Task -1

Aim: Variables and Data Types

Description:

Declare a variable using var, let, and const. Assign different data types to each variable and print their values.

Source Code:

```
var x = 10;
let y = 20;
const c = 30;
console.log(x);
console.log(y);
console.log(c);
```

Output:

```
node /tmp/Xew4ok2Rqj.js
10
20
30
```

Learning Outcome:

CO1 : Understand various technologies and trends impacting single page web applications.
CO2 : Apply a deep knowledge of MVC(ModelViewController) architecture,making the development process easier and faster using open-source technologies.

Task -2

Aim: Operators and Expressions

Description:

Write a function that takes two numbers as arguments and returns their sum, difference, product, and quotient using arithmetic operators.

Source Code:

```
var aa = prompt("first number :");
var num1 = parseInt(aa);
//console.log("first number :"+num1);
```

```
var bb = prompt("second number :");
var num2 = parseInt(bb);
//console.log("second number :"+num2);
var add = add(num1, num2);
var sub = sub(num1, num2);
var mul = mul(num1, num2);
var div = div(num1, num2);

function add(n1,n2){
   return n1 + n2;
}
function sub(n1,n2){
   return n1 - n2;
}
function mul(n1,n2){
   return n1 * n2;
}
function div(n1,n2){
   return n1 / n2;
}

console.log("add :"+add);
console.log("sub :"+sub);
console.log("mul :"+mul);
console.log("div :"+div);
```

Output:

```
node /tmp/Xew4ok2Rqj.js
first number :23
second number :21
add :44
sub :2
mul :483
div :1.0952380952380953
```

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Task -3

Aim: Control Flow

Description:

Write a program that prompts the user to enter their age. Based on their age, display different messages:
○ If the age is less than 18, display "You are a minor."
○ If the age is between 18 and 65, display "You are an adult."
○ If the age is 65 or older, display "You are a senior citizen."

Source Code:

```
var cc = prompt("Enter your age :");
var num3 = parseInt(cc);
//console.log("Your age is :"+ num3);
if(num3<18){
   console.log("You are minor");
}
else if(num3>18 && num3<65){
   console.log("You are adult");
}
else{
   console.log("You are senior citizen");
}
```

Output:

```
node /tmp/Xew4ok2Rqj.js
Enter your age :36
You are adult
```

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Task -4

Aim: Functions

Description:

Write a function that takes an array of salary as an argument and returns the min/max salary in the array.

Source Code:

```
function findMinMaxSalary(salaries) {
  var minSalary = Math.min(...salaries);
  var maxSalary = Math.max(...salaries);
  console.log("Minimum :"+minSalary);
  console.log("Maximum :"+maxSalary);
}
var salaries = [30000, 50000, 25000, 80000, 60000];
var result = findMinMaxSalary(salaries);
```

Output:

```
node /tmp/Xew4ok2Rqj.js
Minimum :25000
Maximum :80000
```

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Task -5

Aim: Arrays and Objects

Description:

Create an array of your favorite books. Write a function that takes the array as an argument and displays each book title on a separate line.

Source Code:

```
var favoriteBooks = [
```

```
  "Zero to One",
  "unchained",
  "48 laws of power",
  "Do It",
  "The Ultimate Power"
];

function displayBookTitles(books) {
  for (var i = 0; i < books.length; i++) {
    console.log(books[i]);
  }
}

// Call the function with the array of favorite books
displayBookTitles(favoriteBooks);
```

Output:

```
node /tmp/Xew4ok2Rqj.js
Zero to One
unchained
48 laws of power
Do It
The Ultimate Power
```

Learning Outcome:

Task -6

Aim: Scope and Hoisting

Description:

Declare a variable inside a function and try to access it outside the function. Observe the scope behavior and explain the results. [var vs let vs const]

Source Code:

```
function testScope() {
```

```
  var varVariable = 'This is a var .';
  let letVariable = 'This is a let .';
  const constVariable = 'This is a const .';
}

testScope();

console.log(varVariable);    // Error: varVariable is not defined
console.log(letVariable);    // Error: letVariable is not defined
console.log(constVariable);  // Error: constVariable is not defined
```

Output:

```
node /tmp/Xew4ok2Rqj.js
ERROR!
/tmp/Xew4ok2Rqj.js:9
console.log(varVariable);    // Error: varVariable is not defined
                ^

ReferenceError: varVariable is not defined
    at Object.<anonymous> (/tmp/Xew4ok2Rqj.js:9:13)
    at Module._compile (node:internal/modules/cjs/loader:1254:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1308:10)
    at Module.load (node:internal/modules/cjs/loader:1117:32)
    at Module._load (node:internal/modules/cjs/loader:958:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:81:12)
    at node:internal/main/run_main_module:23:47

Node.js v18.16.0
```

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Task -7

Aim: DOM Manipulation

Description:

Create an HTML page with a button. Write JavaScript code that adds an event listener to the button and changes its text when clicked.

Source Code:

```
<!DOCTYPE html>
<html>
<head>
    <title>Button Event Listener</title>
</head>
<body>
    <button id="myButton">Click Me</button>

    <script>
        var button = document.getElementById("myButton");

        button.addEventListener("click", function() {
            button.textContent = "Button Clicked!";
        });
    </script>
</body>
</html>
```

Output:

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Task -8

Aim: Error Handling

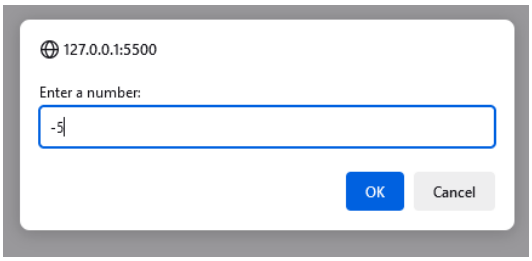
Description:

Write a function that takes a number as an argument and throws an error if the number is negative. Handle the error and display a custom error message.

Source Code:

```
<!DOCTYPE html>
<html>
<head>
  <title>Negative Number Error</title>
</head>
<body>
    <p id="error"></p>
    <p id="result"></p>

  <script>
    function checkPositiveNumber(number) {
  if (number < 0) {
    throw new Error("Number cannot be negative.");
  }

  // If the number is not negative, do something with it or return it.
  // For this example, let's just return the number.
  return number;
}

try {
  var userInput = parseInt(prompt('Enter a number:'));
  var result = checkPositiveNumber(userInput);
  document.getElementById("result").innerHTML=result;
} catch (error) {
  document.getElementById("error").innerHTML=error.message;
}
  </script>

</body>
</html>
```

Output:



Number cannot be negative.

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Task -9

Aim: Asynchronous JavaScript

Description:

Write a function that uses setTimeout to simulate an asynchronous operation. Use a callback function to handle the result.

Source Code:

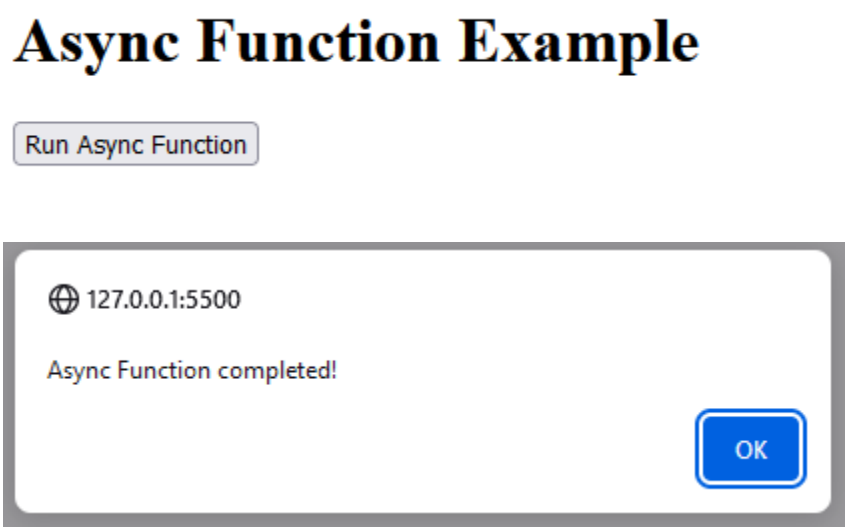
```
<!DOCTYPE html>
<html>
<head>
  <title>Async Function Example</title>
</head>
<body>
  <h1>Async Function Example</h1>
  <button onclick="runAsyncFunction()">Run Async Function</button>

  <script>
    function runAsyncFunction() {
      // Simulate an asynchronous operation using setTimeout
      setTimeout(function() {
        // Call the callback function with the result
        asyncFunctionCallback('Async Function completed!');
```

```
        }, 2000);
    }

    function asyncFunctionCallback(result) {
        // Handle the result of the asynchronous operation
        alert(result);
    }
  </script>
</body>
</html>
```

Output:



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