

1. Coding Question: Custom Map Function

Implement a custom function `customMap` that mimics the behavior of the JavaScript `Array.prototype.map` method. It should not use the built-in `map` method and should work as expected when tested with an array.

2. Debugging Question: Fix the Filter

Given the following code, identify and fix the issues to make it work as intended. It's supposed to filter out all negative numbers and return a new array.

```
const numbers = [1, -2, 3, -4, 5];
const positives = numbers.filter(n => n < 0);
console.log(positives);
```

3. Predict Output: Nested Map and Filter

What is the output of the following code snippet?

```
const arrays = [[1, 2, 3], [4, 5, 6], [7, 8, 9]];
const result = arrays.map(arr => arr.filter(num => num % 2 === 0));
console.log(result);
```

4. Coding Question: Sum of Squares

Write a JavaScript function that takes an array of numbers and returns the sum of the squares of those numbers, using `reduce`.

5. Predict Output: forEach with a Twist

What does the following code output?

```
let sum = 0;
const numbers = [1, 2, 3, 4, 5];
numbers.forEach((num, index) => {
  if (index % 2 === 0) sum += num;
});
console.log(sum);
```

6. Debugging Question: Array.from Issue

Explain why the following code doesn't produce the expected output ([0, 1, 2, 3, 4]) and correct it.

```
const arrayLike = { length: 5 };
const newArray = Array.from(arrayLike, (v, i) => i);
console.log(newArray);
```

7. Coding Question: Filtering and Accumulating

Using `filter` and `reduce`, write a function that takes an array of objects with properties `name` and `value` and returns the sum of the values of objects whose `name` property starts with the letter 'a' or 'A'.

8. Predict Output: Complex reduce

What is the output of the following code?

```
const numbers = [1, 2, 3, 4, 5];
const result = numbers.reduce((acc, curr) => {
  if (curr % 2 === 0) {
    acc.even.push(curr);
  } else {
    acc.odd.push(curr);
  }
  return acc;
}, { odd: [], even: [] });

console.log(result);
```

9. Coding Question: Transforming an Array-Like Object

Create a function that takes an array-like object with numeric keys and transforms it into a proper array. For example, {0: 'a', 1: 'b', 2: 'c', length: 3} should be transformed into ['a', 'b', 'c'].

10. Debugging Question: Unexpected forEach Behavior

The following code is intended to log each number multiplied by 2, but it's not working as expected. Identify and fix the issue.

```
const numbers = [1, 2, 3, 4, 5];
numbers.forEach(num => {
```

```
    num *= 2;  
});  
console.log(numbers);
```