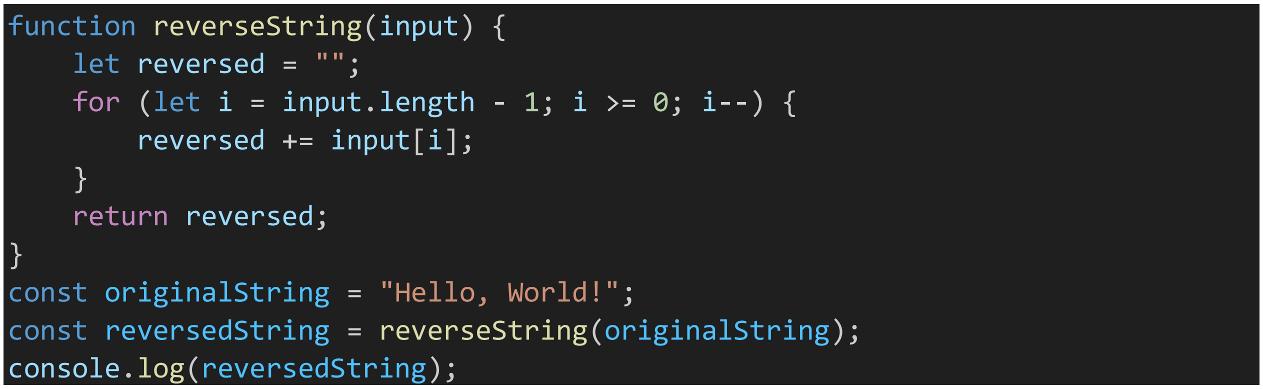
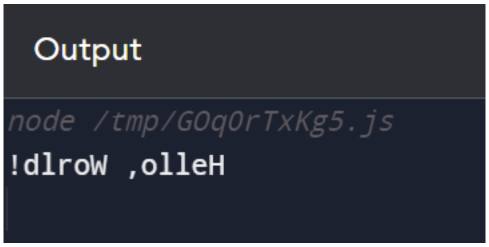
Name: Faiza Kashaf
Assignment: JavaScript Basics

1. **Question: Reverse a string without using the built-in reverse() method.**



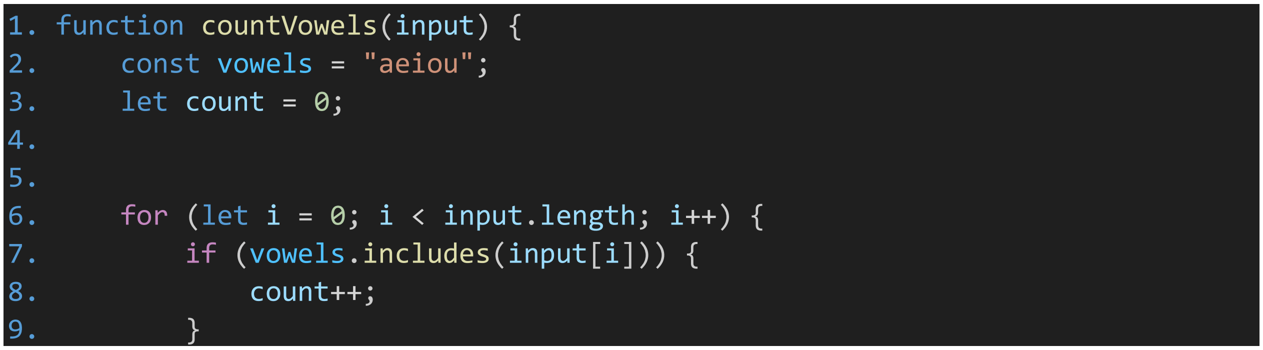
```
function reverseString(input) {
    let reversed = "";
    for (let i = input.length - 1; i >= 0; i--) {
        reversed += input[i];
    }
    return reversed;
}
const originalString = "Hello, World!";
const reversedString = reverseString(originalString);
console.log(reversedString);
```

<u>Output:</u>



```
node /tmp/GOqOrTxKg5.js
!dlroW ,olleH
```

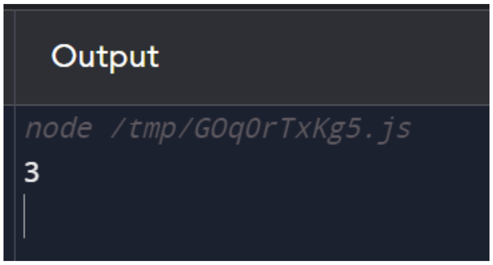
2. **Question: Count the number of vowels in a given string.**



```
function countVowels(input) {
    const vowels = "aeiou";
    let count = 0;


    for (let i = 0; i < input.length; i++) {
        if (vowels.includes(input[i])) {
            count++;
        }
```

```javascript
    }

    return count;
}
const inputString = "Hello, World!";
const numberOfVowels = countVowels(inputString);
console.log(numberOfVowels);
```

Output:

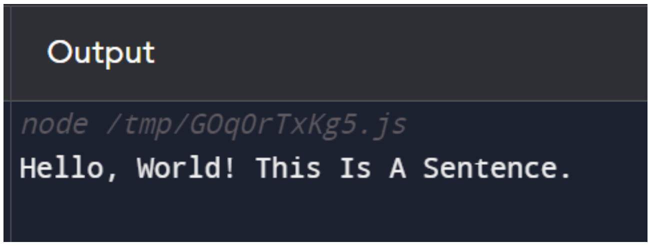


```
node /tmp/GOqOrTxKg5.js
3
```

3. **Question: Convert the first letter of each word in a sentence to uppercase.**

```javascript
function capitalizeFirstLetterOfWords(sentence) {
    const words = sentence.split(" ");
    const capitalizedWords = [];

    for (let i = 0; i < words.length; i++) {
        const word = words[i];
        const capitalizedWord = word.charAt(0).toUpperCase() + word.slice(1);
        capitalizedWords.push(capitalizedWord);
    }

    return capitalizedWords.join(" ");
}
const inputSentence = "hello, world! this is a sentence.";
const capitalizedSentence = capitalizeFirstLetterOfWords(inputSentence);
console.log(capitalizedSentence);
```

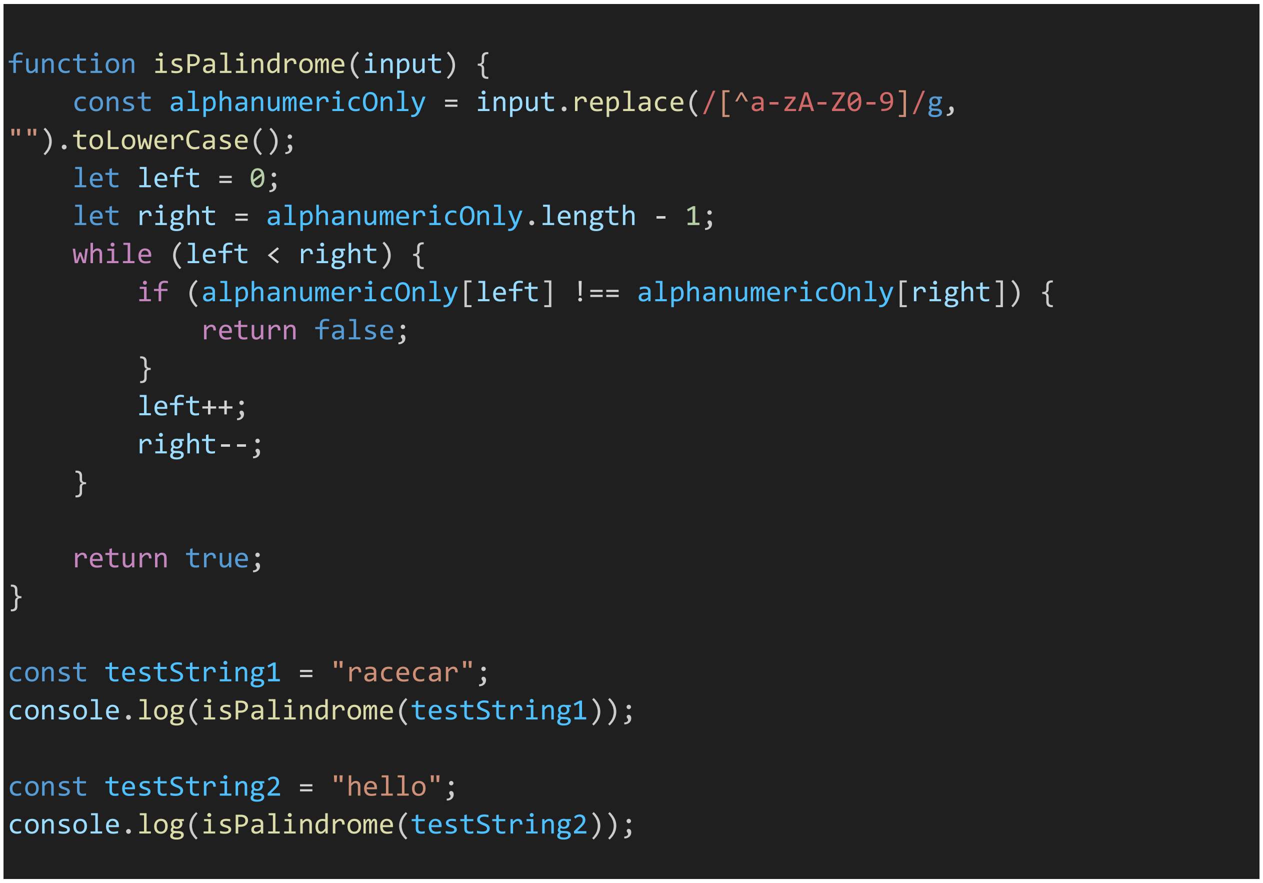
Output:



Output

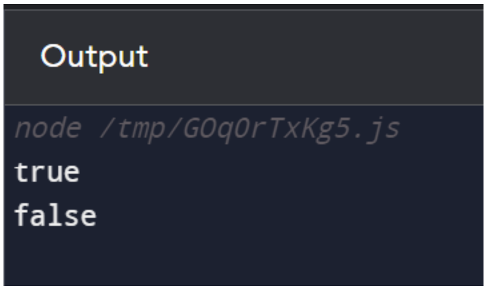
```
node /tmp/GOq0rTxKg5.js
Hello, World! This Is A Sentence.
```

4. Question: Check if a string is a palindrome.



```
function isPalindrome(input) {
    const alphanumericOnly = input.replace(/[^a-zA-Z0-9]/g,
"").toLowerCase();
    let left = 0;
    let right = alphanumericOnly.length - 1;
    while (left < right) {
        if (alphanumericOnly[left] !== alphanumericOnly[right]) {
            return false;
        }
        left++;
        right--;
    }

    return true;
}

const testString1 = "racecar";
console.log(isPalindrome(testString1));

const testString2 = "hello";
console.log(isPalindrome(testString2));
```

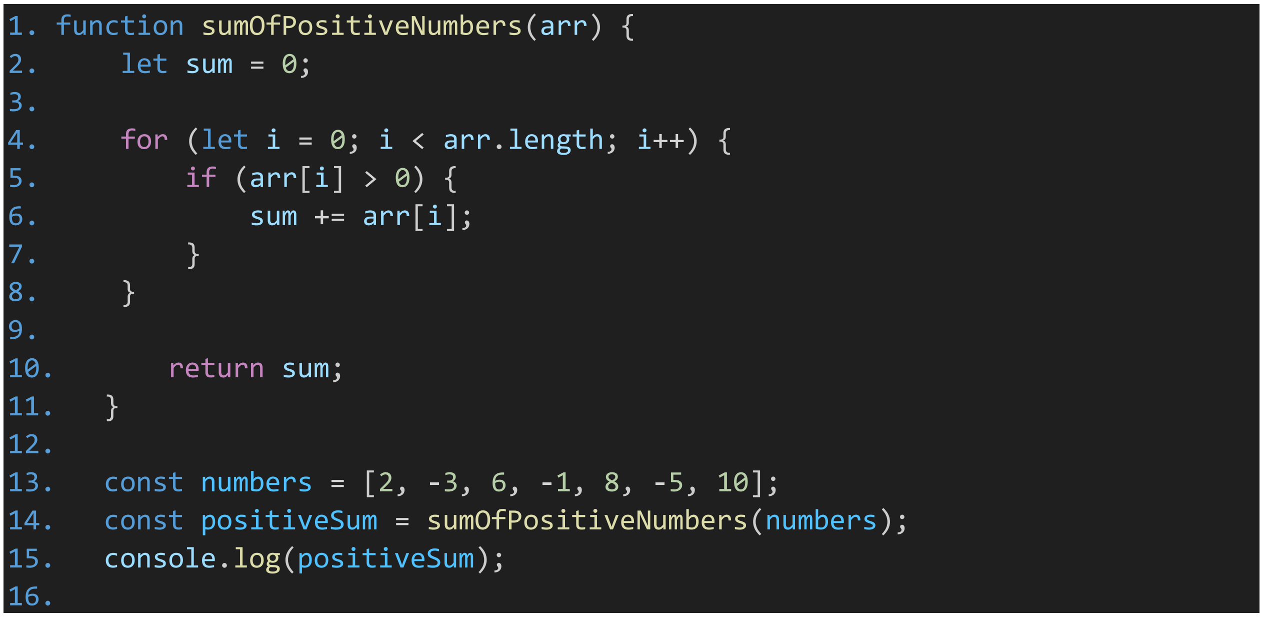
Output:



Output

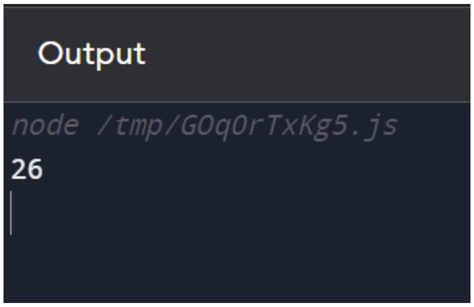
```
node /tmp/GOq0rTxKg5.js
true
false
```

5. **Question: Find the sum of all positive numbers in an array.**



```javascript
function sumOfPositiveNumbers(arr) {
    let sum = 0;

    for (let i = 0; i < arr.length; i++) {
        if (arr[i] > 0) {
            sum += arr[i];
        }
    }

    return sum;
}

const numbers = [2, -3, 6, -1, 8, -5, 10];
const positiveSum = sumOfPositiveNumbers(numbers);
console.log(positiveSum);
```

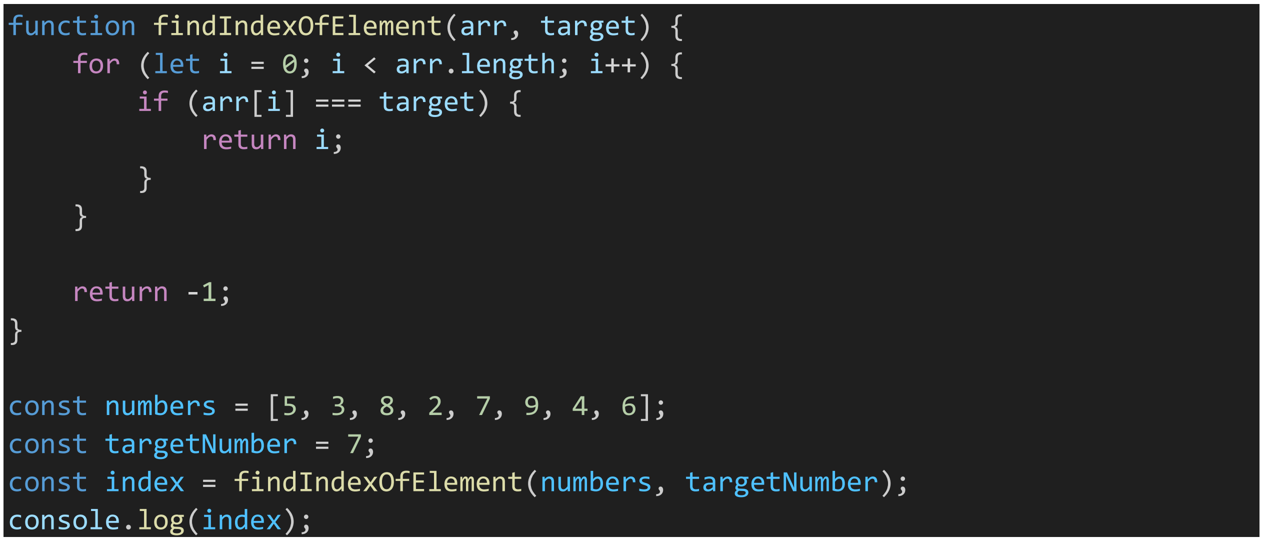
Output:



Output

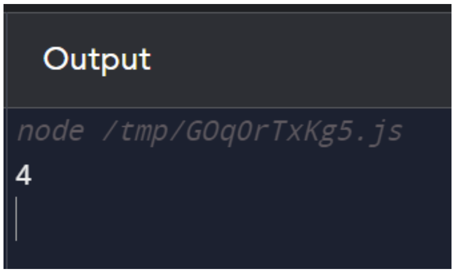
```
node /tmp/GOq0rTxKg5.js
26
```

6. **Question: Find the index of the first occurrence of a specific element in an array.**



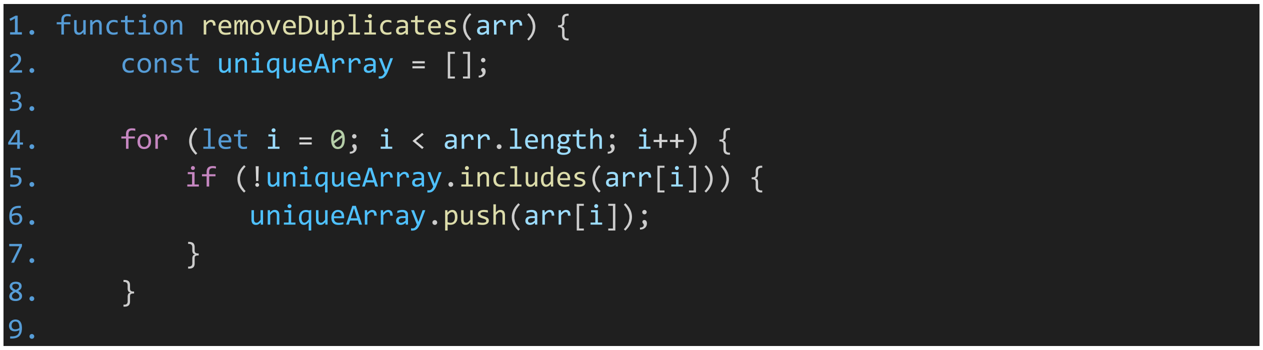
```
function findIndexOfElement(arr, target) {
    for (let i = 0; i < arr.length; i++) {
        if (arr[i] === target) {
            return i;
        }
    }

    return -1;
}

const numbers = [5, 3, 8, 2, 7, 9, 4, 6];
const targetNumber = 7;
const index = findIndexOfElement(numbers, targetNumber);
console.log(index);
```

<u>Output</u>:



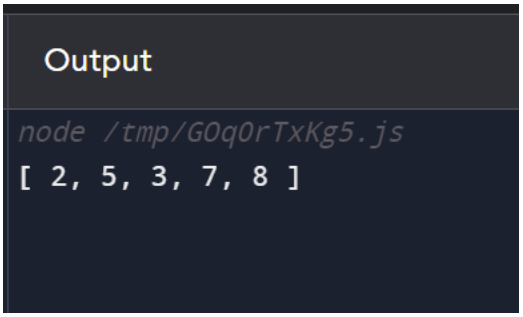
```
node /tmp/GOqOrTxKg5.js
4
```

7. **Question: Remove all duplicates from an array without built-in methods.**



```
function removeDuplicates(arr) {
    const uniqueArray = [];

    for (let i = 0; i < arr.length; i++) {
        if (!uniqueArray.includes(arr[i])) {
            uniqueArray.push(arr[i]);
        }
    }

    return uniqueArray;
}

const originalArray = [2, 5, 3, 7, 5, 2, 8, 8, 7];
const newArray = removeDuplicates(originalArray);
console.log(newArray);

```

Output:

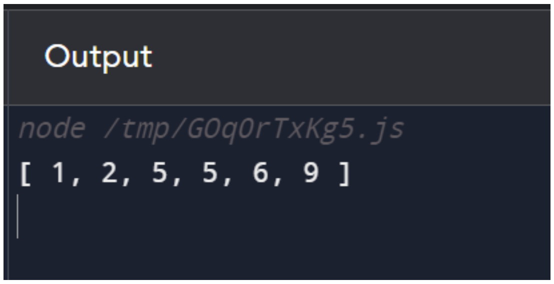


```
node /tmp/GOqOrTxKg5.js
[ 2, 5, 3, 7, 8 ]
```

8. **Question: Sort the array in ascending and descending without built-in methods.**

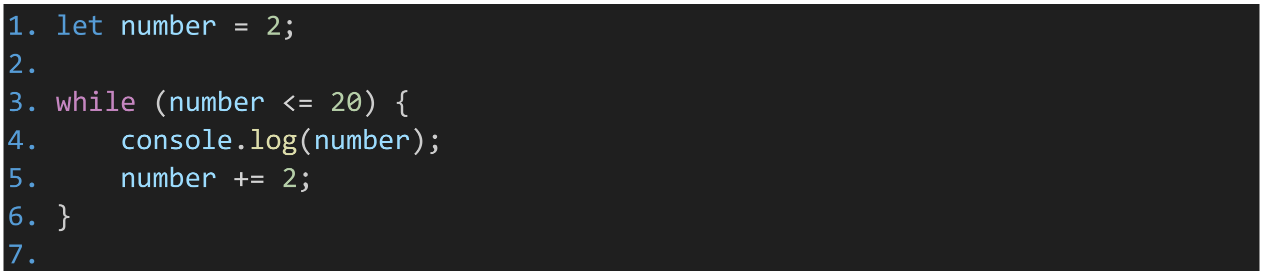
```
function sortInAscending(arr) {
    const n = arr.length;

    for (let i = 0; i < n - 1; i++) {
        for (let j = 0; j < n - i - 1; j++) {
            if (arr[j] > arr[j + 1]) {
                const temp = arr[j];
                arr[j] = arr[j + 1];
                arr[j + 1] = temp;
            }
        }
    }
}

const numbers = [5, 2, 9, 1, 5, 6];
sortInAscending(numbers);
console.log(numbers);
```

Output:



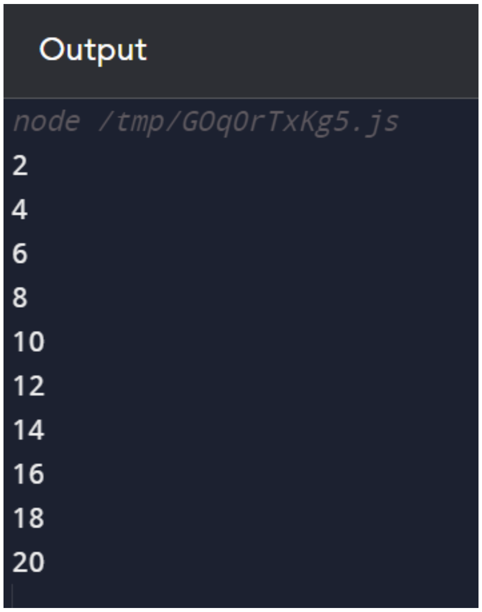
```
node /tmp/GOq0rTxKg5.js
[ 1, 2, 5, 5, 6, 9 ]
```

9. Question: Print all even numbers between 1 and 20 using a while loop



```javascript
let number = 2;

while (number <= 20) {
    console.log(number);
    number += 2;
}

```

Output:

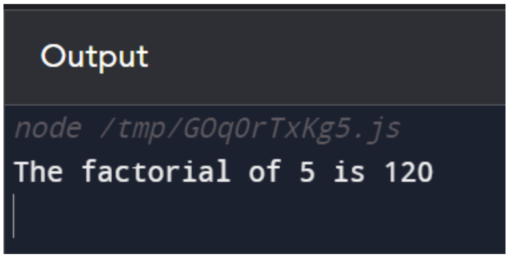


```
node /tmp/GOq0rTxKg5.js
2
4
6
8
10
12
14
16
18
20
```

10. Question: Calculate the factorial of a number using a do-while loop.

```
function calculateFactorial(number) {
    let factorial = 1;

    do {
        factorial *= number;
        number--;
    } while (number > 1);

    return factorial;
}

const inputNumber = 5;
const result = calculateFactorial(inputNumber);
console.log(`The factorial of ${inputNumber} is ${result}`);
```

Output:

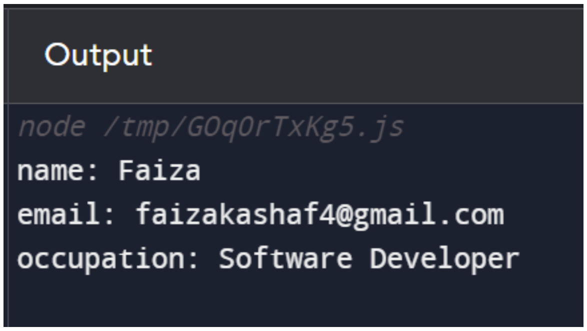


```
node /tmp/GOq0rTxKg5.js
The factorial of 5 is 120
```

11. Question: Iterate through the properties of an object using a for-in loop.

```
const person = {
    name: "Faiza",
    email: "faizakashaf4@gmail.com",
    occupation: "Software Developer"
};

for (const property in person) {
    console.log(`${property}: ${person[property]}`);
}
```

Output:

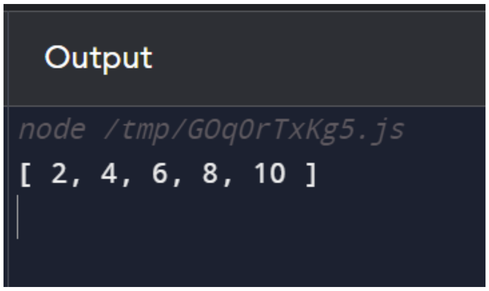


```
node /tmp/GOqOrTxKg5.js
name: Faiza
email: faizakashaf4@gmail.com
occupation: Software Developer
```

12. Question: Loop through an array using a for-of loop and double each element.

```
const originalArray = [1, 2, 3, 4, 5];
const doubledArray = [];

for (const element of originalArray) {
    const doubledElement = element * 2;
    doubledArray.push(doubledElement);
}

console.log(doubledArray);
```

Output:

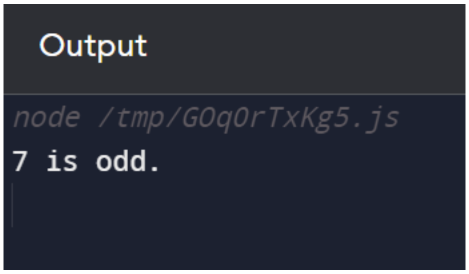


```
node /tmp/GOqOrTxKg5.js
[ 2, 4, 6, 8, 10 ]
```

13. **Question: Check if a number is even or odd and return a corresponding message**

```javascript
function checkEvenOdd(number) {
    if (number % 2 === 0) {
        return `${number} is even.`;
    } else {
        return `${number} is odd.`;
    }
}

const inputNumber = 7;
const message = checkEvenOdd(inputNumber);
console.log(message);
```

Output:



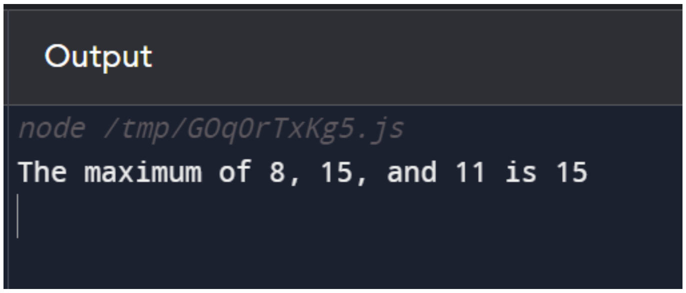
```
node /tmp/GOqOrTxKg5.js
7 is odd.
```

14. **Question: Find the maximum of three numbers using nested ternary operators.**

```javascript
function findMaxOfThreeNumbers(num1, num2, num3) {
    const max = (num1 > num2) ?
        ((num1 > num3) ? num1 : num3) :
        ((num2 > num3) ? num2 : num3);

    return max;
}

const num1 = 8;
const num2 = 15;
const num3 = 11;
const maxNumber = findMaxOfThreeNumbers(num1, num2, num3);
```

```
console.log(`The maximum of ${num1}, ${num2}, and ${num3} is
${maxNumber}`);
```

Output:



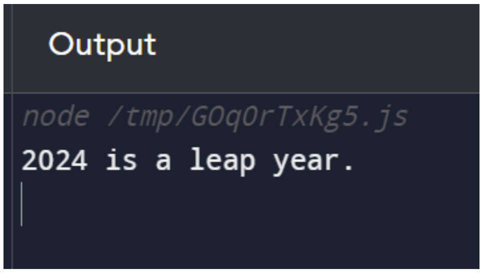
Output

```
node /tmp/GOqOrTxKg5.js
The maximum of 8, 15, and 11 is 15
```

15. Question: Determine if a year is a leap year or not.

```
function isLeapYear(year) {
    if ((year % 4 === 0 && year % 100 !== 0) || (year % 400 === 0)) {
        return `${year} is a leap year.`;
    } else {
        return `${year} is not a leap year.`;
    }
}

const inputYear = 2024;
const result = isLeapYear(inputYear);
console.log(result);
```

Output:



Output

```
node /tmp/GOqOrTxKg5.js
2024 is a leap year.
```