**NAME:** MUHAMMAD UZAIR

**NUMBER:** 0323-3358701

**COURSE:** WD II

**Assignment No.1**

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

**Ans:**

function reverseString(inputStr) {

let charArray = inputStr.split('');

charArray = charArray.reverse();

let reversedStr = charArray.join('');

return reversedStr;

}

let originalString = "Hello World!";

let reversedString = reverseString(originalString);

console.log("Reversed string:", reversedString);

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

function countVowels(inputStr) {

inputStr = inputStr.toLowerCase();

const vowels = new Set(['a', 'e', 'i', 'o', 'u']);

let vowelCount = 0;

for (let char of inputStr) {

if (vowels.has(char)) {

vowelCount++;

}

}

return vowelCount;

}

let testString = "Hello, World!";

let result = countVowels(testString);

console.log("Number of vowels in the string:", result);

**Output:**

A screenshot of a computer program

Description automatically generated

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

**Ans:**

function capitalizeFirstLetter(sentence) {

let words = sentence.split(' ');

let capitalizedWords = words.map(word => {

if (word.length > 0) {

return word[0].toUpperCase() + word.slice(1);

} else {

return word;

}

});

let result = capitalizedWords.join(' ');

return result;

}

let inputSentence = "convert the first letter of each word";

let result = capitalizeFirstLetter(inputSentence);

console.log("Original sentence:", inputSentence);

console.log("Modified sentence:", result);

**Output:**

A screen shot of a computer code

Description automatically generated

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

**Ans:**

function isPalindrome(str) {

const cleanStr = str.replace(/[^a-zA-Z0-9]/g, '').toLowerCase();

const reversedStr = cleanStr.split('').reverse().join('');

return cleanStr === reversedStr;

}

let testString = "A man, a plan, a canal, Panama!";

let result = isPalindrome(testString);

console.log("Is the string a palindrome?", result);

**Output:**

A black screen with white text

Description automatically generated

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

**Ans:**

function sumOfPositiveNumbers(arr) {

let positiveNumbers = arr.filter(num => num > 0);

let sum = positiveNumbers.reduce((acc, num) => acc + num, 0);

return sum;

}

let numbersArray = [1, -2, 3, -4, 5];

let result = sumOfPositiveNumbers(numbersArray);

console.log("Array:", numbersArray);

console.log("Sum of positive numbers:", result);

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

function indexOfElement(arr, target) {

let index = arr.indexOf(target);

return index;

}

let array = [1, 2, 3, 4, 5, 3, 6, 7];

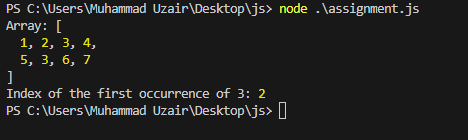
let targetElement = 3;

let result = indexOfElement(array, targetElement);

console.log("Array:", array);

console.log(`Index of the first occurrence of ${targetElement}:`, result);

**Output:**



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

**Ans:**

function removeDuplicates(arr) {

let uniqueArray = [];

for (let i = 0; i < arr.length; i++) {

if (uniqueArray.indexOf(arr[i]) === -1) {

uniqueArray.push(arr[i]);

}

}

return uniqueArray;

}

let arrayWithDuplicates = [1, 2, 3, 4, 2, 5, 1, 6];

let arrayWithoutDuplicates = removeDuplicates(arrayWithDuplicates);

console.log("Array with duplicates:", arrayWithDuplicates);

console.log("Array without duplicates:", arrayWithoutDuplicates);

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

function bubbleSortAscending(arr) {

let len = arr.length;

for (let i = 0; i < len - 1; i++) {

for (let j = 0; j < len - 1 - i; j++) {

if (arr[j] > arr[j + 1]) {

let temp = arr[j];

arr[j] = arr[j + 1];

arr[j + 1] = temp;

}

}

}

return arr;

}

function bubbleSortDescending(arr) {

let len = arr.length;

for (let i = 0; i < len - 1; i++) {

for (let j = 0; j < len - 1 - i; j++) {

if (arr[j] < arr[j + 1]) {

let temp = arr[j];

arr[j] = arr[j + 1];

arr[j + 1] = temp;

}

}

}

return arr;

}

let originalArray = [3, 1, 4, 1, 5, 9, 2, 6, 5, 3, 5];

let ascendingArray = bubbleSortAscending(originalArray.slice());

let descendingArray = bubbleSortDescending(originalArray.slice());

console.log("Original array:", originalArray);

console.log("Ascending order:", ascendingArray);

console.log("Descending order:", descendingArray);

**Output:**

A screenshot of a computer program

Description automatically generated

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

**Ans:**

let number = 2;

while (number <= 20) {

console.log(number);

number += 2; // Increment by 2 to get the next even number

}

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

function factorial(n) {

if (n < 0) {

return "Invalid input. Factorial is defined for non-negative integers.";

}

let result = 1;

let i = 1;

do {

result \*= i;

i++;

} while (i <= n);

return result;

}

let number = 5;

let result = factorial(number);

console.log(`The factorial of ${number} is:`, result);

**Output:**

A black screen with white text

Description automatically generated

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

**Ans:**

let person = {

name: "John",

age: 30,

city: "New York",

occupation: "Engineer"

};

for (let property in person) {

if (person.hasOwnProperty(property)) {

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

}

}

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

let originalArray = [1, 2, 3, 4, 5];

let doubledArray = [];

for (let element of originalArray) {

doubledArray.push(element \* 2);

}

console.log("Original array:", originalArray);

console.log("Doubled array:", doubledArray);

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

function checkEvenOrOdd(number) {

if (number % 2 === 0) {

return `${number} is even.`;

} else {

return `${number} is odd.`;

}

}

let testNumber = 7;

let result = checkEvenOrOdd(testNumber);

console.log(result);

**Output:**

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Description automatically generated

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

**Ans:**

function findMaxOfThreeNumbers(a, b, c) {

let max = (a > b) ? ((a > c) ? a : c) : ((b > c) ? b : c);

return max;

}

let num1 = 8, num2 = 12, num3 = 6;

let result = findMaxOfThreeNumbers(num1, num2, num3);

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

**Output:**

A screen shot of a computer

Description automatically generated

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

**Ans:**

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.`;

}

}

let testYear = 2024;

let result = isLeapYear(testYear);

console.log(result);

**Output:**

