**Advance JavaScript**

**1.Recursion and stack**

Task 1:

Code:

<!DOCTYPE html>

<html>

    <head>

        <title>Factorial</title>

    </head>

    <body>

        <script>

            let num = 5;

            let fact = (num)=>{

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

            {

                return 1;

            }

            else{

                return num \*fact(num -1);

            }

            }

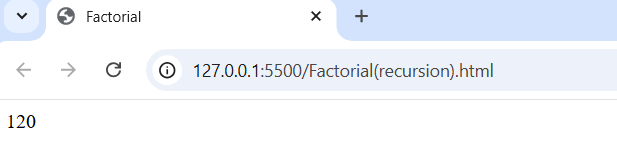
            document.write(fact(num));

        </script>

    </body>

</html>

Output:



Task 2:Code:

<html>

    <head>

        <title>Fibonacci\_Series</title>

    </head>

    <body>

        <script>

            let fib =(n,prev1,prev2)=> {

                if(n < 3)

                return;

                var crnt = prev1 + prev2;

                document.writeln(crnt +" ");

                prev2 = prev1;

                prev1 = crnt;

                fib(n-1,prev1,prev2);

            }

            let printfib= (n)=>{

                var prev2 = 0;

                var prev1 = 1;

                if(n < 1)

                document.writeln("Invalid input!");

                else if(n == 1)

                document.writeln(prev2 +" ");

                else if(n >= 2){

                document.writeln(prev2+" "+prev1+" ");

                fib(n,prev1,prev2);

            } }

            var n = 10;

document.writeln("Fibonacci Series...<br>");

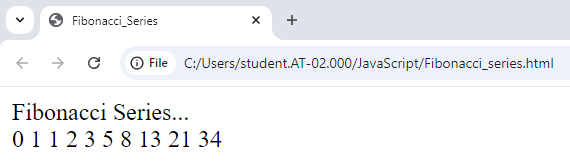
            printfib(n);

        </script>

    </body>

</html>

Output:



Task 3:

Code:

<html>

    <head>

        <title>

            Total\_Ways

        </title>

    </head>

    <body>

        <script>

            let countways = (n)=>{

                if(n == 0)

                return 1;

                if(n < 0)

                return 0;

                return countways(n-1) + countways(n-2) + countways(n-3);

            }

            var n = 7;

           document.writeln("Totol number of ways...<br>");

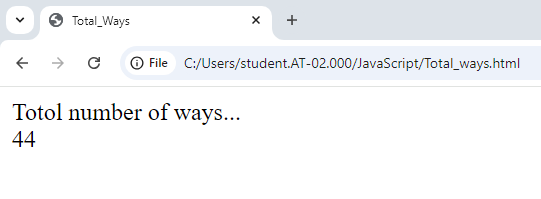
document.writeln(countways(n));

        </script>

    </body>

</html>

Output:



Task 4:

Code:

<!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>

    <script>

        function flattenArray(ipArray) {

            let outputArray = [];

            recursion(0, ipArray, outputArray);

            return outputArray;

        }

        function recursion(index, ipArray, outputArray) {

            if (index >= ipArray.length)

                return;

            if (Array.isArray(ipArray[index]))

                recursion(0, ipArray[index], outputArray);

            else

                outputArray.push(ipArray[index]);

            recursion(index + 1, ipArray, outputArray);

        }

        var inputArray = [1, 2, [3, [4]], 5, 34];

        document.writeln("InputArray After flatterning:<br>");

        var flatArray = flattenArray(inputArray);

        document.writeln(flatArray);

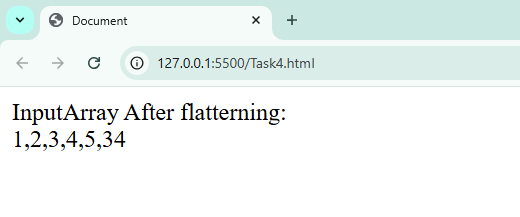
        // document.writeln(flatArray[3]);

    </script>

</body>

</html>

Output:



Task 5:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Advance Java </title>

</head>

<body>

    <script>

       function towerOfHanoi(n, fromRod, toRod, auxRod) {

if (n === 1) {

console.log(`Move disk 1 from ${fromRod} to ${toRod}`);

return;

}

towerOfHanoi(n - 1, fromRod, auxRod, toRod);

console.log(`Move disk ${n} from ${fromRod} to ${toRod}`);

towerOfHanoi(n - 1, auxRod, toRod, fromRod);

}

const numberofdisks = 3;

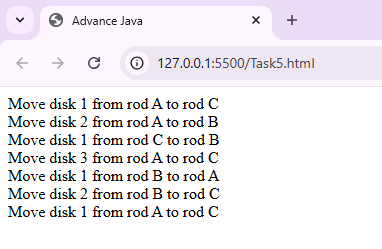
towerOfHanoi(numberofdisks, 'A', 'C', 'B');

    </script>

</body>

</html>

Output:



**2. JSON and variable length arguments/spread syntax:**

Task 1:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <title>Document</title>

</head>

<body>

    <script>

        function add(...arr) {

            return arr.reduce((sum, cur) => sum + cur, 0);

        }

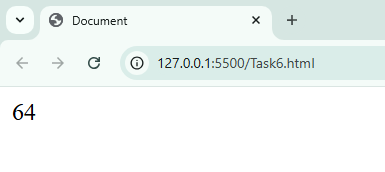
        document.writeln(add(4, 43, 2, 7, 8));

    </script>

</body>

</html>

Output:



Task 2:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task7</title>

</head>

<body>

    <script>

    function sum(...args)

    {

    return args.reduce((total, num) => total + num, 0);

    }

    function sumArray(numbers)

    {

    return sum(...numbers);

}

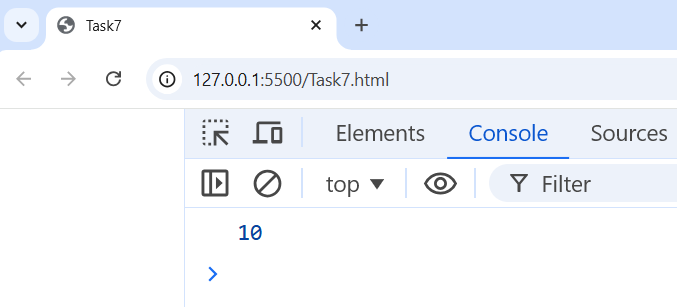
console.log(sumArray([1, 2, 3, 4]));

    </script>

</body>

</html>

Output:



Task 3:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task8</title>

</head>

<body>

    <script>

        const std = {

            name: "MERN\_STACK",

            roll: 101

        };

        const p = { ...std };

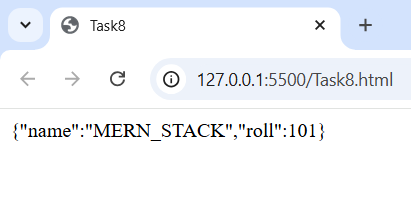
        document.writeln(JSON.stringify(p));

    </script>

</body>

</html>

Output:



Task 4:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task9</title>

</head>

<body>

    <script>

        const std = {

            name: "MERN\_STACK",

            roll: 177

        };

        const player = {

            name: "ABCDEF",

            num: 18

        };

        const json = { ...std, playerName: player.name, num: player.num };

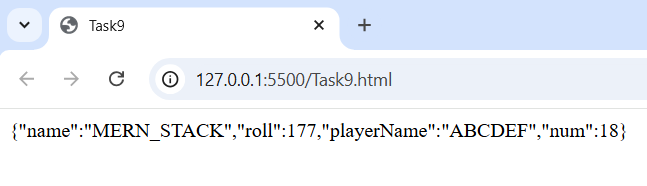
        document.writeln(JSON.stringify(json));

    </script>

</body>

</html>

Output:



Task 5:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>

        Task10

    </title>

</head>

<body>

    <script>

        const std={

            name:"KCE",

            roll:254

        };

        const json=JSON.stringify({...std});

        document.writeln(json+"<br>");

        const x=JSON.parse(json);

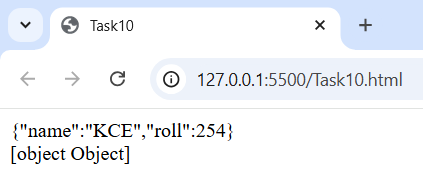
        document.writeln(x);

    </script>

</body>

</html>

Output:



**3. Closure:**

Task1:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task11</title>

</head>

<body>

    <script>

        function outerFunction()

{

    let localVariable = "Hello, Closure!";

    return function innerFunction()

{

        return localVariable;

    };

}

const func = outerFunction();

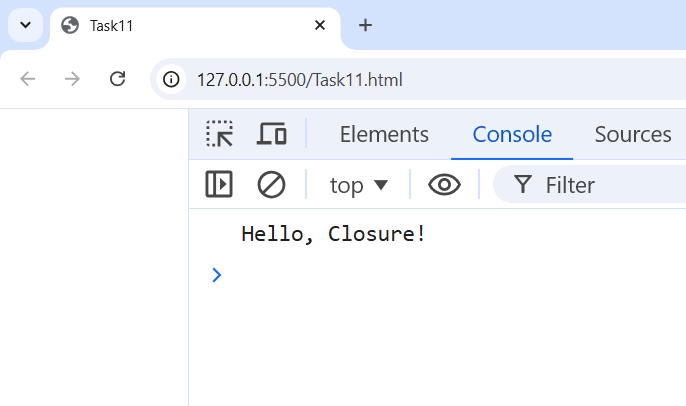
console.log(func());

    </script>

</body>

</html>

Output:



Task2:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task12</title>

</head>

<body>

    <script>

        function counter() {

    let count = 0;

    return {

        increment: function () {

            count++;

        },

        getCount: function () {

            return count;

        }

    };

}

const myCounter = counter();

myCounter.increment();

myCounter.increment();

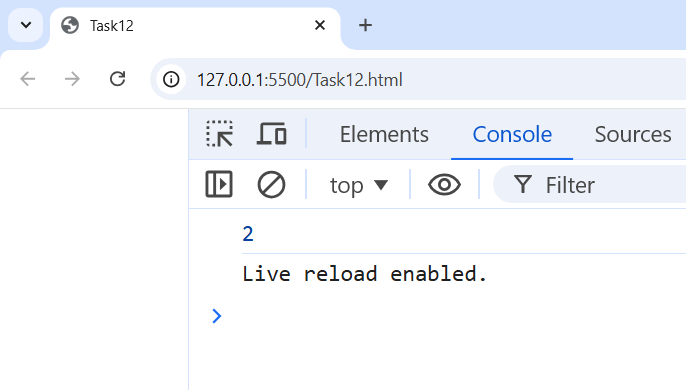
console.log(myCounter.getCount());

    </script>

</body>

</html>

Output:



Task 3:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task13</title>

</head>

<body>

    <script>

    function createCounter() {

    let count = 0;

    return {

        increment: function () {

            count++;

        },

        getCount: function () {

            return count;

        }

    };

}

const counter1 = createCounter();

const counter2 = createCounter();

counter1.increment();

counter1.increment();

counter2.increment();

console.log(counter1.getCount());

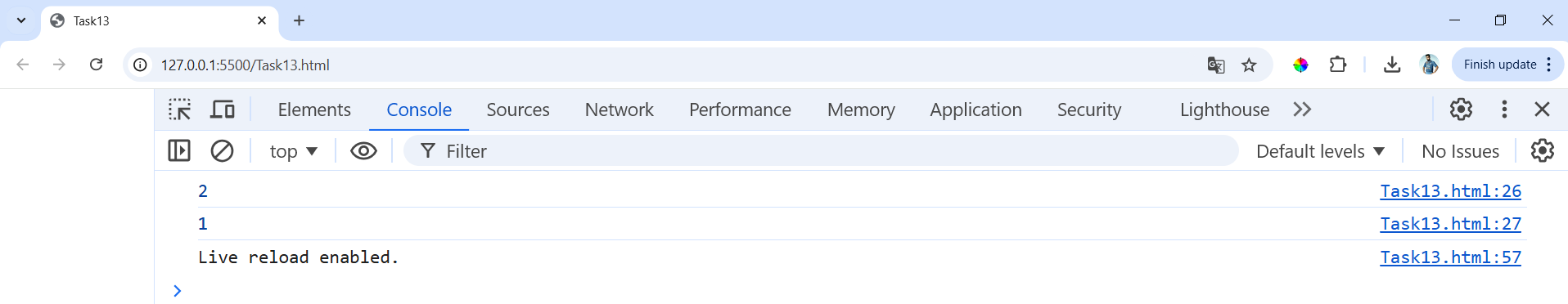
console.log(counter2.getCount());

    </script>

</body>

</html>

Output:



Task 4:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task14</title>

</head>

<body>

    <script>

        function privateVariable() {

    let secret = "This is private";

    return {

        getSecret: function () {

            return secret;

        },

        setSecret: function (newSecret) {

            secret = newSecret;

        }

    };

}

const secretHandler = privateVariable();

console.log(secretHandler.getSecret());

secretHandler.setSecret("New secret");

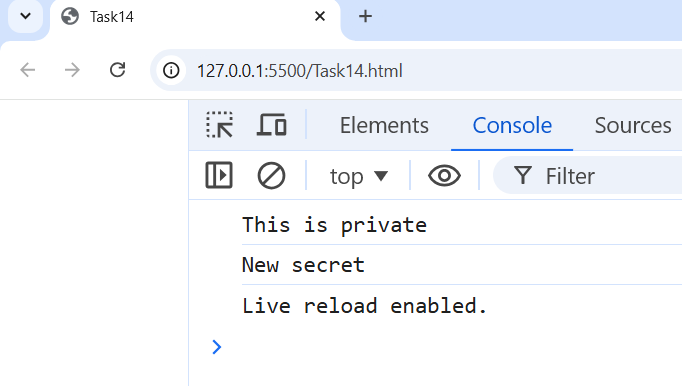
console.log(secretHandler.getSecret());

    </script>

</body>

</html>

Output:



Task 5:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task15</title>

</head>

<body>

    <script>

        function multiplier(factor) {

    return function (number) {

        return number \* factor;

    };

}

const double = multiplier(2);

const triple = multiplier(3);

console.log(double(5));

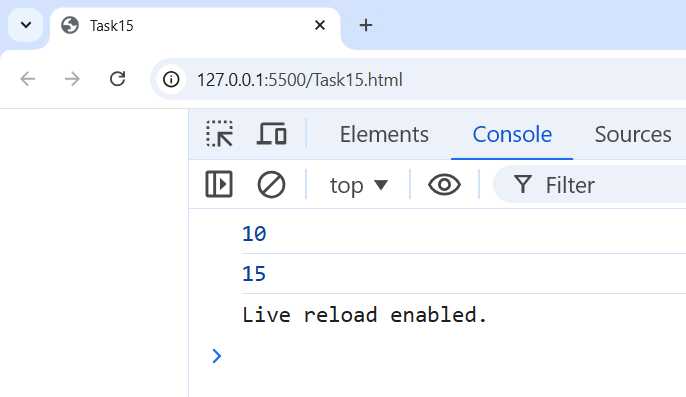
console.log(triple(5))

    </script>

</body>

</html>

Output:



4. Promise, Promises chaining:

Task1:

Code:

<!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>

    <script>

        function delayedGreeting(seconds) {

    return new Promise((resolve) => {

        setTimeout(() => resolve("Hello after " + seconds + " seconds!"), seconds \* 1000);

    });

}

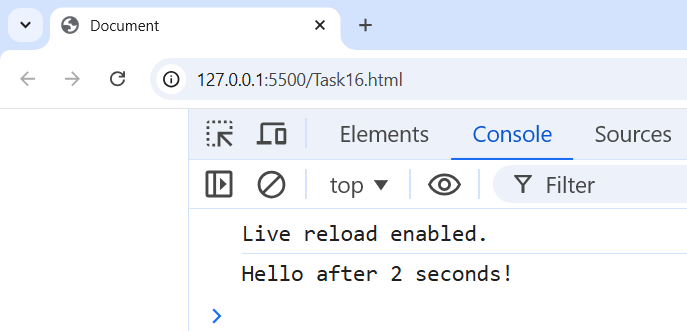
delayedGreeting(2).then(console.log);

    </script>

</body>

</html>

Output:



Task 2:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task17</title>

</head>

<body>

    <script>

        fetch('https://jsonplaceholder.typicode.com/posts/1').then(response => response.json())

    .then(data => {

        console.log("Fetched Data:", data);

        return data.title.toUpperCase();

    })

    .then(uppercaseTitle => console.log("Processed Data:", uppercaseTitle))

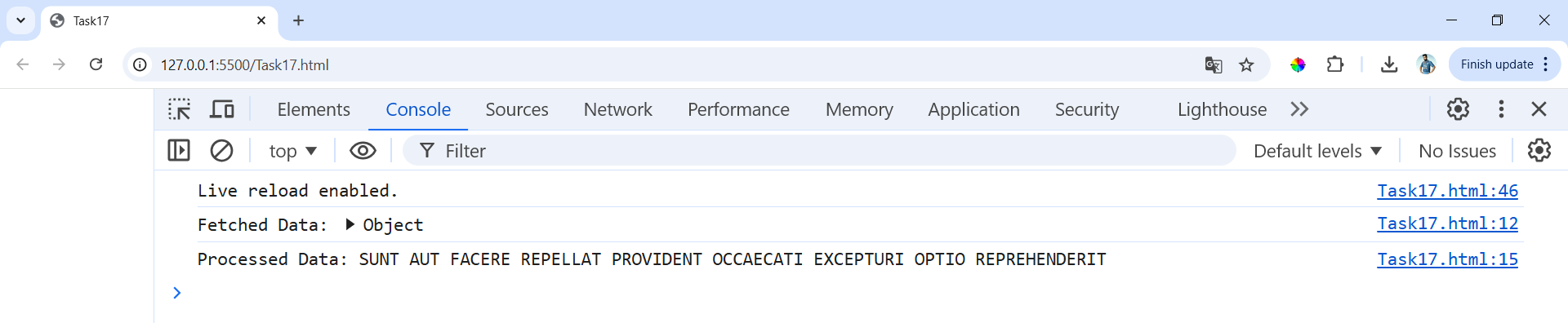
    .catch(error => console.error("Error:", error));

    </script>

</body>

</html>

Output:



Task 3:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task18</title>

</head>

<body>

    <script>

        function randomPromise() {

    return new Promise((resolve, reject) => {

        const random = Math.random();

        if (random > 0.5) {

            resolve("Success! Random number: " + random);

        } else {

            reject("Failure! Random number: " + random);

        }

    });

}

randomPromise()

    .then(console.log)

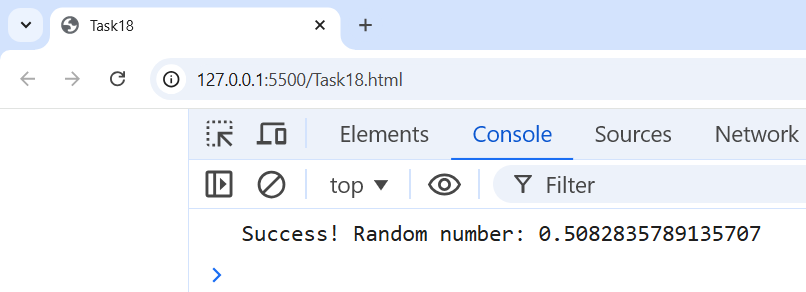
    .catch(console.error);

    </script>

</body>

</html>

Output:



Task4:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task19</title>

</head>

<body>

    <script>

        const urls = [

    'https://jsonplaceholder.typicode.com/posts/1',

    'https://jsonplaceholder.typicode.com/posts/2',

    'https://jsonplaceholder.typicode.com/posts/3'

];

Promise.all(urls.map(url => fetch(url).then(res => res.json())))

    .then(data => console.log("Fetched Data:", data))

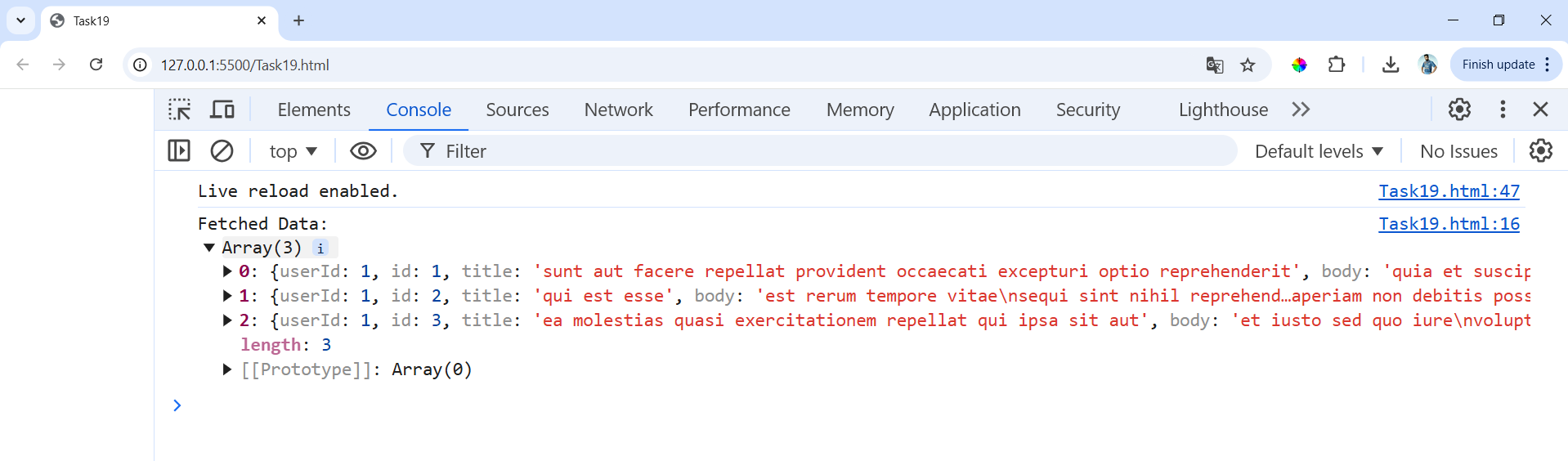
    .catch(error => console.error("Error:", error));

    </script>

</body>

</html>

Output:



Task5:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task20</title>

</head>

<body>

    <script>

        function task1() {

    return Promise.resolve("Task 1 Completed");

}

function task2(previousResult) {

    return Promise.resolve(previousResult + " -> Task 2 Completed");

}

function task3(previousResult) {

    return Promise.resolve(previousResult + " -> Task 3 Completed");

}

task1()

    .then(result => task2(result))

    .then(result => task3(result))

    .then(finalResult => console.log(finalResult))

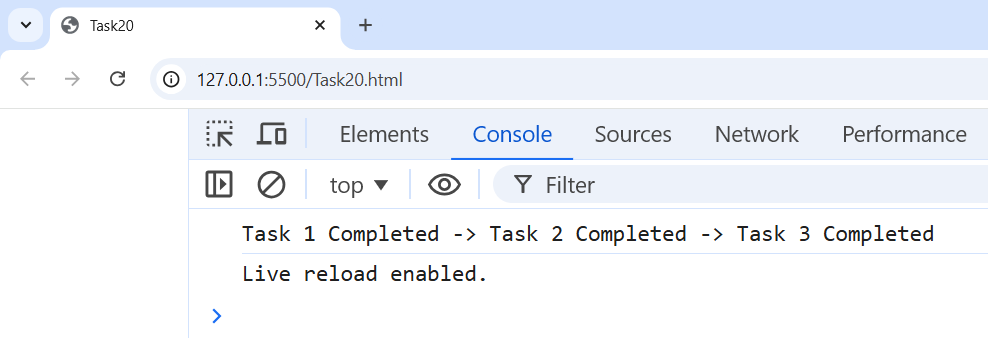
    .catch(error => console.error("Error:", error));

    </script>

</body>

</html>

Output:



5. Async/await:

Task1:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task21</title>

</head>

<body>

    <script>

function fetchData() {

    return new Promise((resolve, reject) => {

        setTimeout(() => resolve("Data fetched"), 1000);

    });

}

async function fetchDataAsync() {

    const data = await fetchData();

    console.log(data);

}

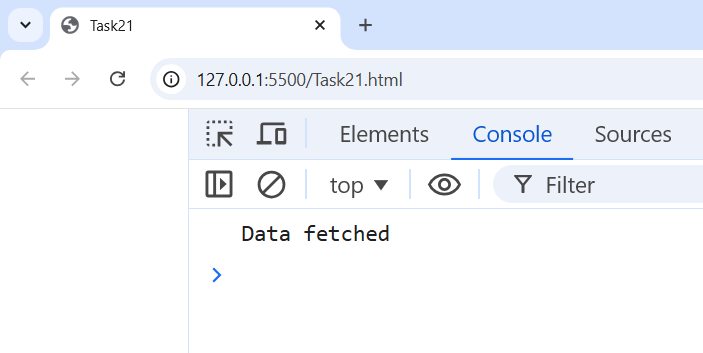
fetchDataAsync();

    </script>

</body>

</html>

Output:



Task 2:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task22</title>

</head>

<body>

    <script>

        async function fetchAndProcessData() {

    const response = await fetch('https://jsonplaceholder.typicode.com/posts');

    const data = await response.json();

    console.log('Processed Data:', data.slice(0, 5));

}

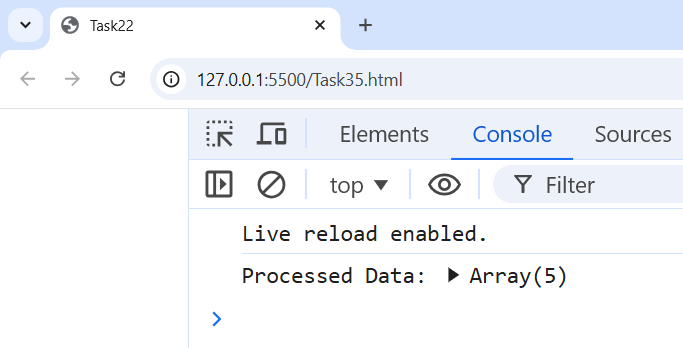
fetchAndProcessData();

    </script>

</body>

</html>

Output:



Task 3:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task23</title>

</head>

<body>

    <script>

        async function fetchWithErrorHandling() {

    try {

        const response = await fetch('https://invalid.api/endpoint');

        if (!response.ok) throw new Error('API responded with an error');

        const data = await response.json();

        console.log(data);

    } catch (error) {

        console.error('Error:', error.message);

    }

}

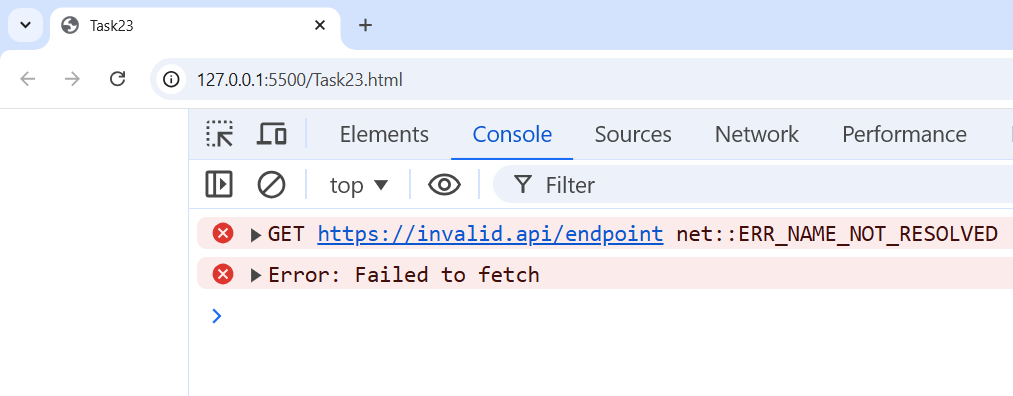
fetchWithErrorHandling();

    </script>

</body>

</html>

Output:



Task4:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task24</title>

</head>

<body>

    <script>

        async function fetchMultipleData() {

    const urls = [

        'https://jsonplaceholder.typicode.com/posts',

        'https://jsonplaceholder.typicode.com/users'

    ];

    const promises = urls.map(url => fetch(url).then(res => res.json()));

    const [posts, users] = await Promise.all(promises);

    console.log('Posts:', posts);

    console.log('Users:', users);

}

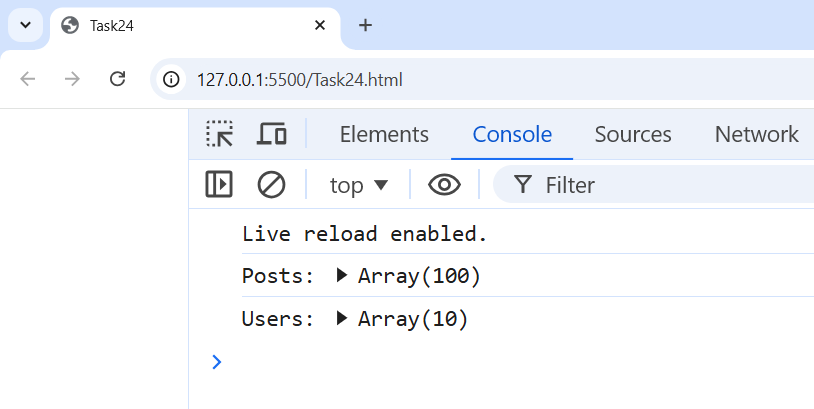
fetchMultipleData();

    </script>

</body>

</html>

Output:



Task5:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task25</title>

</head>

<body>

    <script>

        async function completeOperations() {

    const op1 = new Promise(resolve => setTimeout(() => resolve('Operation 1 completed'), 1000));

    const op2 = new Promise(resolve => setTimeout(() => resolve('Operation 2 completed'), 2000));

    const op3 = new Promise(resolve => setTimeout(() => resolve('Operation 3 completed'), 1500));

    const results = await Promise.all([op1, op2, op3]);

    console.log('All operations completed:', results);

}

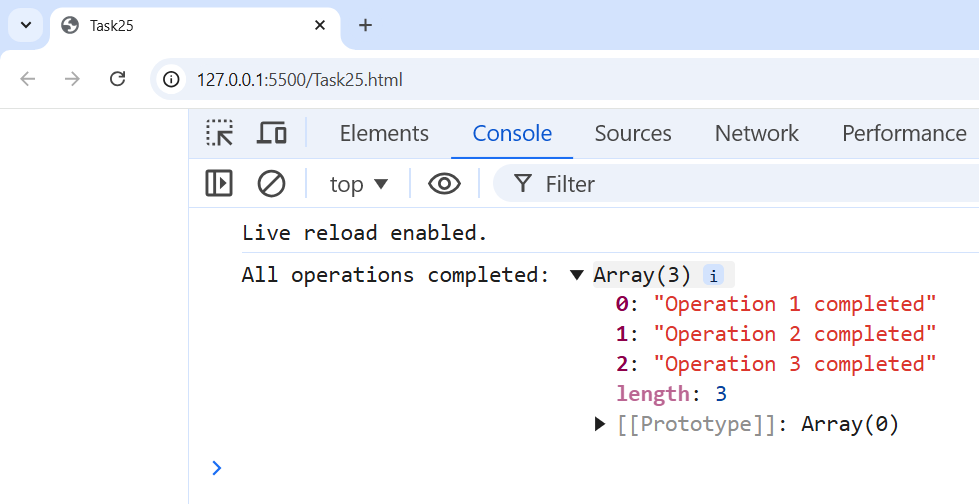
completeOperations();

    </script>

</body>

</html>

Output:



6. Modules introduction, Export and Import:

Task1:

Code:

Module.js

export const myVar = 42;

export function myFunction() {

    return 'Hello from myFunction!';

}

export class MyClass {

    greet() {

        return 'Hello from MyClass!';

    }

}

Output:

**No output. Because this file only have export functions,variable and class!!!**

Task 2:

Code:

**Module.js:**

export const myVar = 42;

export function myFunction() {

    return 'Hello from myFunction!';

}

export class MyClass {

    greet() {

        return 'Hello from MyClass!';

    }

}

<!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>

    <script type="module">

import { myVar, myFunction, MyClass } from './module.js';

console.log(myVar);

console.log(myFunction());

const myClassInstance = new MyClass();

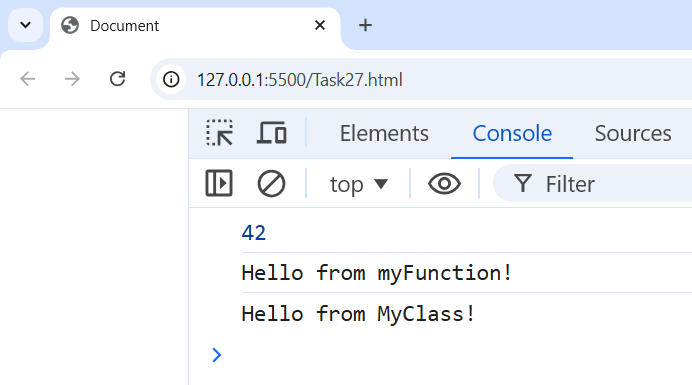
console.log(myClassInstance.greet());

    </script>

</body>

</html>

Output:



Task 3:

Code:

export function namedExport(){

    return "This is the javascript file,It contains Named export are here!!!";

}

export function namedExport2(){

    return "This is the another javascript file for named export!!!";

}

Output:

**No output.Because this file only have export functions!!!**

Task4:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task29</title>

</head>

<body>

    <script type ="module">

        import {namedExport,namedExport2} from './Task28.js';

        console.log(namedExport());

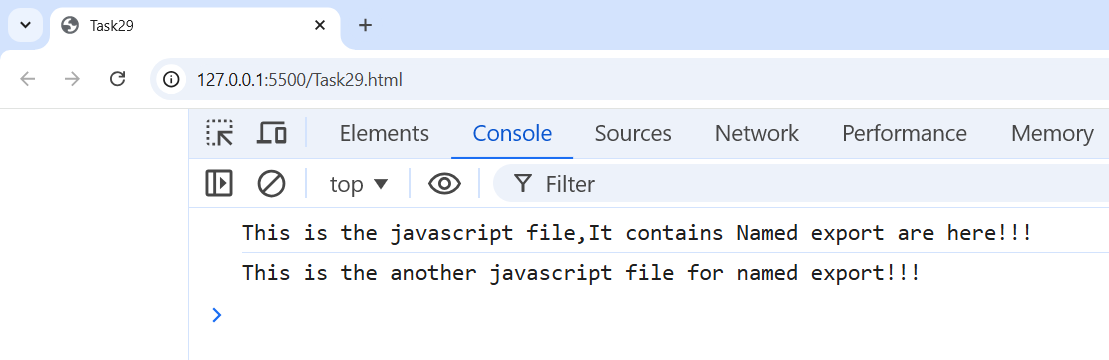
        console.log(namedExport2());

    </script>

</body>

</html>

Output:



**Task5:**

Code:

Module1.js

function Primary()

{

    return "This is the primary function from default export function in module1.js file";

}

export default Primary;

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task30</title>

</head>

<body>

    <script type="module">

        import primary from './module1.js';

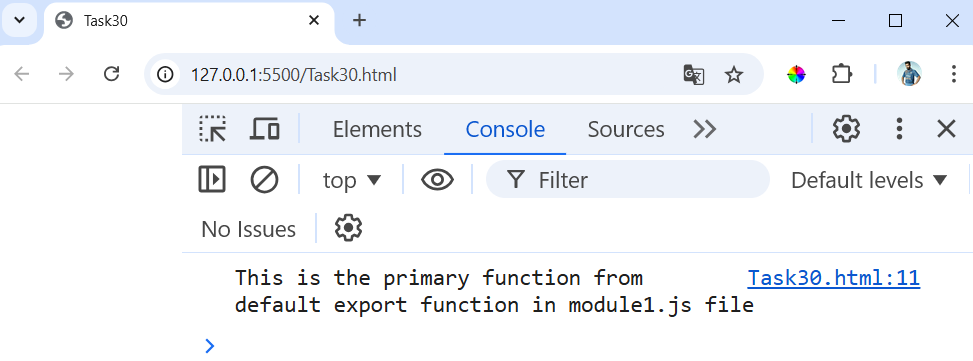
        console.log(primary());

    </script>

</body>

</html>

Output:



**7. Browser: DOM Basics:**

Task1:

Code:

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task31</title>

</head>

<body>

    <p id="para"></p>

    <script>

        var p = document.getElementById("para");

        const content ="Elephants are the largest land mammals on earth and have distinctly massive bodies, large ears, and long trunks.<br> They use their trunks to pick up objects, trumpet warnings, greet other elephants, <br>or suck up water for drinking or bathing, among other uses.";

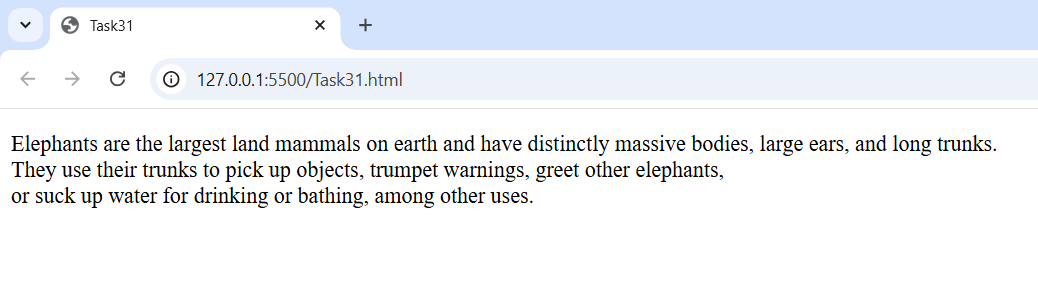
        p.innerHTML = content;

  </script>

</body>

</html>

**Output:**



**Task 2:**

**Code:**

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Task31</title>

</head>

<body>

    <h4>It is one of the Mouse event in Javascript!.when i click the submit button then description of elephant is shown</h4>

    <p id="para"></p>

    <input type ="button" value ="submit" onclick="MyElephant()">

    <script>

        function MyElephant()

        {

        var p = document.getElementById("para");

        const content ="Elephants are the largest land mammals on earth and have distinctly massive bodies, large ears, and long trunks.<br> They use their trunks to pick up objects, trumpet warnings, greet other elephants, <br>or suck up water for drinking or bathing, among other uses.";

        p.innerHTML = content;

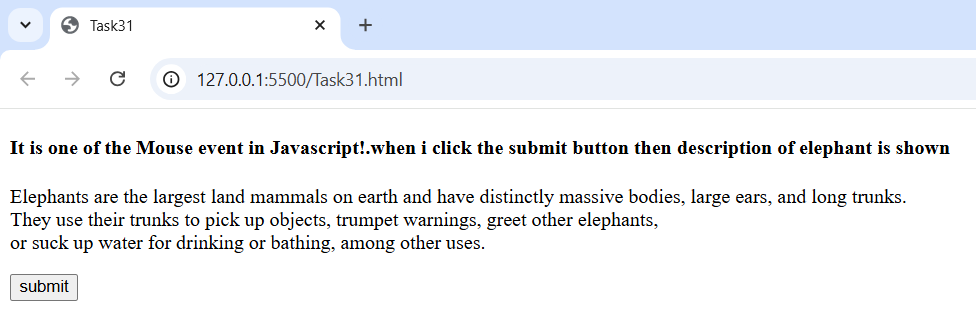
        }

  </script>

</body>

</html>

**Output:**



Task 3:

Code:

<!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>

<div id ="di">

Something is inside here!!!

</div>

<input type="button" value="click me" id ="bd" onclick="app()"/>

<script>

var div = document.getElementById("di");

function app(){

var ele = document.createElement('h1');

ele.innerHTML ="Hello,World!"

div.appendChild(ele);

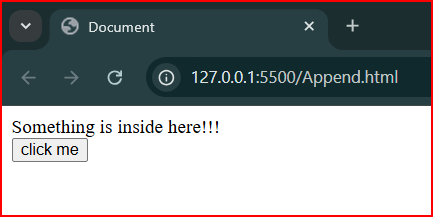
}

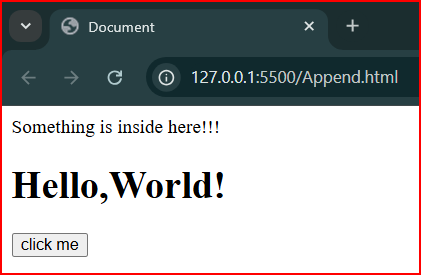
</script>

</body>

</html>

**Output:**





**Task4:**

**Code:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Toggle Visibility by Removing Element</title>

</head>

<body>

<div id="content">

This content can be toggled.

</div>

<button onclick="toggleVisibility()">Toggle Visibility</button>

<script>

var content = document.getElementById("content");

var parent = content.parentNode;

function toggleVisibility() {

if (content.parentNode) {

parent.removeChild(content);

} else {

parent.appendChild(content);

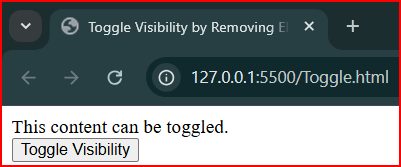
} }

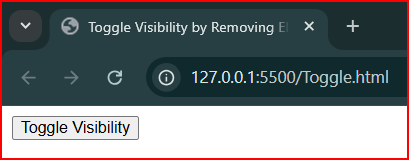
</script>

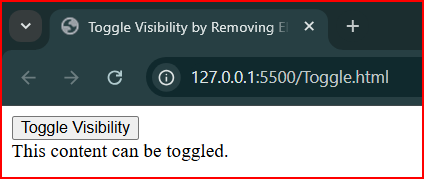
</body>

</html>

**Output:**







**Task5:**

**Code:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Retrieve and Modify Attributes</title>

</head>

<body>

<img id="image" src="https://static.vecteezy.com/system/resources/thumbnails/026/525/162/small/lion-animal-isolated-photo.jpg" alt="Example Image" height="150px" width="200px"><br>

<button onclick="modifyAttributes()">Modify Attributes</button>

<script>

function modifyAttributes() {

var img = document.getElementById("image");

var currentSrc = img.getAttribute("src");

var currentAlt = img.getAttribute("alt");

console.log("Current src:", currentSrc);

console.log("Current alt:", currentAlt);

img.setAttribute("src", "https://www.healthyeating.org/images/default-source/home-0.0/nutrition-topics-2.0/general-nutrition-wellness/2-2-2-3foodgroups\_fruits\_detailfeature.jpg?sfvrsn=64942d53\_4"); // Change the image source

img.setAttribute("alt", "Updated Example Image");

var updatedSrc = img.getAttribute("src");

var updatedAlt = img.getAttribute("alt");

console.log("Updated src:", updatedSrc);

console.log("Updated alt:", updatedAlt);

}

</script>

</body>

</html>

**Output:**

