1. **Do the below programs in anonymous function & IIFE**
   1. **Print odd numbers in an array**

Anonymous function:

var a = [1, 2, 3, 4, 5, 6, 7, 8, 9];

(function(arr) {

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

if (function(num) {

return num % 2 !== 0;

}(arr[i])) {

console.log(arr[i]);

}

}

})(a);

IIFE function:

(function(arr) {

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

if (arr[i] % 2 !== 0) {

console.log(arr[i]);

}

}

})([1, 2, 3, 4, 5, 6, 7, 8, 9]);

* 1. **Convert all the strings to title caps in a string array**

Anonymous function:

var stringArray = ["hello world", "good morning", "javascript is fun"];

// Using an anonymous function to convert strings to title case

for (var i = 0; i < stringArray.length; i++) {

stringArray[i] = (function(str) {

return str.replace(/\w\S\*/g, function(txt) {

return txt.charAt(0).toUpperCase() + txt.substr(1).toLowerCase();

});

})(stringArray[i]);

}

console.log(stringArray);

IIFE function:

var stringArray = ["hello world", "good morning", "javascript is fun"];

(function(arr) {

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

arr[i] = (function(str) {

return str.replace(/\w\S\*/g, function(txt) {

return txt.charAt(0).toUpperCase() + txt.substr(1).toLowerCase();

});

})(arr[i]);

}

})(stringArray);

console.log(stringArray);

* 1. **Sum of all numbers in an array**

Anonymous function:

var numberArray = [1, 2, 3, 4, 5, 6, 7, 8, 9];

var sum = function(arr) {

var a = 0;

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

a += arr[i];

}

return a;

}(numberArray);

console.log("Sum:", sum);

IIFE function:

var numberArray = [1, 2, 3, 4, 5, 6, 7, 8, 9];

var sum = (function(arr) {

var a = 0;

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

a += arr[i];

}

return a;

})(numberArray);

console.log("Sum:", sum);

* 1. **Return all the prime numbers in an array**

Anonymous function:

var numberArray = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10];

var primeNumbers = (function(arr) {

function isPrime(num) {

if (num < 2) {

return false;

}

for (var i = 2; i <= Math.sqrt(num); i++) {

if (num % i === 0) {

return false;

}

}

return true;

}

return arr.filter(function(num) {

return isPrime(num);

});

})(numberArray);

console.log("Prime Numbers:", primeNumbers);

IIFE function:

var numberArray = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10];

var primeNumbers = (function(arr) {

function isPrime(num) {

if (num < 2) {

return false;

}

for (var i = 2; i <= Math.sqrt(num); i++) {

if (num % i === 0) {

return false;

}

}

return true;

}

return (function() {

return arr.filter(function(num) {

return isPrime(num);

});

})();

})(numberArray);

console.log("Prime Numbers:", primeNumbers);

* 1. **Return all the palindromes in an array**

Anonymous function:

var stringArray = ["level", "hello", "racecar", "world", "madam"];

var palindromes = (function(arr) {

function isPalindrome(str) {

var reversedStr = str.split('').reverse().join('');

return str === reversedStr;

}

return arr.filter(function(word) {

return isPalindrome(word);

});

})(stringArray);

console.log("Palindromes:", palindromes);

IIFE function:

var stringArray = ["level", "hello", "racecar", "world", "madam"];

var palindromes = (function(arr) {

return (function() {

function isPalindrome(str) {

var reversedStr = str.split('').reverse().join('');

return str === reversedStr;

}

return arr.filter(function(word) {

return isPalindrome(word);

});

})();

})(stringArray);

console.log("Palindromes:", palindromes);

* 1. **Return median of two sorted arrays of the same size:**

Anonymous function:

var findMedian = function(arr1, arr2) {

const n = arr1.length;

if (n !== arr2.length) {

throw new Error("Arrays must be of the same size");

}

const mid = Math.floor(n / 2);

const correspondingElement = arr2[mid];

return (arr1[mid] + correspondingElement) / 2;

};

var arr1 = [1, 2, 3, 4, 5];

var arr2 = [6, 7, 8, 9, 10];

var median = findMedian(arr1, arr2);

console.log("Median:", median);

IIFE function:

var arr1 = [1, 2, 3, 4, 5];

var arr2 = [6, 7, 8, 9, 10];

var median = (function(arr1, arr2) {

const n = arr1.length;

if (n !== arr2.length) {

throw new Error("Arrays must be of the same size");

}

const mid = Math.floor(n / 2);

const correspondingElement = arr2[mid];

return (arr1[mid] + correspondingElement) / 2;

})(arr1, arr2);

console.log("Median:", median);

* 1. **Remove duplicates from an array**

Anonymous function:

var array = [1, 2, 3, 4, 1, 2, 5, 6, 3, 7, 8, 9];

var uniqueArray = (function(arr) {

return arr.filter(function(item, index, self) {

return self.indexOf(item) === index;

});

})(array);

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

console.log("Array without Duplicates:", uniqueArray);

IIFE function;

var array = [1, 2, 3, 4, 1, 2, 5, 6, 3, 7, 8, 9];

var uniqueArray = (function(arr) {

return (function() {

return arr.filter(function(item, index, self) {

return self.indexOf(item) === index;

});

})();

})(array);

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

console.log("Array without Duplicates:", uniqueArray);

* 1. **Rotate an array by k times**

Anonymous function:

var array = [1, 2, 3, 4, 5];

var k = 2;

var rotatedArray = (function(arr, k) {

k = k % arr.length; // Handle cases where k is greater than the array length

// Use slice to create a rotated version of the array

return arr.slice(k).concat(arr.slice(0, k));

})(array, k);

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

console.log("Rotated Array:", rotatedArray);

IIFE function:

var array = [1, 2, 3, 4, 5];

var k = 2;

var rotatedArray = (function(arr, k) {

return (function() {

k = k % arr.length;

return arr.slice(k).concat(arr.slice(0, k));

})();

})(array, k);

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

console.log("Rotated Array:", rotatedArray);

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**2. Do the below programs in arrow functions**

* 1. **Print odd numbers in an array**

let array = [1, 2, 3, 4, 5, 6, 7, 8, 9];

let printOddNumbers = arr => {

arr.forEach(num => {

let isOdd = num % 2 !== 0;

if (isOdd) {

console.log(num);

}

});

};

printOddNumbers(array);

* 1. **Convert all the strings to title caps in a string array**

let stringArray = ["hello world", "good morning", "javascript is fun"];

let convertToTitleCase = arr => {

return arr.map(str => {

return str.replace(/\w\S\*/g, txt => {

return txt.charAt(0).toUpperCase() + txt.substr(1).toLowerCase();

});

});

};

let titleCaseArray = convertToTitleCase(stringArray);

console.log("Original Array:", stringArray);

console.log("Title Case Array:", titleCaseArray);

* 1. **Sum of all numbers in an array**

let numberArray = [1, 2, 3, 4, 5, 6, 7, 8, 9];

let sum = arr => arr.reduce((accumulator, currentValue) => accumulator + currentValue, 0);

console.log("Sum:", sum(numberArray));

* 1. **Return all the prime numbers in an array**

let numberArray = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10];

let isPrime = num => {

if (num < 2) {

return false;

}

for (let i = 2; i <= Math.sqrt(num); i++) {

if (num % i === 0) {

return false;

}

}

return true;

};

let primeNumbers = arr => arr.filter(num => isPrime(num));

console.log("Original Array:", numberArray);

console.log("Prime Numbers:", primeNumbers(numberArray));

* 1. **Return all the palindromes in an array**

let stringArray = ["level", "hello", "racecar", "world", "madam"];

let isPalindrome = str => {

let reversedStr = str.split('').reverse().join('');

return str === reversedStr;

};

let palindromeArray = arr => arr.filter(word => isPalindrome(word));

console.log("Original Array:", stringArray);

console.log("Palindromes:", palindromeArray(stringArray));