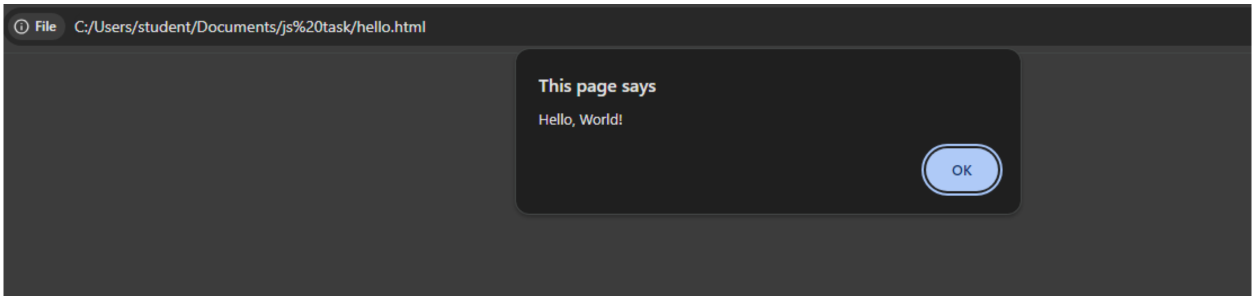
An Introduction to JavaScript:

Task 1: Write a simple script that displays “Hello, World!” on the web page using an alert box.

```
<!DOCTYPE html>
<html>
<head>
    <title>Hello World Example</title>
    <script>
            alert("Hello, World!");

    </script>
</head>
<body>

</body>
</html>
```

Output:

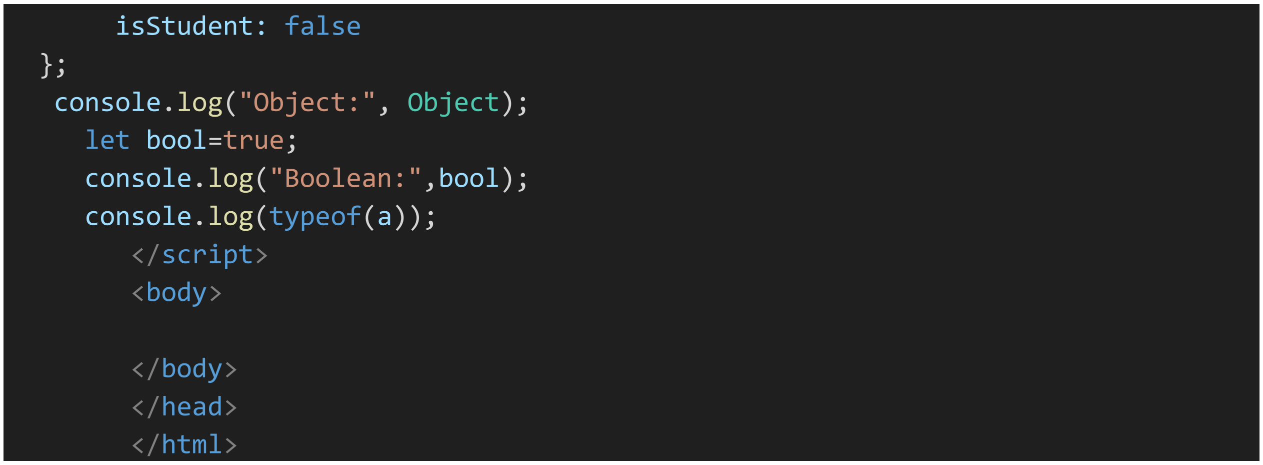


This page says

Hello, World!

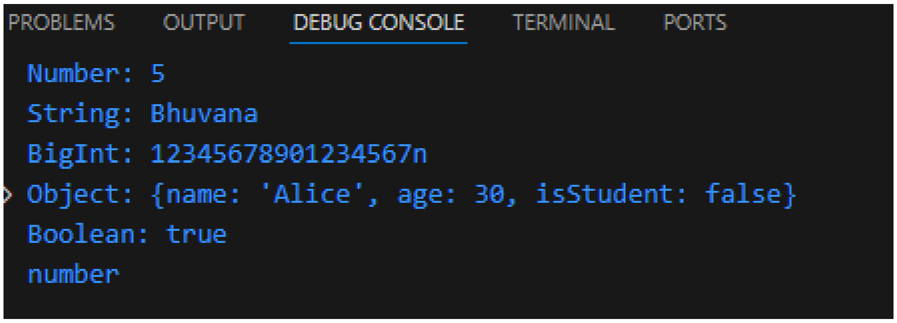
Task2: Experiment with different data types in JavaScript (e.g., string, number, boolean) by declaring and logging them in the console.

```
<html>
<head>
    <script>
        let a=5;
        console.log("Number:" ,a);
        let userName ="Bhuvana";
         console.log( "String:",userName);
         let x=BigInt("12345678901234567");
         console.log("BigInt:", x);
         let Object = {
         name: "Alice",
         age: 30,
```



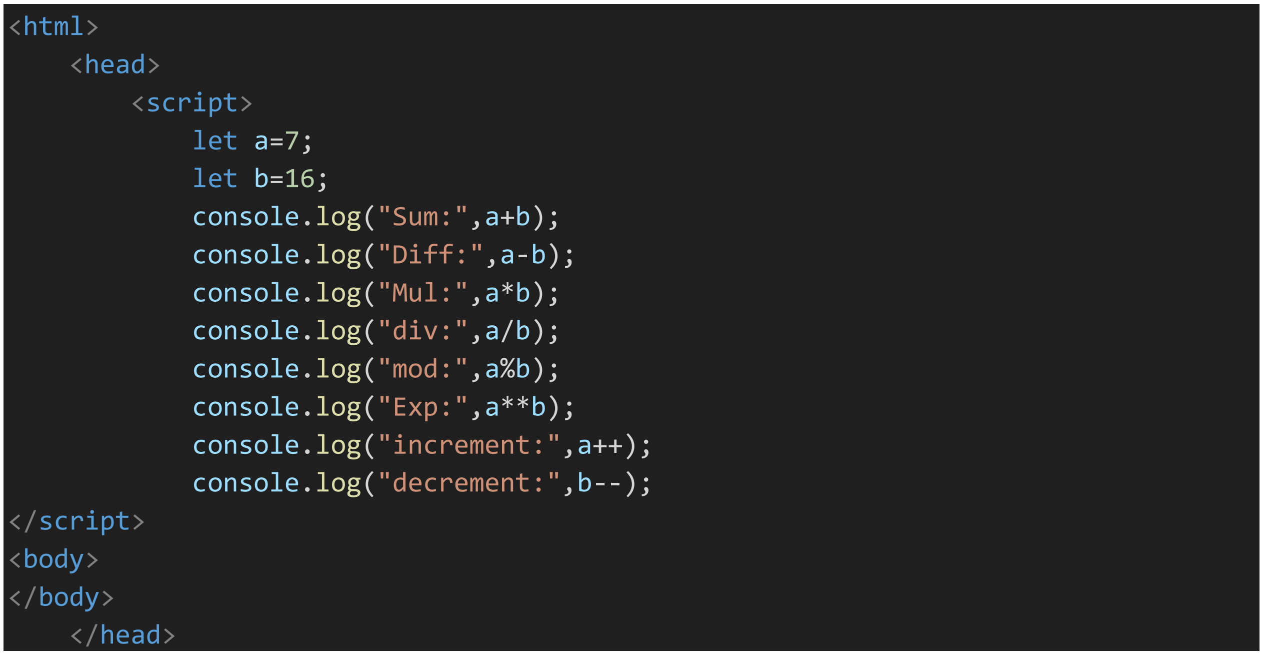
```
       isStudent: false
  };
   console.log("Object:", Object);
     let bool=true;
     console.log("Boolean:",bool);
     console.log(typeof(a));
        </script>
        <body>

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

Output:



```
Number: 5
String: Bhuvana
BigInt: 12345678901234567n
Object: {name: 'Alice', age: 30, isStudent: false}
Boolean: true
number
```

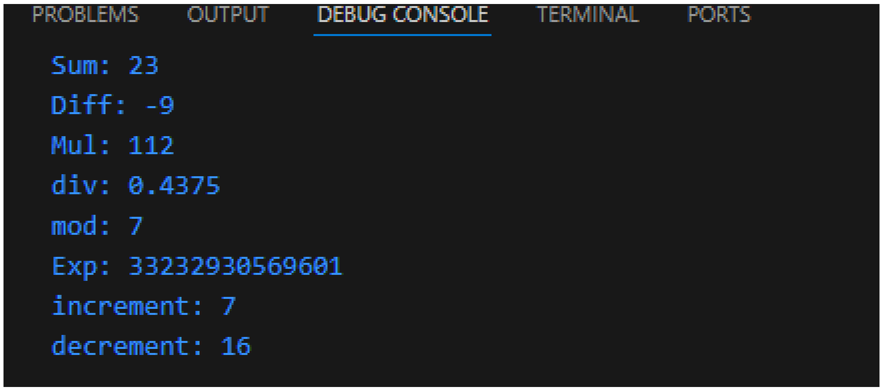
Task 3: Use the console to perform basic math operations like addition, subtraction, multiplication, and division.



```
<html>
    <head>
        <script>
            let a=7;
            let b=16;
            console.log("Sum:",a+b);
            console.log("Diff:",a-b);
            console.log("Mul:",a*b);
            console.log("div:",a/b);
            console.log("mod:",a%b);
            console.log("Exp:",a**b);
            console.log("increment:",a++);
            console.log("decrement:",b--);
</script>
<body>
</body>
    </head>
```

```
</html>
```

Output:

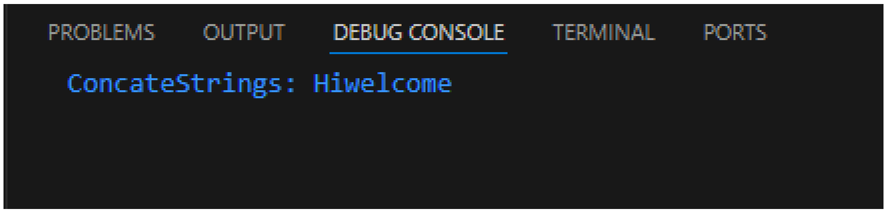


```
Sum: 23
Diff: -9
Mul: 112
div: 0.4375
mod: 7
Exp: 33232930569601
increment: 7
decrement: 16
```

Task 4: Declare two strings and concatenate them using the + operator.

```
<html>
<head>
    <script>
        let string1="Hi";
        let string2="welcome";
        let concate=string1+string2;
        console.log("ConcateStrings:",concate);
        </script>
        <body>
        </body>
</head>
</html>
```

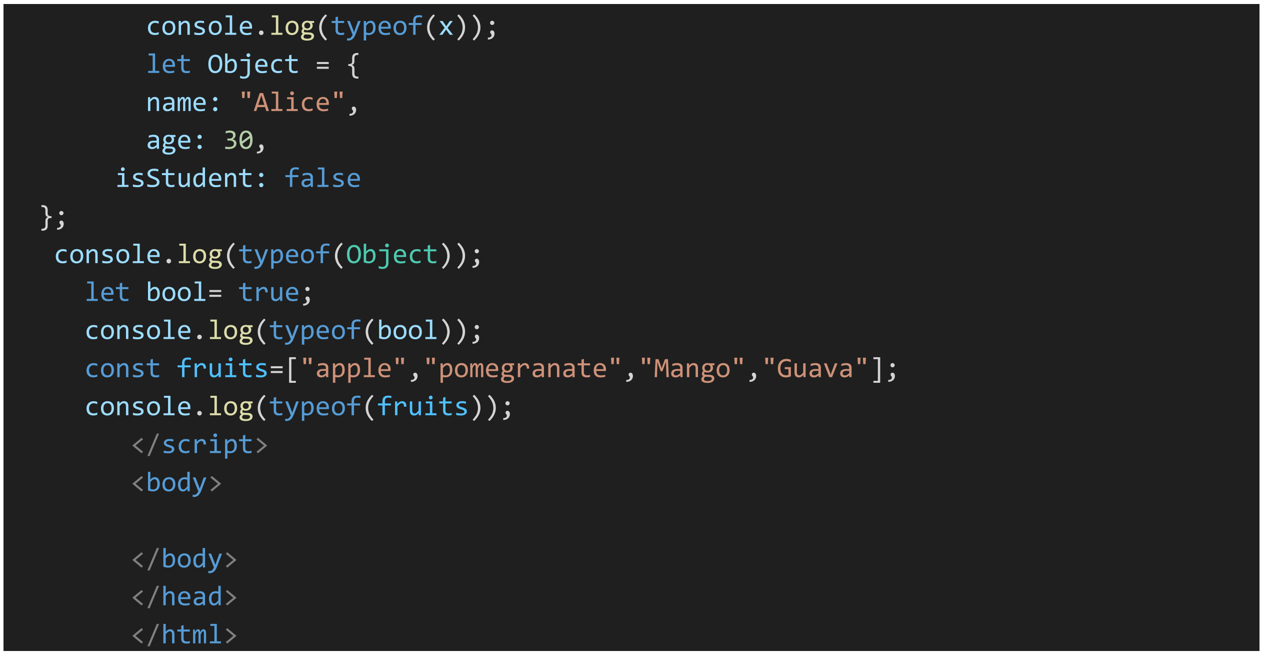
Output:



```
ConcateStrings: Hiwelcome
```

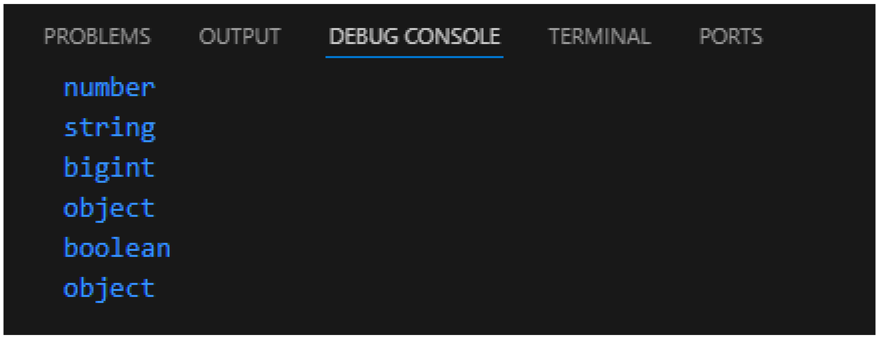
Task 5: Use the typeof operator to check the data type of various variables.

```
<html>
<head>
    <script>
        let a=5;
        console.log(typeof(a));
        let userName ="Bhuvana";
         console.log( typeof(userName));
         let x=BigInt("12345678901234567");
```



```
         console.log(typeof(x));
         let Object = {
         name: "Alice",
         age: 30,
       isStudent: false
  };
   console.log(typeof(Object));
     let bool= true;
     console.log(typeof(bool));
     const fruits=["apple","pomegranate","Mango","Guava"];
     console.log(typeof(fruits));
        </script>
        <body>

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

Output:



```
number
string
bigint
object
boolean
object
```

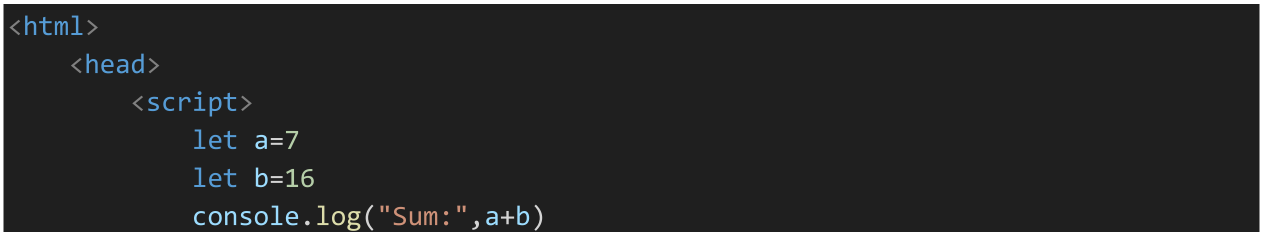
Task 6: Write a multi-line JavaScript comment and a single-line comment. Explain the difference.

Single-line Comment: Eg: // x=10; // It is used for single line of code .

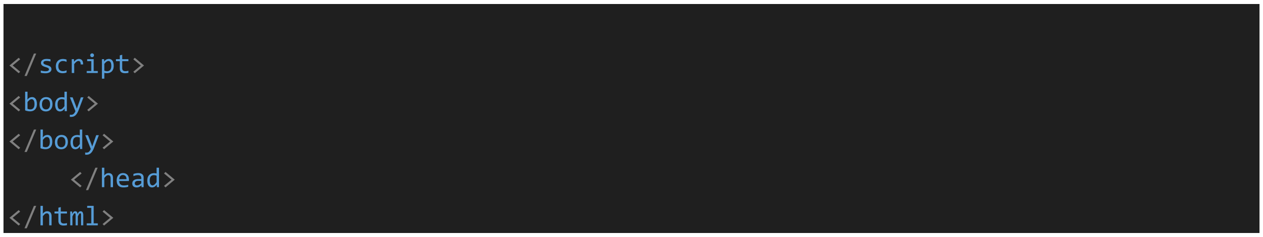
Multiline Comment: Eg:/* let a=10; b=20; console.log(a+b); */ It is used for temporarily disable the multiple lines of code.

Task 7: Create a script with both semicolon-separated and not separated lines. Note any differences in behavior.

Without semicolon:

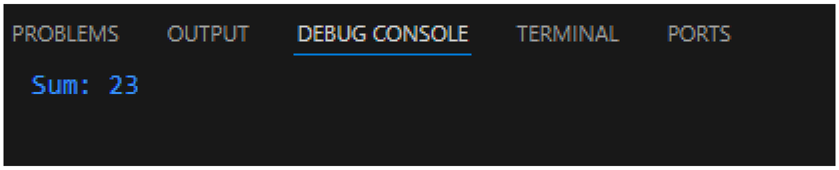


```
<html>
    <head>
        <script>
            let a=7
            let b=16
            console.log("Sum:",a+b)
```



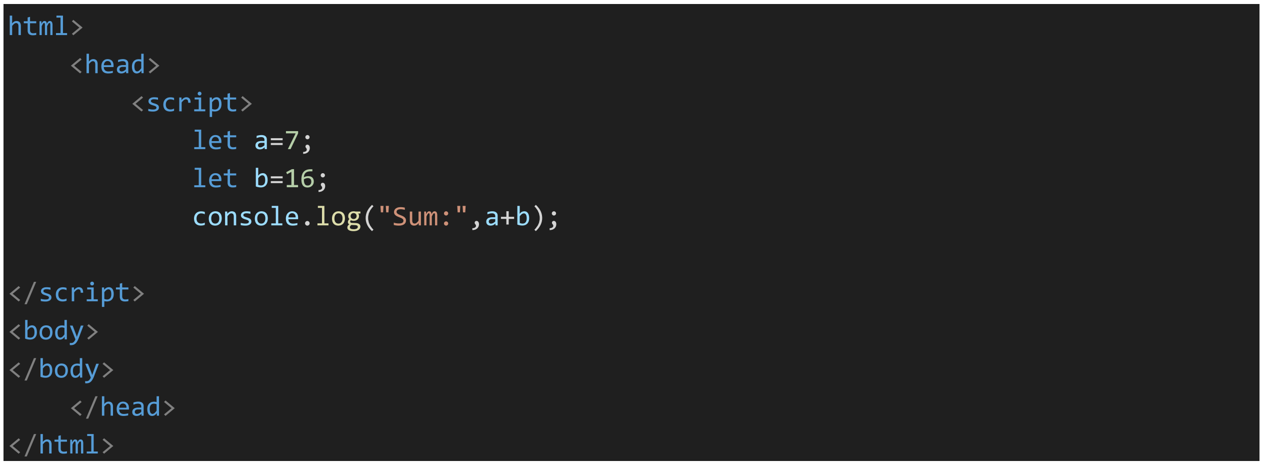
```
</script>
<body>
</body>
    </head>
</html>
```

Output:



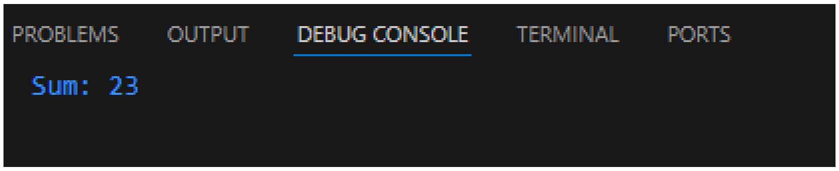
```
Sum: 23
```

With Semicolon:



```
html>
    <head>
        <script>
            let a=7;
            let b=16;
            console.log("Sum:",a+b);

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

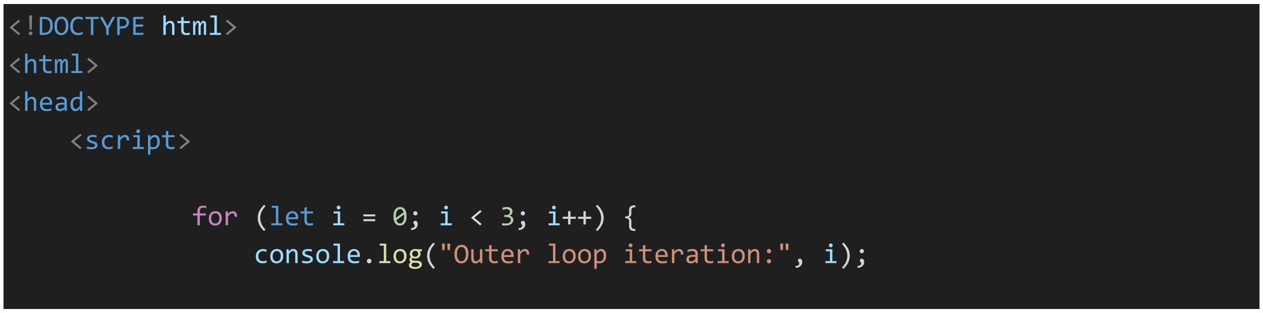
Output:



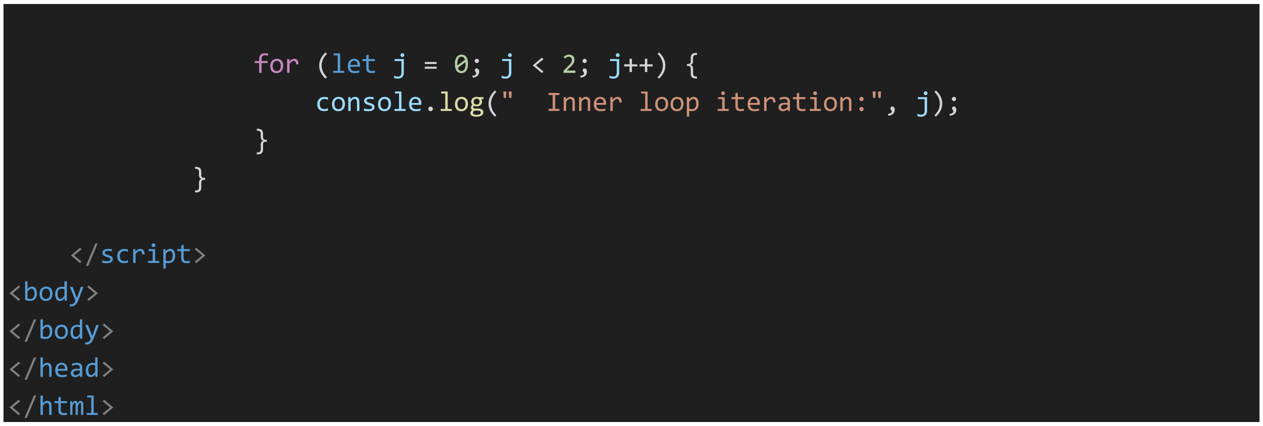
```
Sum: 23
```

No diiference in output for both semicolon and non semicolon.

Task 8: Use proper indentation to format a nested loop.

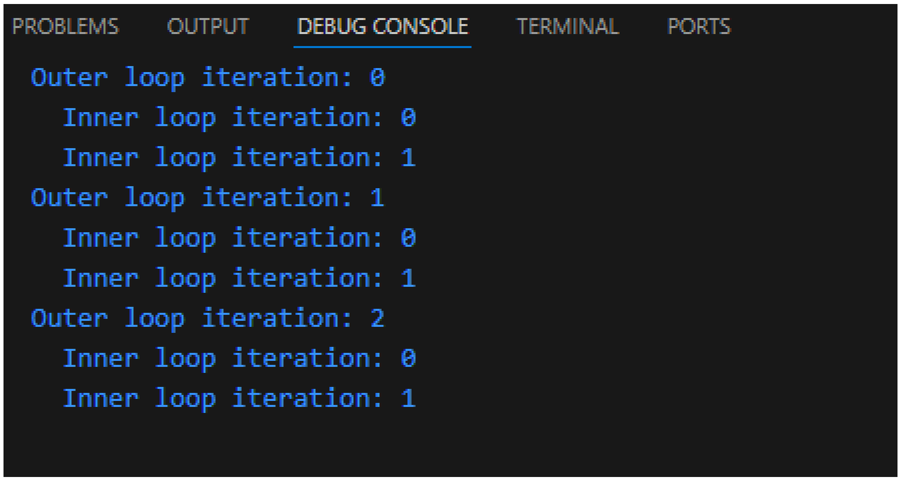


```
<!DOCTYPE html>
<html>
<head>
    <script>

            for (let i = 0; i < 3; i++) {
                console.log("Outer loop iteration:", i);
```



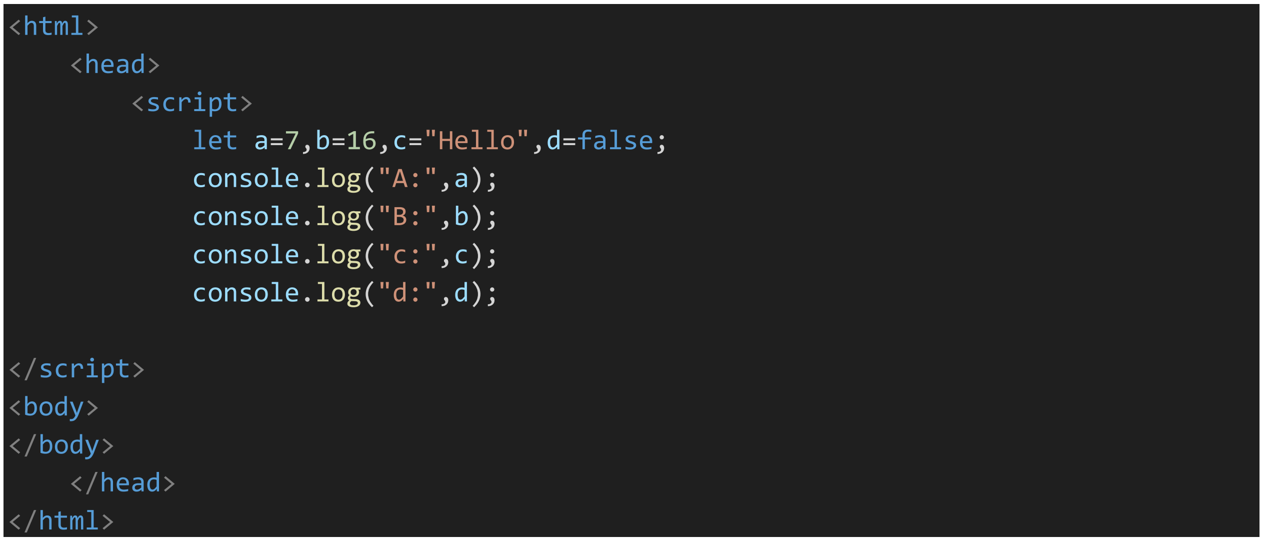
```
                for (let j = 0; j < 2; j++) {
                    console.log("  Inner loop iteration:", j);
                }
            }

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

Output:



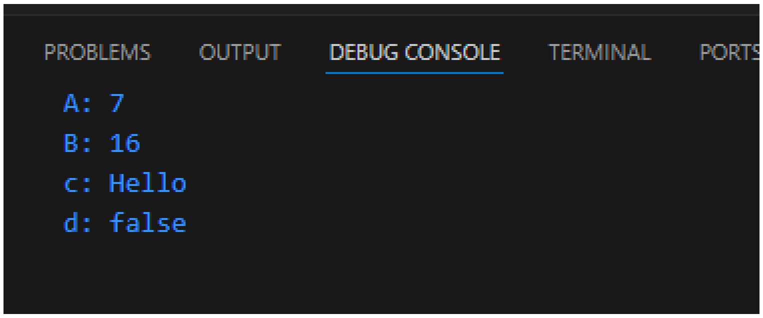
```
Outer loop iteration: 0
  Inner loop iteration: 0
  Inner loop iteration: 1
Outer loop iteration: 1
  Inner loop iteration: 0
  Inner loop iteration: 1
Outer loop iteration: 2
  Inner loop iteration: 0
  Inner loop iteration: 1
```

Task 9: Declare multiple variables in a single line.



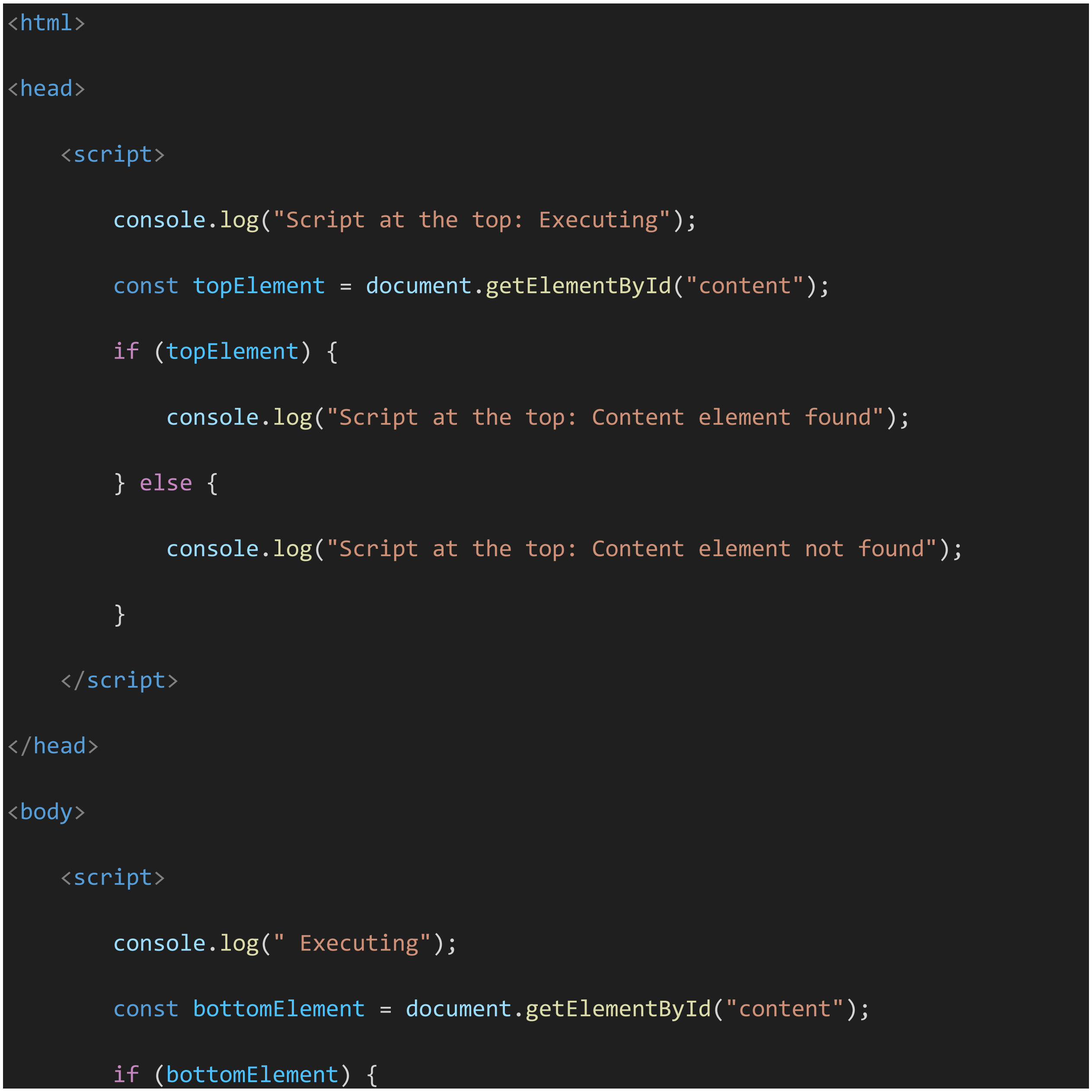
```
<html>
    <head>
        <script>
            let a=7,b=16,c="Hello",d=false;
            console.log("A:",a);
            console.log("B:",b);
            console.log("c:",c);
            console.log("d:",d);

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

Output:



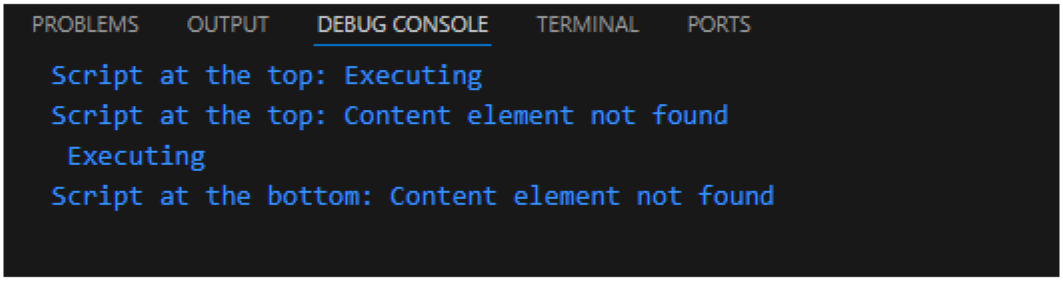
```
A: 7
B: 16
c: Hello
d: false
```

Task 10: Place a script tag at the top and bottom of an HTML document. Note any differences in behavior.



```
<html>
<head>
    <script>
        console.log("Script at the top: Executing");
        const topElement = document.getElementById("content");
        if (topElement) {
            console.log("Script at the top: Content element found");
        } else {
            console.log("Script at the top: Content element not found");
        }
    </script>
</head>
<body>
    <script>
        console.log(" Executing");
        const bottomElement = document.getElementById("content");
        if (bottomElement) {
            console.log("Script at the bottom: Content element found");
        } else {
            console.log("Script at the bottom: Content element not found");
        }
    </script>
</body>
</html>
```

Output:



```
Script at the top: Executing
Script at the top: Content element not found
 Executing
Script at the bottom: Content element not found
```

Script at top and bottom are executing.