National Institute of Technology, Tiruchirappalli



Department of Computer Applications

Web Technology and its Applications Lab Lab 3

Submitted to: Submitted by:

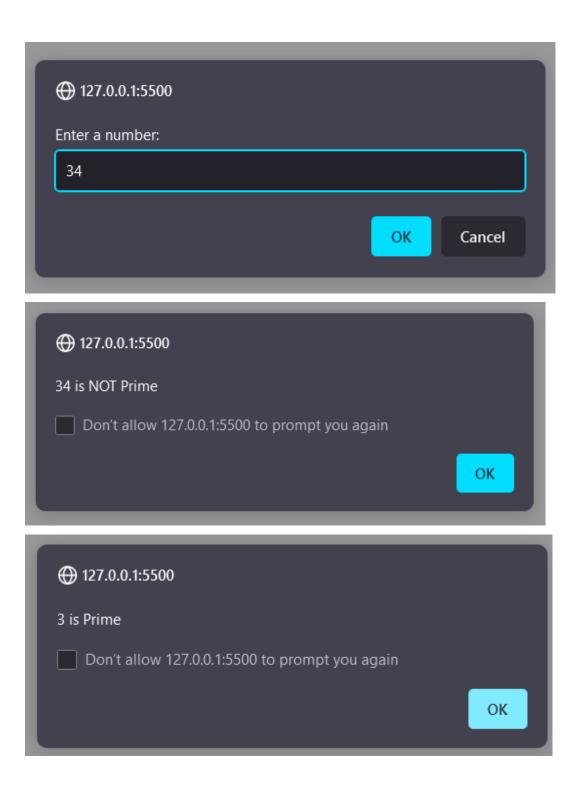
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MCA – 2nd Year

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.

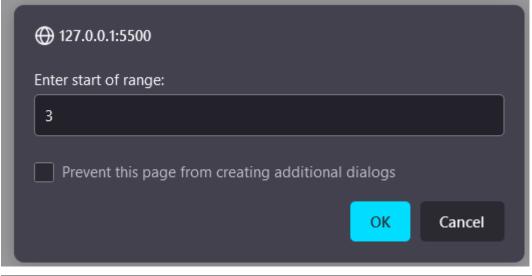
```
function isPrime(num) {
    if(num <= 1)</pre>
    for(let i=2; i<=Math.sqrt(num); i++) {</pre>
let num = window.prompt("Enter a number: ");
if(isPrime(num))
else
```

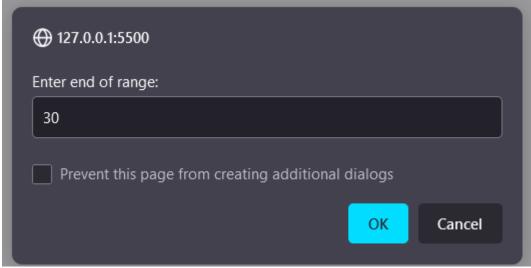


2. Print all the prime numbers in the given range.

```
// 2. Print all the prime numbers in the given range.
function isPrime(num) {
```

```
if(num <= 1)
    for(let i=2; i<=Math.sqrt(num); i++) {</pre>
function printPrimes(begin, end){
    for(let i=begin; i<=end; i++) {</pre>
       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);
```





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)
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++) {</pre>
   if(isArmstrong(i))
       console.log(i);
```

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.`);</pre>
```

```
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.

```
function isPerfect(num) {
   let sum = 0;
           sum += i;
    if(num == sum && sum!= 0)
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++) {</pre>
   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.

```
function isPalindrome(num) {
    let length = num.length;
    let i=0, j=length-1;
    while(i<j){</pre>
        if(num[i] != num[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`);
```

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){</pre>
        if(num[i] != num[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++){</pre>
    if(isPalindrome(i.toString()))
```

```
}
```

```
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
                                        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
                                        8_all_palindrome_num_in_range.js:21:17
                                        8 all palindrome num in range.js:21:17
171
                                        8_all_palindrome_num_in_range.js:21:17
                                        8_all_palindrome_num_in_range.js:21:17
191
```

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

```
<!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 m3 = new Array(row);
        for(let i=0; i<row; i++){</pre>
            m1[i] = new Array(col);
            m2[i] = new Array(col);
        document.write("Matrix 1:");
        document.write("<br>");
```

```
m1[i][j] = parseInt(window.prompt(`Enter m1 element at
index (${i},${j})`));
               document.write(`${m1[i][j]} `);
           document.write("<br>");
       document.write("<br>");
       document.write("Matrix 2:");
       document.write("<br>");
       for(let i=0; i<row; i++) {</pre>
           for(let j=0; j<col; j++){</pre>
               m2[i][j] = parseInt(window.prompt(`Enter m2 element at
ndex (${i},${j})`));
               document.write(`${m2[i][j]} `);
           document.write("<br>");
       document.write("<br>");
       document.write("Sum of matrix 1 and 2:");
       document.write("<br>");
       for(let i=0; i<row; i++) {</pre>
               m3[i][j] = m1[i][j] + m2[i][j];
               document.write(`${m3[i][j]} `);
```

Matrix 1:

524

637

257

Matrix 2:

274

3 5 7

472

Sum of matrix 1 and 2:

798

9814

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>
        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);
        for(let i=0; i<row1; i++){</pre>
           m1[i] = new Array(col1);
        document.write(`Matrix 1: Dimentions => ${row1}x${col1}`);
        document.write("<br>");
        for(let i=0; i<row1; i++){</pre>
            for(let j=0; j<col1; j++) {</pre>
                m1[i][j] = parseInt(window.prompt(`Enter m1 element at
index (\$\{i\},\$\{j\})));
                document.write(`${m1[i][j]} `);
            document.write("<br>");
```

```
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);
       for(let i=0; i<row2; i++){</pre>
           m2[i] = new Array(col2);
       document.write("<br>");
       document.write(`Matrix 2: Dimentions => ${row2}x${col2}`);
       document.write("<br>");
       for(let i=0; i<row2; i++) {</pre>
           for(let j=0; j<col2; j++) {</pre>
               m2[i][j] = parseInt(window.prompt(`Enter m2 element at
index (${i},${j})`));
               document.write(`${m2[i][j]} `);
           document.write("<br>");
       if(col1 != row2) {
           document.write("<br>");
```

```
document.write("Invalid matrix dimentions!!!!");
                                                               let m3 = new Array(row1);
                                                                for(let i=0; i<row1; i++) {</pre>
                                                                                    m3[i] = new Array(col2);
                                                                                   for(let j=0; j<col2; j++)</pre>
                                                                                  m3[i][j] = 0;
                                                                document.write("<br>");
                                                                document.write(`Product of matrix 1 and 2: Dimentions =>
f(0) = f(0) + 
                                                               document.write("<br>");
                                                                for(let i=0; i<row1; i++) {</pre>
                                                                                      for(let j=0; j<col2; j++){</pre>
                                                                                                           for(let k=0; k<col1; k++){</pre>
                                                                                                                          m3[i][j] += m1[i][k] * m2[k][j];
                                                                                                           document.write(`${m3[i][j]} `);
                                                                                    document.write("<br>");
```

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

```
Matrix 1: Dimentions \Rightarrow 2x4
```

1245

2463

Matrix 2: Dimentions \Rightarrow 4x2

52

2 5

63

13

Product of matrix 1 and 2: Dimentions \Rightarrow 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.

```
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}`);
```

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

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}`);
```

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}`);</pre>
```

```
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}`);</pre>
```

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;
}</pre>
```

```
      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

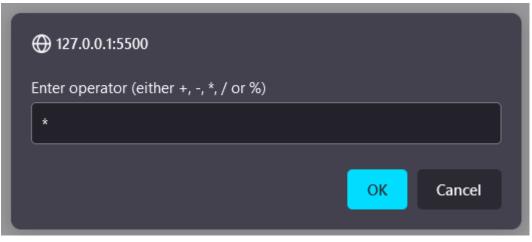
      6th term: 5
      18_fib_series.js:9:13

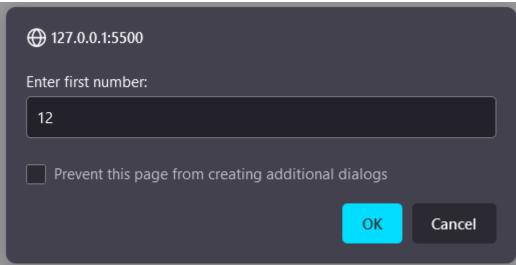
      7th term: 8
      18_fib_series.js:9:13
```

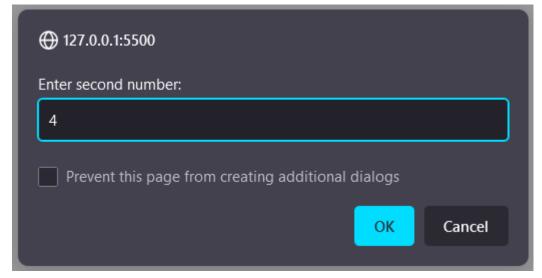
19. Make a simple calculator.

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

```
const operator = window.prompt(`Enter operator (either +, -, *, / or
e) `);
// operand input
const n1 = parseFloat(window.prompt("Enter first number: "));
const n2 = parseFloat(window.prompt("Enter second number: "));
let result;
switch (operator) {
       result = n1 + n2;
       console.log(`$\{n1\} + $\{n2\} = $\{result\}`);
        result = n1 - n2;
        result = n1 * n2;
        if(n2 == 0)
           console.log(`${n1} / ${n2} | Error: Division by 0 !!`);
```







12 * 4 = 48	<pre>19_simple_calculator.js:22:17</pre>
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

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)
   if(b == 0)
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_g cd_lcm.js:19:9

X-X-X-X