is NOT Prime

☐ Don't allow 127.0.0.1:5500 to prompt you again

OK

🌐 127.0.0.1:5500

3 is Prime

☐ Don't allow 127.0.0.1:5500 to prompt you again

OK

2. Print all the prime numbers in the given range.

```
// 2. Print all the prime numbers in the given range.
```

```
function isPrime(num) {
```

```
    if(num <= 1)

        return false;

    for(let i=2; i<=Math.sqrt(num); i++){

        if(num % i == 0)

            return false;

    }

    return true;
}

function printPrimes(begin, end){

    for(let i=begin; i<=end; i++){

        if(isPrime(i))

            console.log(i);

    }

}

let begin = window.prompt("Enter start of range: ");

let end = window.prompt("Enter end of range: ");

console.log(`Prime nums in range [${begin},${end}] are: `);

printPrimes(begin, end);
```

🌐 127.0.0.1:5500

Enter start of range:

☐ Prevent this page from creating additional dialogs

OK Cancel

🌐 127.0.0.1:5500

Enter end of range:

☐ Prevent this page from creating additional dialogs

OK Cancel

Prime nums in range [3,30] are:	2.js:22:9
3	2.js:16:21
5	2.js:16:21
7	2.js:16:21
11	2.js:16:21
13	2.js:16:21
17	2.js:16:21
19	2.js:16:21
23	2.js:16:21
29	2.js:16:21

3. To check if the given number is Armstrong or not.

```
// 3. To check if the given number is an Armstrong number of n digits  
or not.
```

```

const num = window.prompt("Enter a number: ");

const numberOfDigits = num.toString().length;

let sum = 0;

let temp = num;

while(temp) {

    let remainder = temp%10;

    sum += remainder**numberOfDigits;

    temp = parseInt(temp/10);

}

if(sum == num)

    console.log(`${num} is an Armstrong num`);

else

    console.log(`${num} is NOT an Armstrong num`);

```

334 is NOT an Armstrong num

3_isArmstrong.js:16:13

92727 is an Armstrong num

3_isArmstrong.js:14:13

4. Print all the Armstrong numbers in the given range.

```

// 4. Print all the Armstrong numbers in the given range.

function isArmstrong(num) {

    let numberOfDigits = num.toString().length;

    let sum = 0;

```

```
let temp = num;

while(temp){

    let remainder = temp%10;

    sum += remainder**numberOfDigits;

    temp = parseInt(temp/10);

}

if(sum == num)

    return true;

else

    return false;

}

let begin = window.prompt("Enter start of range: ");

let end = window.prompt("Enter end of range: ");

console.log(`Armstrong nums in range [${begin},${end}] are: `);

for(let i=begin; i<=end; i++){

    if(isArmstrong(i))

        console.log(i);

}
```

Armstrong nums in range [1,2000] are:	4_Armstrong_in_given_range.js:21:9
1	4_Armstrong_in_given_range.js:25:17
2	4_Armstrong_in_given_range.js:25:17
3	4_Armstrong_in_given_range.js:25:17
4	4_Armstrong_in_given_range.js:25:17
5	4_Armstrong_in_given_range.js:25:17
6	4_Armstrong_in_given_range.js:25:17
7	4_Armstrong_in_given_range.js:25:17
8	4_Armstrong_in_given_range.js:25:17
9	4_Armstrong_in_given_range.js:25:17
153	4_Armstrong_in_given_range.js:25:17
370	4_Armstrong_in_given_range.js:25:17
371	4_Armstrong_in_given_range.js:25:17
407	4_Armstrong_in_given_range.js:25:17
1634	4_Armstrong_in_given_range.js:25:17

5. To check if the given number is perfect or not.

```
// 5. To check if the given number is perfect or not.
```

```
let num = prompt("Enter a num: ");

let sum = 0;

for(let i=1; i<=num/2; i++){

    if(num%i == 0)

        sum += i;

}

console.log(sum);

if(num == sum && sum!= 0)

    console.log(`${num} is a perfect number.`);

else

    console.log(`${num} is NOT a perfect number.`);
```

```
45 is NOT a perfect number.
```

```
5_perfect_num.js:12:13
```

```
28 is a perfect number.
```

```
5_perfect_num.js:11:13
```

6. Print all the perfect numbers in the given range.


```
// 6. Print all the perfect numbers in the given range.

function isPerfect(num){

    let sum = 0;

    for(let i=1; i<=num/2; i++){

        if(num%i == 0)

            sum += i;

    }

    if(num == sum && sum!= 0)

        return true;

    else

        return false;

}

let begin = window.prompt("Enter start of range: ");

let end = window.prompt("Enter end of range: ");

console.log(`Perfect nums in range [${begin},${end}] are: `);

for(let i=begin; i<=end; i++){

    if(isPerfect(i))

        console.log(i);

}
```

Perfect nums in range [1,1000] are:	6_perfect_num_in_range.js:17:9
6	6_perfect_num_in_range.js:21:17
28	6_perfect_num_in_range.js:21:17
496	6_perfect_num_in_range.js:21:17

7. To check the given number palindrome or not.

```
// 7. To check the given number palindrome or not.

function isPalindrome(num) {

    let length = num.length;

    let i=0, j=length-1;

    while(i<j){

        if(num[i] != num[j])

            return false;

        i++;

        j--;

    }

    return true;

}

let num = prompt("Enter a number: ");

if(isPalindrome(num))

    console.log(`${num} is a Palindrome number`);

else

    console.log(`${num} is NOT a Palindrome number`);
```

```
345243 is NOT a Palindrome number
```

```
7_palindrome_num.js:19:13
```

```
12344321 is a Palindrome number
```

7_palindrome_num.js:17:13

8. Print all the palindrome numbers in the given range.

```
// 8. Print all the palindrome numbers in the given range.
```

```
function isPalindrome(num) {

    let length = num.length;

    let i=0, j=length-1;

    while(i<j){

        if(num[i] !== num[j])

            return false;

        i++;

        j--;

    }

    return true;

}

let begin = window.prompt("Enter start of range: ");

let end = window.prompt("Enter end of range: ");

console.log(`Palindrome nums in range [${begin},${end}] are: `);

for(let i=begin; i<=end; i++){

    if(isPalindrome(i.toString()))

        console.log(i);

}
```

```
}
```

```
Palindrome nums in range [100,200] are: 8_all_palindrome_num_in_range.js:17:9
101 8_all_palindrome_num_in_range.js:21:17
111 8_all_palindrome_num_in_range.js:21:17
121 8_all_palindrome_num_in_range.js:21:17
131 8_all_palindrome_num_in_range.js:21:17
141 8_all_palindrome_num_in_range.js:21:17
151 8_all_palindrome_num_in_range.js:21:17
161 8_all_palindrome_num_in_range.js:21:17
171 8_all_palindrome_num_in_range.js:21:17
181 8_all_palindrome_num_in_range.js:21:17
191 8_all_palindrome_num_in_range.js:21:17
```

9. Find out the factorial of a given number.

```
// 9. Find out the factorial of a given number.

function factorial(num) {

    if(num==1 || num==0)

        return 1;

    return num * factorial(num-1);

}

let num = window.prompt("Enter a num: ");

console.log(`Factorial of ${num} is ${factorial(num)}`);
```

```
Factorial of 4 is 24
```

```
9_factorial.js:10:9
```

10. Addition of two matrices

```
<!-- 10. Addition of two matrices -->

<!DOCTYPE html>

<html lang="en">

<head>

    <title>Add matrix</title>

</head>

<body>

    <script>

        const row = window.prompt("Enter number of Rows: ");

        const col = window.prompt("Enter number of Columns: ");

        let m1 = new Array(row);

        let m2 = new Array(row);

        let m3 = new Array(row);

        // Defining matrix 1, 2, 3

        for(let i=0; i<row; i++){

            m1[i] = new Array(col);

            m2[i] = new Array(col);

            m3[i] = new Array(col);

        }

        // Enter matrix 1

        document.write("Matrix 1:");

        document.write("<br>");

        for(let i=0; i<row; i++){

            for(let j=0; j<col; j++){
```

```
        m1[i][j] = parseInt(window.prompt(`Enter m1 element at
index (${i},${j})`));

        document.write(`${m1[i][j]} `);

    }

    document.write("<br>");

}

// Enter matrix 2

document.write("<br>");

document.write("Matrix 2:");

document.write("<br>");

for(let i=0; i<row; i++){

    for(let j=0; j<col; j++){

        m2[i][j] = parseInt(window.prompt(`Enter m2 element at
index (${i},${j})`));

        document.write(`${m2[i][j]} `);

    }

    document.write("<br>");

}

// Add m1 and m2

document.write("<br>");

document.write("Sum of matrix 1 and 2:");

document.write("<br>");

for(let i=0; i<row; i++){

    for(let j=0; j<col; j++){

        m3[i][j] = m1[i][j] + m2[i][j];

        document.write(`${m3[i][j]} `);
```

```
    }  
  
    document.write("<br>");  
  
    }  
  
</script>  
</body>  
</html>
```

Matrix 1:

5 2 4
6 3 7
2 5 7

Matrix 2:

2 7 4
3 5 7
4 7 2

Sum of matrix 1 and 2:

7 9 8
9 8 14
6 12 9

11. Product of two matrices.

```
<!-- 11. Product of two matrices. -->
```

```
<!DOCTYPE html>

<html lang="en">

<head>

    <title>Product matrix</title>

</head>

<body>

    <script>

        // Matrix 1

        const row1 = window.prompt("Enter number of Rows in m1: ");

        const col1 = window.prompt("Enter number of Columns in m1: ");

        let m1 = new Array(row1);

        // Defining matrix 1

        for(let i=0; i<row1; i++){

            m1[i] = new Array(col1);

        }

        // Enter matrix 1

        document.write(`Matrix 1: Dimentions => ${row1}x${col1}`);

        document.write("<br>");

        for(let i=0; i<row1; i++){

            for(let j=0; j<col1; j++){

                m1[i][j] = parseInt(window.prompt(`Enter m1 element at
index (${i},${j})`));

                document.write(`${m1[i][j]} `);

            }

            document.write("<br>");

        }

    </script>


```



```

    }

    // Matrix 2

    const row2 = window.prompt("Enter number of Rows in m2: ");

    const col2 = window.prompt("Enter number of Columns in m2: ");

    let m2 = new Array(row2);

    // Defining matrix 2

    for(let i=0; i<row2; i++){

        m2[i] = new Array(col2);

    }

    // Enter matrix 2

    document.write("<br>");

    document.write(`Matrix 2: Dimentions => ${row2}x${col2}`);

    document.write("<br>");

    for(let i=0; i<row2; i++){

        for(let j=0; j<col2; j++){

            m2[i][j] = parseInt(window.prompt(`Enter m2 element at
index (${i},${j})`));

            document.write(`${m2[i][j]} `);

        }

        document.write("<br>");

    }

    // checking condition for product of 2 matrices

    if(col1 != row2){

        document.write("<br>");
    }

```

```

        document.write("Invalid matrix dimentions!!!!");

    }

    else{

        // Matrix 3 (Product)

        let m3 = new Array(row1);

        // Defining matrix 3

        for(let i=0; i<row1; i++){

            m3[i] = new Array(col2);

            for(let j=0; j<col2; j++){

                m3[i][j] = 0;

            }

            // Product of m1 and m2

            document.write("<br>");

            document.write(`Product of matrix 1 and 2: Dimentions =>
${row1}x${col2}`);

            document.write("<br>");

            for(let i=0; i<row1; i++){

                for(let j=0; j<col2; j++){

                    for(let k=0; k<col1; k++){

                        m3[i][j] += m1[i][k] * m2[k][j];

                    }

                    document.write(`${m3[i][j]} `);

                }

                document.write("<br>");

            }

        }
    }

```

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

Matrix 1: Dimentions => 2x4

1 2 4 5

2 4 6 3

Matrix 2: Dimentions => 4x2

5 2

2 5

6 3

1 3

Product of matrix 1 and 2: Dimentions => 2x2

38 39

57 51

Matrix 1: Dimentions => 2x4

6 3 5 6

4 2 4 6

Matrix 2: Dimentions => 3x2

3 5

3 2

4 3

Invalid matrix dimentions!!!!

12. Check if a number is +ve, -ve or zero.

```
// 12. Check if a number is +ve, -ve or zero.
```

```
let num = window.prompt("Enter a num: ");
```

```
if (num == 0)
```

```
    console.log(`${num} is zero`);
```

```
else if (num > 0)
```

```
    console.log(`${num} is positive`);
```

```
else
```

```
    console.log(`${num} is negative`);
```

```
23 is positive
```

```
12_check_pos_neg_zero.js:7:13
```

```
-43 is negative
```

```
12_check_pos_neg_zero.js:9:13
```

```
0 is zero
```

```
12_check_pos_neg_zero.js:5:13
```

13. Find largest among three numbers.

```
// 13. Find largest among three numbers,

const n1 = window.prompt("Enter first number: ");
const n2 = window.prompt("Enter second number: ");
const n3 = window.prompt("Enter third number: ");

let largest;

if(n1>=n2 && n1>=n3){
    largest = n1;
}
else if(n2>=n1 && n2>=n3){
    largest = n2;
}
else
    largest = n3;

console.log(`${largest} is the largest among ${n1}, ${n2}, ${n3}`);
```

34 is the largest among 12, 34, 11

13_largest_among_3.js:17:9

14. Display the multiplication table.

```
// 14. Display the multiplication table.
```

```
const num = window.prompt("Enter a number:");

console.log(`Multiplication table of ${num} is:`);

for(let i=1; i<=10; i++){

    console.log(`${num} * ${i} = ${num*i}`);

}
```

Multiplication table of 13 is:	14_multiplication_table.js:4:9
13 * 1 = 13	14_multiplication_table.js:6:13
13 * 2 = 26	14_multiplication_table.js:6:13
13 * 3 = 39	14_multiplication_table.js:6:13
13 * 4 = 52	14_multiplication_table.js:6:13
13 * 5 = 65	14_multiplication_table.js:6:13
13 * 6 = 78	14_multiplication_table.js:6:13
13 * 7 = 91	14_multiplication_table.js:6:13
13 * 8 = 104	14_multiplication_table.js:6:13
13 * 9 = 117	14_multiplication_table.js:6:13
13 * 10 = 130	14_multiplication_table.js:6:13

15. Print the sum of all-natural numbers.

```
// 15. Print the sum of all-natural numbers.

const num = parseInt(window.prompt("Enter a number: "));

let sum = ((num * (num+1))/2);

console.log(`The sum of natural numbers till ${num}: ${sum}`);
```

The sum of natural numbers till 5: 15	15_sum_of_all_natural_num.js:6:9
---------------------------------------	----------------------------------

16. Print the sum of all odd numbers.

```
// 16. Print the sum of all odd numbers.
```

```
const num = parseInt(window.prompt("Enter a number: "));

let sum = 0;

for(let i=1; i<=num; i++){

    if(i%2 != 0)

        sum += i;

}

console.log(`The sum of odd numbers till ${num}: ${sum}`);
```

The sum of odd numbers till 5: 9

16_sum_of_Odd_nums.js:9:9

17. Print the sum of all even numbers.

```
// 16. Print the sum of all even numbers.

const num = parseInt(window.prompt("Enter a number: "));

let sum = 0;

for(let i=1; i<=num; i++){

    if(i%2 == 0)

        sum += i;

}

console.log(`The sum of even numbers till ${num}: ${sum}`);
```

The sum of even numbers till 5: 6

17_sum_of_Even_nums.js:9:9

18. Print the Fibonacci series.

```
// 18. Print the Fibonacci series.

const num = window.prompt('Enter the nth term value, till which you
want to find the fibonacci series: ');

let n1 = 0;

let n2 = 1;

let nextTerm;

console.log('Fibonacci series:');

for(let i=1; i<=num; i++){

    console.log(`${i}th term: ${n1}`);

    nextTerm = n1 + n2;

    n1 = n2;

    n2 = nextTerm;

}
```

Fibonacci series:	18_fib_series.js:7:9
1th term: 0	18_fib_series.js:9:13
2th term: 1	18_fib_series.js:9:13
3th term: 1	18_fib_series.js:9:13
4th term: 2	18_fib_series.js:9:13
5th term: 3	18_fib_series.js:9:13
6th term: 5	18_fib_series.js:9:13
7th term: 8	18_fib_series.js:9:13

19. Make a simple calculator.

```
// 19. Make a simple calculator.

// operator input
```



```
const operator = window.prompt(`Enter operator (either +, -, *, / or %) `);

// operand input

const n1 = parseFloat(window.prompt("Enter first number: "));
const n2 = parseFloat(window.prompt("Enter second number: "));

let result;

switch(operator){

  case '+':

    result = n1 + n2;

    console.log(`${n1} + ${n2} = ${result}`);

    break;

  case '-':

    result = n1 - n2;

    console.log(`${n1} - ${n2} = ${result}`);

    break;

  case '*':

    result = n1 * n2;

    console.log(`${n1} * ${n2} = ${result}`);

    break;

  case '/':

    if(n2 == 0)

      console.log(`${n1} / ${n2} | Error: Division by 0 !!`);

    else{
```

```
        result = n1 / n2;

        console.log(`${n1} / ${n2} = ${result}`);

    }

    break;

case '%':

    result = n1 % n2;

    console.log(`${n1} % ${n2} = ${result}`);


    break;

default:

    console.log(`Invalid operator!!`);

    break;


}
```

 127.0.0.1:5500

Enter operator (either +, -, *, / or %)

OK

Cancel


 127.0.0.1:5500

Enter first number:

☐ Prevent this page from creating additional dialogs

OK

Cancel

 127.0.0.1:5500

Enter second number:

☐ Prevent this page from creating additional dialogs

OK

Cancel

12 * 4 = 48

19_simple_calculator.js:22:17

23 + 12 = 35

19_simple_calculator.js:14:17

34 - 64 = -30

19_simple_calculator.js:18:17

34 / 0 | Error: Division by 0 !!

19_simple_calculator.js:26:21

34 / 2 = 17

19_simple_calculator.js:29:21

45 % 2 = 1

19_simple_calculator.js:34:17

20. Find the GCD or HCF & LCM of two numbers.

```
// 20. Find the GCD or HCF & LCM of two numbers.

const a = parseInt(window.prompt("Enter first number: "));
const b = parseInt(window.prompt("Enter second number: "));

function gcd(a, b){
    if(a < b)
        return gcd(b, a);

    if(b == 0)
        return a;

    return (b, a%b);
}

function lcm(a, b){
    return (a*b)/gcd(a,b);
}

console.log(`GCD of ${a} and ${b}: ${gcd(a,b)}`);
console.log(`LCM of ${a} and ${b}: ${lcm(a,b)}`);
```

GCD of 8 and 6: 2

20_gcd_lcm.js:18:9

LCM of 8 and 6: 24

20_gcd_lcm.js:19:9

X-X-X-X