Programming Questions and Solutions

Question: Remove Duplicates: Removes all duplicate values from the array.

Solution:

```
let arr = [1, 2, 3, 4, 2, 3, 4, 5, 6, 10];


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


console.log(removeDuplicates(arr));  // Output: [1, 2, 3, 4, 5, 6, 10]
```

Question: Find Duplicates: Finds all duplicate values in the array.

Solution:

```
function findDuplicates(arr) {
    let duplicates = [];
    let seen = {};
    for (let i = 0; i < arr.length; i++) {
        if (seen[arr[i]]) {
            if (!duplicates.includes(arr[i])) {
```

```
                duplicates.push(arr[i]);
            }
        } else {
            seen[arr[i]] = true;
        }
    }
    return duplicates;
}

console.log(findDuplicates(arr));  // Output: [2, 3, 4]
```

Question: Find Duplicates and Count: Finds all duplicate values and their counts.

Solution:

```
function findDuplicatesAndCount(arr) {
    let counts = {};
    for (let i = 0; i < arr.length; i++) {
        counts[arr[i]] = (counts[arr[i]] || 0) + 1;
    }

    let duplicates = {};
    for (let num in counts) {
        if (counts[num] > 1) {
            duplicates[num] = counts[num];
        }
    }
    return duplicates;
```

```
}

console.log(findDuplicatesAndCount(arr));  // Output: { '2': 2, '3': 2, '4': 2 }
```

Question: Remove Duplicates and Count: Removes duplicates and returns the count of unique elements.

Solution:

```
function removeDuplicatesAndCount(arr) {
    let uniqueArr = [];
    for (let i = 0; i < arr.length; i++) {
        if (!uniqueArr.includes(arr[i])) {
            uniqueArr.push(arr[i]);
        }
    }
    return { uniqueArr, count: uniqueArr.length };
}

console.log(removeDuplicatesAndCount(arr));
// Output: { uniqueArr: [1, 2, 3, 4, 5, 6, 10], count: 7 }
```

Question: Add a Number in Between: Adds a number at a specific index in the array.

Solution:

```
function addNumberInBetween(arr, num, index) {
    let result = [];
    for (let i = 0; i < arr.length; i++) {
        if (i === index) {
```

```
            result.push(num);
        }
        result.push(arr[i]);
    }
    return result;
}

console.log(addNumberInBetween(arr, 99, 3));
// Output: [1, 2, 3, 99, 4, 2, 3, 4, 5, 6, 10]
```

Question: Remove a Given Number: Removes all occurrences of a given number from the array.

Solution:

```
function removeNumber(arr, num) {
    let result = [];
    for (let i = 0; i < arr.length; i++) {
        if (arr[i] !== num) {
            result.push(arr[i]);
        }
    }
    return result;
}

console.log(removeNumber(arr, 3));  // Output: [1, 2, 4, 2, 4, 5, 6, 10]
```