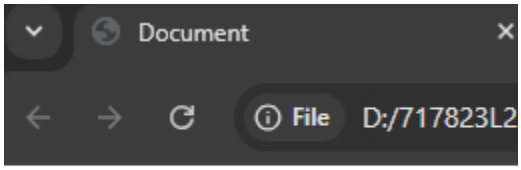
Advance Javascript Tasks

Task 1

```
<!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 factorial(num){
            var fact=1;
            if(num==0)
        {
            return fact;
        }
        else{
            return num*factorial(num-1);
        }
        }
        document.writeln(factorial(5)+"<br>");
        document.writeln(factorial(10));
    </script>
</body>
</html>
```

Output



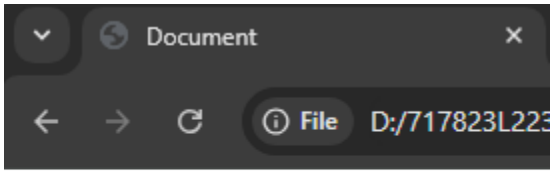
120
3628800

Task 2

```
<!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 fibonacci(num){
```

```
            if(num<=1)
        {
            return num;
        }
        else{
            return fibonacci(num-1)+fibonacci(num-2);
        }
        }
        document.writeln(fibonacci(5)+"<br>");
        document.writeln(fibonacci(8));
    </script>
</body>
</html>
```

Output



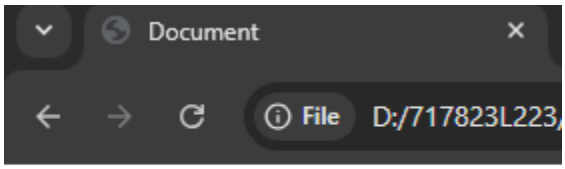
5
21

Task 3

```
<!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 climbstairs(num){
            if(num===0)
        {
            return 1;
        }
        else if(num===1){
            return 1;
        }
        else if(num===2){
            return 2;
        }
        else if(num===3){
            return 4;
        }
```

```
        return climbstairs(num-1)+climbstairs(num-2)+climbstairs(num-3);
        }
        document.writeln(climbstairs(5)+"<br>");
        document.writeln(climbstairs(8));
    </script>
</body>
</html>
```

Output

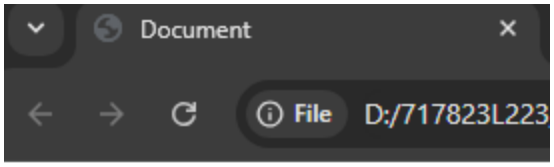


13
81

Task 4

```
<!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(arr){
            let result=[];
            arr.forEach(element=>{
            if(Array.isArray(element)){
                result=result.concat(flattenArray(element));
            }
            else{
                result.push(element);
            }
        });
        return result;
        }
        document.writeln(flattenArray([1,[2,[3],4]])+"<br>");
        document.writeln(flattenArray([1,[2,[3,4,[5]]],6]));
    </script>
</body>
</html>
```

Output

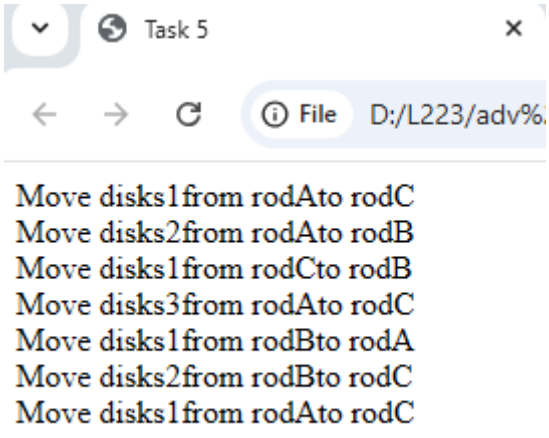


1,2,3,4
1,2,3,4,5,6

Task 5

```
!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Task 5</title>
</head>
<body>
    <script>
        function TowerOfHanoi(n,src,des,temp){
            if(n==0){
                return;
            }
            TowerOfHanoi(n-1,src,temp,des);
            document.writeln("Move disks"+n+"from rod"+src+"to rod"+des+"<br/>");
            TowerOfHanoi(n-1,temp,des,src);
        }
        TowerOfHanoi(3,"A","C","B");
    </script>
</body>
</html>
```

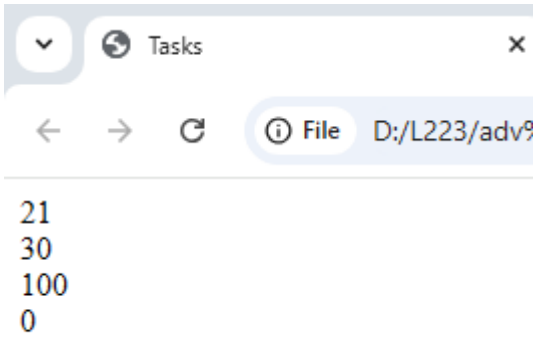
Output



Task 6

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Tasks</title>
</head>
<body>
    <script>
        function add(...args) {
            return args.reduce((total, num) => total + num, 0);
        }
        document.writeln(add(1,2,3,4,5,6)+"<br/>");
        document.writeln(add(10+20)+"<br/>");
        document.writeln(add(100)+"<br/>");
        document.writeln(add()+"<br/>");
    </script>
</body>
</html>
```

Output

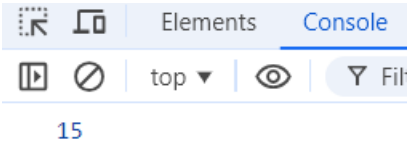


Task 7

```
<!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 sum(...args) {
            return args.reduce((acc, num) => acc + num, 0);
        }
        const arr=[1,2,3,4,5];
        console.log(sum(...arr));
    </script>

</body>
</html>
```

Output

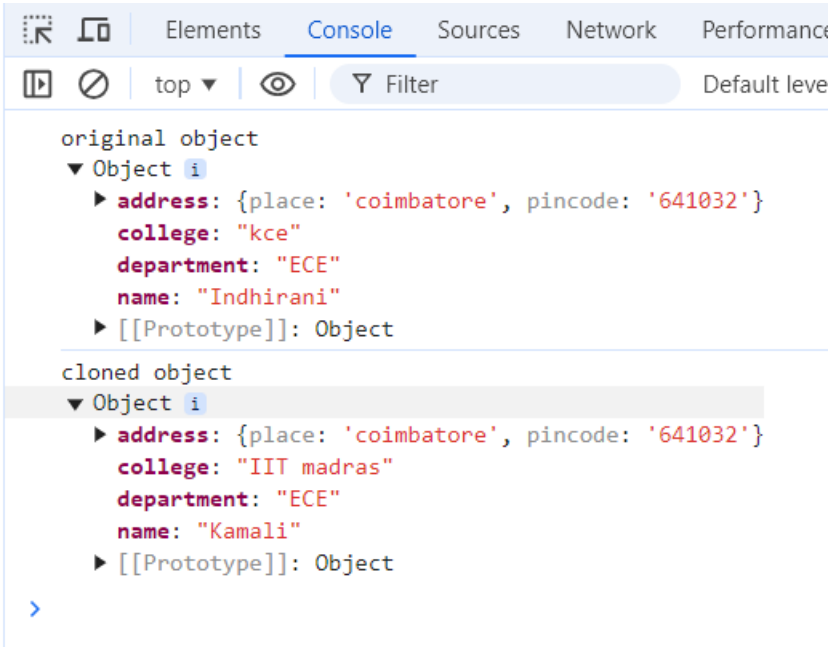


Task 8

```
<!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 deepclone(student){
        return JSON.parse(JSON.stringify(student));
    }
    const student={
```

```
        name:"Indhirani",
        college:"kce",
        address:{
            place:"coimbatore",
            pincode:"641032"

        },
        department:"ECE"
    };
    const cloned=deepclone(student);
    cloned.name="Kamali";
    cloned.college="IIT madras";
    console.log("original object",student);
    console.log("cloned object",cloned);
    </script>
</body>
</html>
```

output

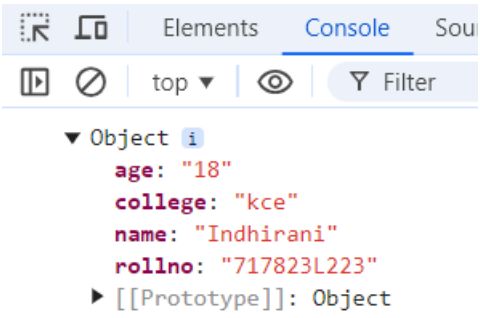


Task 9

```
<!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 merged(obj1,obj2){
        return {...obj1,...obj2};
    }
    const object1={
        name:"kamali",
        age:"18",
    };
    const object2={
        college:"kce",
        rollno:"322",
    };
    const mergedobj=merged(object1,object2);
    console.log(mergedobj);
</script>
</body>
</html>
```

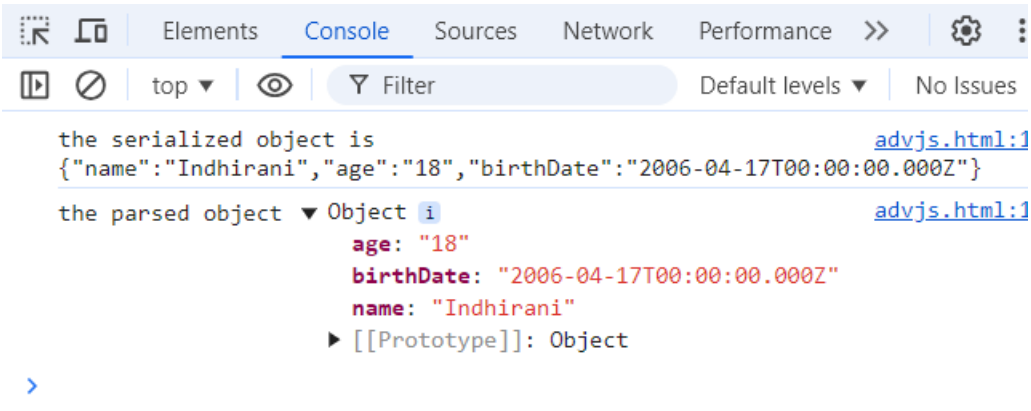
Output



Task 10

```
<!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>
    const user={
        name:"kamali",
        age:"18",
        birthDate: new Date("2006-05-13")
    };
    const objtostr=JSON.stringify(user);
    console.log("the serialized object is",objtostr);

    const parsed=JSON.parse(objtostr);
    console.log("the parsed object",parsed);
   </script>
</body>
</html>
```

Output

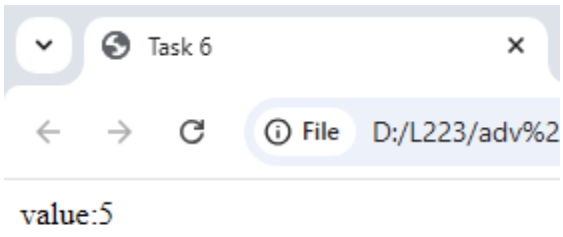


Task 11

```
<!DOCTYPE html>
```

```
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Task 6</title>
</head>
<body>
    <script>
        function function1(n){
            return function function2(){
                document.writeln("value:"+n);
            };
        }
        let a=function1(5);
        a();
    </script>
</body>
</html>
```

Output

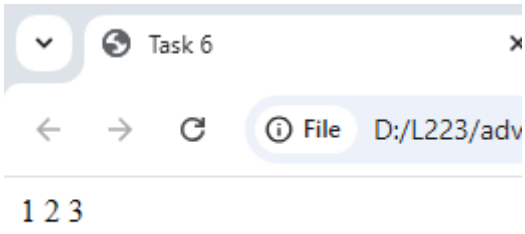


Task 12

```
!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
    <title>Tasks</title>
</head>
<body>
    <script>
        function counter()
        {
            let count=0;
            return function(){
                count++;
                document.writeln(count);
            };
        }

        let mycount=counter();
        mycount();
        mycount();
        mycount();
    </script>
</body>
</html>
```

Output

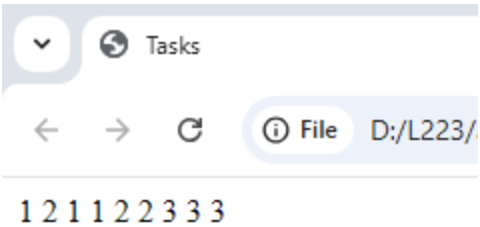


Task 13

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
    <title>Tasks</title>
</head>
<body>
    <script>
        function counter(){
            let count=0;
            return function(){
                count++;
                document.writeln(count);
            }
        }
        let mycount1=counter();
        let mycount2=counter();
        let mycount3=counter();
        mycount1();
        mycount1();
        mycount2();
        mycount3();
        mycount3();
        mycount2();
        mycount1();
        mycount2();
        mycount3();
    </script>
</body>
</html>
```

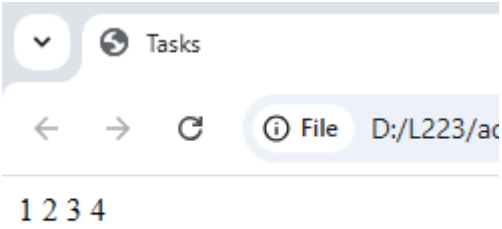
Output



Task 14

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Tasks</title>
</head>
<body>
    <script>
        function counter(){
            let count=0;
            return function(){
                count++;
                return count;
            }
        }
        let mycount=counter();
        document.writeln(mycount());
        document.writeln(mycount());
        document.writeln(mycount());
        document.writeln(mycount());
    </script>
</body>
</html>
```

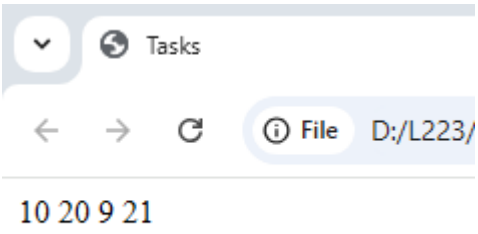
Output



Task 15

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Tasks</title>
</head>
<body>
    <script>
        function multiplierFactory(multiplier){
            return function(num){
                return num*multiplier;
            }
        }
        let double=multiplierFactory(2);
        let triple=multiplierFactory(3);
        document.writeln(double(5));
        document.writeln(double(10));
        document.writeln(triple(3));
        document.writeln(triple(7));
    </script>
</body>
</html>
```

Output

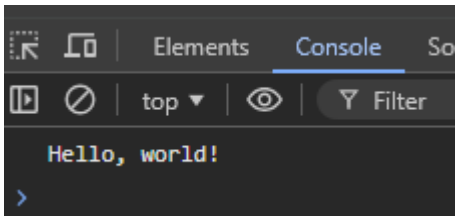


Task 16

```
<!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 greetAfterSeconds(seconds, greeting) {
        return new Promise((resolve) => {
          setTimeout(() => {
            resolve(greeting);
          }, seconds * 1000);
        });
      }

      greetAfterSeconds(3, "Hello, world!").then((message) => {
        console.log(message);
      });
    </script>
</body>
</html>
```

Output

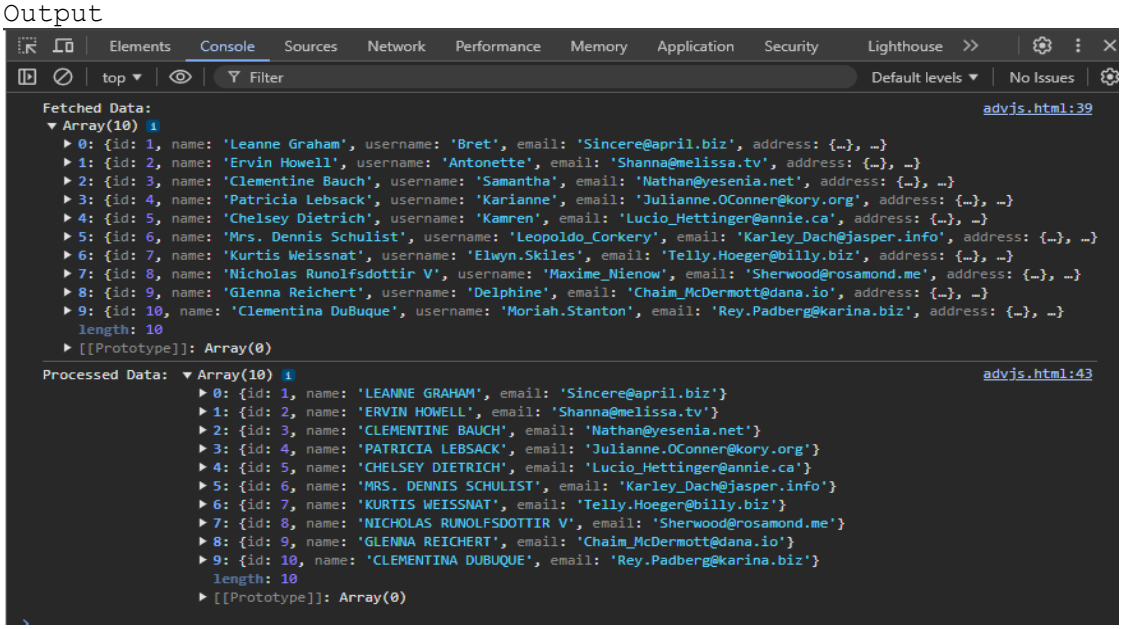


Task 17

```
<!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 fetchData(apiUrl) {
  return fetch(apiUrl)
    .then((response) => {
      if (!response.ok) {
        throw new Error(`HTTP error! status: ${response.status}`);
      }
      return response.json();
    });
}
function processData(data) {
  return new Promise((resolve) => {
    const processedData = data.map((item) => ({
      id: item.id,
      name: item.name.toUpperCase(),
      email: item.email,
    }));
```

```
    resolve(processedData);
  });
}
const apiUrl = "https://jsonplaceholder.typicode.com/users";
fetchData(apiUrl)
  .then((data) => {
    console.log("Fetched Data:", data);
    return processData(data);
  })
  .then((processedData) => {
    console.log("Processed Data:", processedData);
  })
  .catch((error) => {
    console.error("Error:", error);
  });

    </script>

</body>
</html>
```

Output

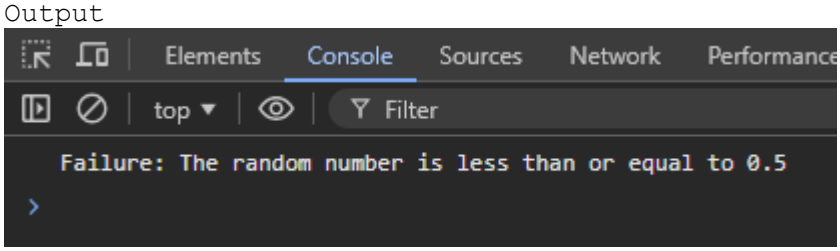


Task 18

```
<!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 randomPromise() {
  return new Promise((resolve, reject) => {

    const randomNumber = Math.random();
```

```
    if (randomNumber > 0.5) {
      resolve('Success: The random number is greater than 0.5');
    } else {
      reject('Failure: The random number is less than or equal to 0.5');
    }
  });
}
randomPromise()
  .then((message) => {
    console.log(message);
  })
  .catch((error) => {
    console.log(error);
  });
    </script>
</body>
</html>
```

Output

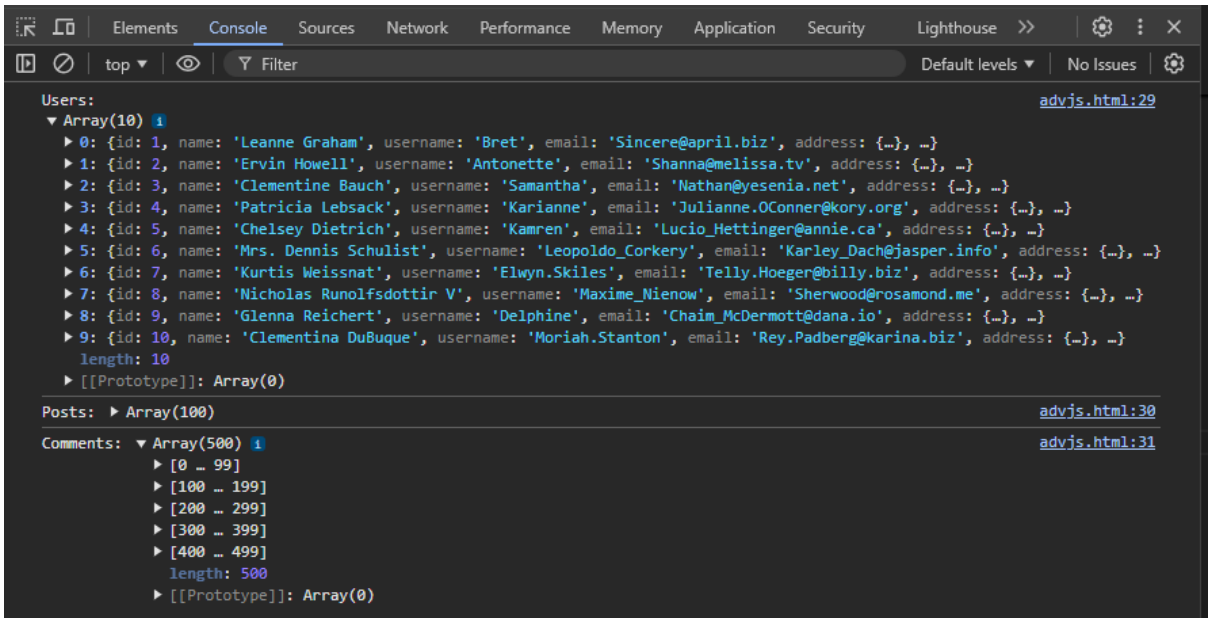


Task 19

```
<!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 fetchData(apiUrl) {
  return fetch(apiUrl)
    .then((response) => {
      if (!response.ok) {
        throw new Error(`HTTP error! status: ${response.status}`);
      }
      return response.json();
    });
}
const apiUrls = [
  'https://jsonplaceholder.typicode.com/users',
  'https://jsonplaceholder.typicode.com/posts',
  'https://jsonplaceholder.typicode.com/comments'
];
```

```
Promise.all(apiUrls.map(url => fetchData(url)))
  .then((results) => {
    const [users, posts, comments] = results;
    console.log("Users:", users);
    console.log("Posts:", posts);
    console.log("Comments:", comments);
  })
  .catch((error) => {
    console.error("Error:", error);
  });
    </script>
</body>
</html>
```

Output

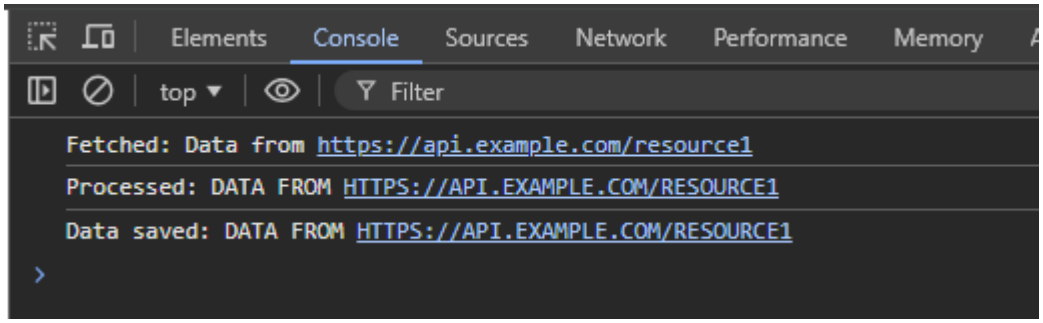


Task 20

```
<!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 fetchData(apiUrl) {
  return new Promise((resolve, reject) => {
    setTimeout(() => {
      if (Math.random() > 0.1) {
        resolve(`Data from ${apiUrl}`);
      } else {
        reject(`Failed to fetch from ${apiUrl}`);
      }
    }, 1000);
  });
}
```

```
function processData(data) {
  return new Promise((resolve) => {
    setTimeout(() => {
      resolve(data.toUpperCase());
    }, 1000);
  });
}
function saveData(data) {
  return new Promise((resolve) => {
    setTimeout(() => {
      resolve(`Data saved: ${data}`);
    }, 1000);
  });
}
fetchData('https://api.example.com/resource1')
  .then((data) => {
    console.log('Fetched:', data);
    return processData(data);
  })
  .then((processedData) => {
    console.log('Processed:', processedData);
    return saveData(processedData);
  })
  .then((savedData) => {
    console.log(savedData);
  })
  .catch((error) => {
    console.error('Error:', error);
  });
    </script>
</body>
</html>
```

Output

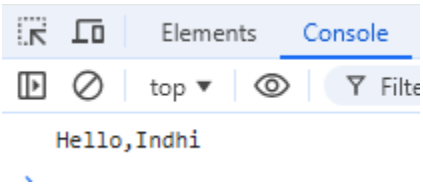


Task 21

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Tasks</title>
```

```
</head>
<body>
   <script>
      async function function1() {
      return new Promise((resolve, reject) => {
      setTimeout(() => resolve("Hello,Indhi"), 1000);
   });
}
async function function2() {
   try {
      let ans = await function1();
      console.log(ans);
   } catch (error) {
      console.error(error);
   }
}
function2();
   </script>
</body>
</html>
```

Output

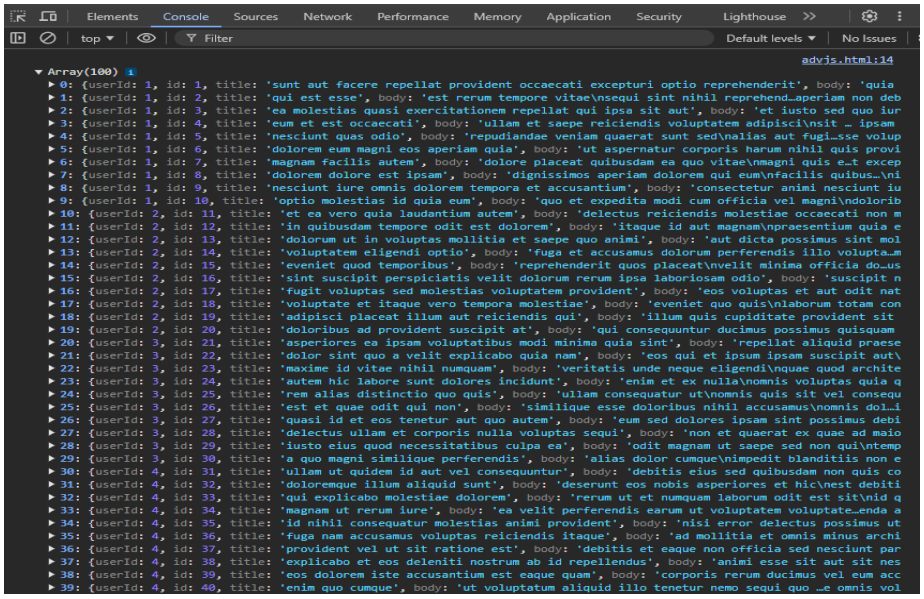


Task 22,23

```
<!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>
        async function fetchData(apiUrl) {
```

```
        try {
            const response = await fetch(apiUrl);
            const data = await response.json();
            console.log(data);
        } catch (error) {
        console.log("Error fetching data:", error);
        }
}
fetchData("https://jsonplaceholder.typicode.com/posts");

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

Output

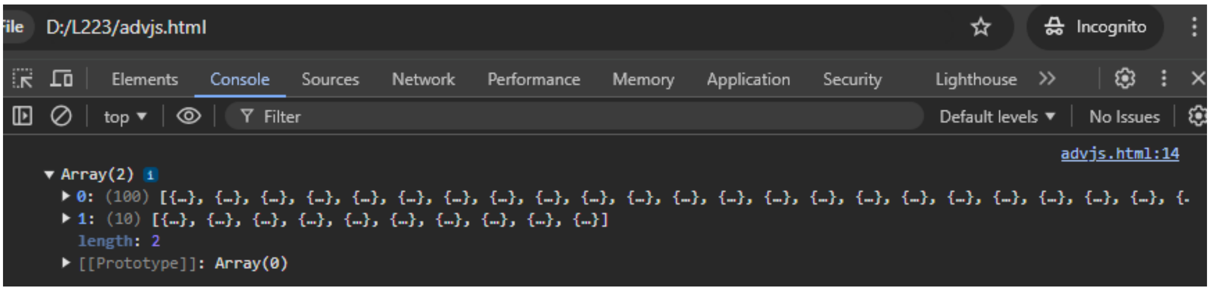


Task 24

```
<!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>
        async function fetchMultiple(apiUrls) {
        try {
            const responses = await Promise.all(apiUrls.map(url =>
fetch(url)));
            const data = await Promise.all(responses.map(res => res.json()));
            console.log(data);
        } catch (error) {
```

```
        console.error("Error fetching data:", error.message);
      }
    }
fetchMultiple([
  "https://jsonplaceholder.typicode.com/posts",
  "https://jsonplaceholder.typicode.com/users"
]);


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

Output



Task 25

```
<!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>
        async function waitForAllOperations() {
        const asyncOperation1 = new Promise(resolve => setTimeout(() =>
resolve("Operation 1 complete"), 1000));
        const asyncOperation2 = new Promise(resolve => setTimeout(() =>
resolve("Operation 2 complete"), 2000));
        const asyncOperation3 = new Promise(resolve => setTimeout(() =>
resolve("Operation 3 complete"), 1500));
        try {
            const results = await Promise.all([asyncOperation1,
asyncOperation2, asyncOperation3]);
            console.log("All operations completed:", results);
        } catch (error) {
        console.error("An error occurred during operations:", error);
        }
    }
waitForAllOperations();
    </script>
```

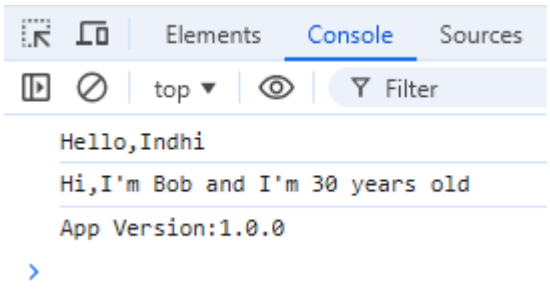
```
</body>
</html>
```

Task 26,27

```
//myModule.js
export function greet(name) {
  return `Hello, ${name}!`;
 }
 export class Person {
  constructor(name, age) {
   this.name = name;
   this.age = age;
  }
  greet() {
   return `Hi, I'm ${this.name} and I'm ${this.age} years old.`;
  }
 }
 export const appVersion = "1.0.0";
```

```
// main.js
import { greet, Person, appVersion } from './myModule.js';
console.log(greet("Gokila"));
const person = new Person("Bob", 30);
console.log(person.greet());
console.log(`App Version: ${appVersion}`);
```

output

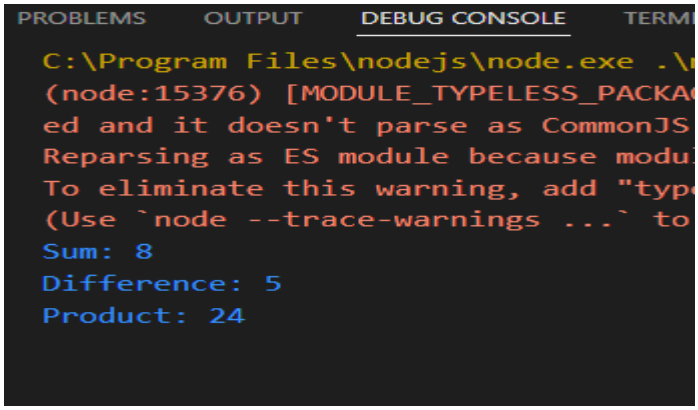


Task 28

```
// mathFunctions.js
export function add(a, b) {
  return a + b;
}
export function subtract(a, b) {
  return a - b;
}
export function multiply(a, b) {
  return a * b;
}
```

```
// main.js
import { add, subtract, multiply } from './mathFunctions.js';
const sum = add(5, 3);
const difference = subtract(9, 4);
const product = multiply(4, 6);
console.log(`Sum: ${sum}`);
console.log(`Difference: ${difference}`);
console.log(`Product: ${product}`);
```

output



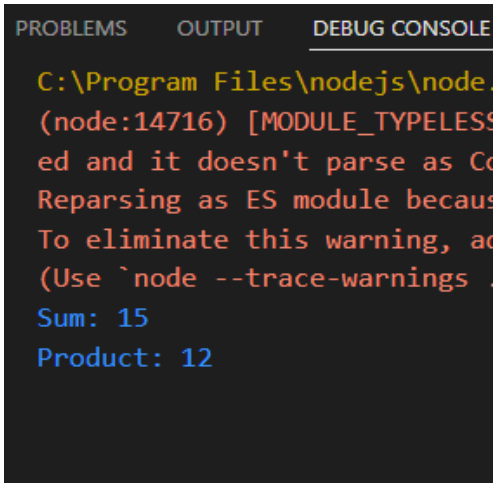
Task 29

```
// mathFunctions.js
```

```
export function add(a, b) {
  return a + b;
}
export function subtract(a, b) {
  return a - b;
}
export function multiply(a, b) {
  return a * b;
}
export function divide(a, b) {
  if (b === 0) {
    throw new Error("Cannot divide by zero");
  }
  return a / b;
}
```

```
// main.js
import { add, multiply } from './mathFunctions.js';
const sum = add(10, 5);
const product = multiply(4, 3);
console.log(`Sum: ${sum}`);
console.log(`Product: ${product}`);
```

output



Task 30

```
// mathOperations.js
export default function calculate(a, b, operation) {
  switch (operation) {
    case 'add':
      return a + b;
    case 'subtract':
      return a - b;
    case 'multiply':
      return a * b;
    case 'divide':
      if (b === 0) {
        throw new Error('Cannot divide by zero');
      }
      return a / b;
    default:
      throw new Error('Unknown operation');
  }
}
export function square(a) {
  return a * a;
}
export function cube(a) {
  return a * a * a;
}
```

```
// main.js
import calculate from './mathOperations.js';
import { square, cube } from './mathOperations.js';
console.log(calculate(10, 5, 'add'));
```

```
console.log(square(4));

console.log(cube(3));
```

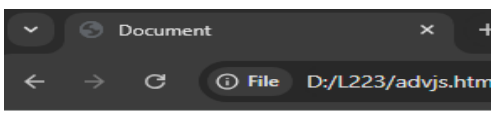
output

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TER

C:\Program Files\nodejs\node.exe .
(node:14492) [MODULE_TYPELESS_PACK
ed and it doesn't parse as CommonJ
Reparsing as ES module because moc
To eliminate this warning, add "ty
(Use `node --trace-warnings ...` t
15
16
27
```

Task 31

```
<!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>
      <h1 id="myElement">Hello,World!</h1>
    </div>

    <script>
        let element = document.getElementById("myElement").innerHTML="Hello
All! Welcome";
    </script>
  </body>
</html>
```

output

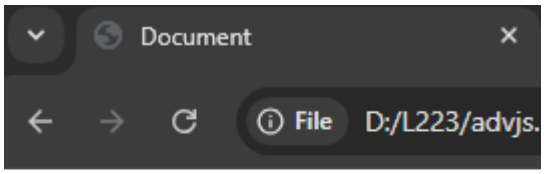


Hello All! Welcome

Task 32

```
<!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>
      <h1 id="myElement">Hello,World!</h1>
      <button onclick="changeColor()">Change Color</button>
    </div>

    <script>
      function changeColor() {
        let ele= document.getElementById("myElement");
        ele.style.color="blue";
      }
    </script>
  </body>
</html>
```

Output



Hello!

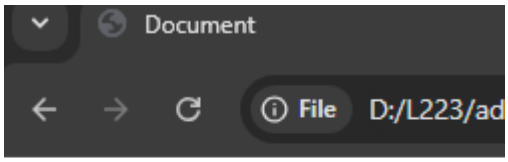
Change Color

Task 33

```
<!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="new">
      <p id="p1">Hello</p>
      <p id="p2">World!</p>
   </div>
   <script>
      var tag = document.createElement("p");
      var text = document.createTextNode("This is my new text!!");
      tag.appendChild(text);
```

```
      var element = document.getElementById("new");
      element.appendChild(tag);
   </script>
</body>
</html>
```

Output



Save

Water!

Save World!

Task 34

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Toggle Visibility Example</title>
</head>
<body>
    <button onclick="toggleVisibility('myElement')">Toggle Visibility</button>
    <div id="myElement" style="display: block;">Hello, I am visible!</div>
    <script src="task34.js"></script>
</body>
</html>
```

```
//Task34.js

  @param {string} elementId
function toggleVisibility(elementId) {
    const element = document.getElementById(elementId);
    if (!element) {
        console.error(`Element with ID "${elementId}" not found.`);
        return;
    }


    if (element.style.display === "none") {
        element.style.display = "block";
    } else {
        element.style.display = "none";
    }
}
```

Output

Toggle Visibility

Hello, I am visible!

Toggle Visibility

Task 35

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Beginner Attribute Example</title>
</head>
<body>
    <!-- A simple link -->
    <a id="myLink" href="https://github.com" target="_blank">Go to Example</a>
    <button onclick="handleAttribute('myLink', 'href')">Show Current
Link</button>
     <button onclick="handleAttribute('myLink', 'href',
'https://google.com')">Change Link</button>
</body>
<script>
function handleAttribute(elementId, attributeName, newValue) {
    const element = document.getElementById(elementId);
    if (!element) {
        console.error(`Element with ID "${elementId}" not found.`);
        return;
    }

    // Get and log the current value of the attribute
    const currentValue = element.getAttribute(attributeName);
    console.log(`Current value of "${attributeName}": ${currentValue}`);

    // If a new value is provided, update the attribute
    if (newValue) {
        element.setAttribute(attributeName, newValue);
        console.log(`Updated "${attributeName}" to: ${newValue}`);
    }
}

</script>
</html>
```

Output


Go to Example
Show Current Link
Change Link