

EXPERIMENT NO 3**Working with JavaScript Arrays and Functions**

AIM: To develop understanding of JavaScript Arrays and Functions.

Question (1). Implement the below-given software design using JS. This algorithm finds all 3-digit Armstrong numbers.

- Step 1. [INITIALIZE N WITH THE FIRST 3-DIGIT NUMBER] $N \leftarrow 100$
- Step 2. REPEAT STEPS 3 THROUGH 10 UNTIL $N > 999$
- Step 3. [INITIALIZE S, WHICH HOLDS THE SUM OR THE CUBES] $S \leftarrow 0$
- Step 4. $M \leftarrow N$ [THIS IS TO MAKE A COPY OF N]
- Step 5. REPEAT STEP 6 THROUGH STEP 8 WHILE $M > 0$
- Step 6. COMPUTE $REM \leftarrow \text{REMAINDER OF } (M/10)$
- Step 7. COMPUTE $S \leftarrow S + REM*REM*REM$
- Step 8. COMPUTE $M \leftarrow \text{INTEGER PART OF } (M/10)$
- Step 9. IF $S = N$ THEN PRINT N END-IF
- Step 10. [INCREMENT N TO TAKE THE NEXT NUMBER] COMPUTE $N \leftarrow N+1$ END-REPEAT
- Step 11. END

SOURCE CODE:**HTML**

```
<html>
<head>
  <title>Armstrong Number</title>
  <script>
    function isArmstrongNumber(N) {
      var M = N;
      var S = 0;

      while (M > 0) {
        var REM = M % 10;
        S += REM*REM*REM;
        M = Math.floor(M / 10);
      }

      return S === N;
    }

    function findArmstrongNumbers() {
      var lowerLimit = 100;
      var upperLimit = 999;

      for (var i = lowerLimit; i <= upperLimit; i++) {
        if (isArmstrongNumber(i)) {
```

```
        console.log(i);
    }
}

findArmstrongNumbers();
</script>
</head>
<body>
    <div style="border: none;" class="container2">
        <a href="../index.htm"><button style="border: none;"
onmouseover="this.style.color='red'">GO BACK TO INDEX</button></a>
    </div>
</body>
</html>
```

OUTPUT SCREENSHOT:



Question (2). Develop a JS code to show how to find all even natural numbers that are divisible by 7 in a given range. Create suitable functions to achieve it.

SOURCE CODE:

HTML

```
<html>
<head>
    <title>Divisibility by 7</title>
    <script>
        function DivisibleBy7(start, end) {
            const result = [];

            for (let i = start; i <= end; i++) {
```

```
        if (i % 2 === 0 && i % 7 === 0) {
            result.push(i);
        }
    }
    return result;
}

const start = 1;
const end = 100;

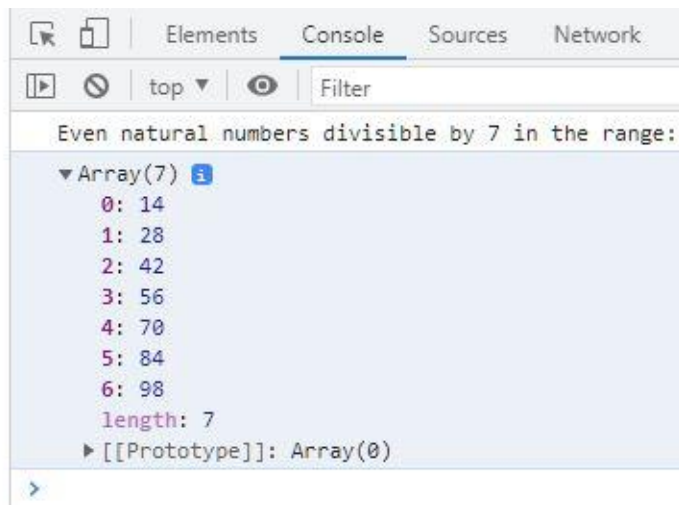
const evenNumbersDivisibleBy7 = DivisibleBy7(start, end);
console.log("Even natural numbers divisible by 7 in the range:");
console.log(evenNumbersDivisibleBy7);

</script>
</head>

<body>
    <div style="border: none;" class="container2">
        <a href="../index.htm"><button style="border: none;"
onmouseover="this.style.color='red'">GO BACK TO INDEX</button></a>
    </div>
</body>
</html>
```

OUTPUT SCREENSHOT:

GO BACK TO INDEX



Question (3). Write a JavaScript program that accepts a string as input and swaps the case of each character. For example if you input 'The Quick Brown Fox' the output should be 'tHE qUICK bROWN fOX'.

SOURCE CODE:

HTML

```
<!DOCTYPE html>
<html>
<head>
  <title>Toggle Case</title>
  <script>
    function swapCase(inputString) {
      let swappedString = '';

      for (let i = 0; i < inputString.length; i++) {
        const char = inputString.charAt(i);

        if (char === char.toLowerCase()) {
          swappedString += char.toUpperCase();
        } else {
          swappedString += char.toLowerCase();
        }
      }
      return swappedString;
    }

    const input = 'The Quick Brown Fox';
    const swappedResult = swapCase(input);
    console.log(swappedResult);

  </script>
</head>
<body>
  <div style="border: none;" class="container2">
    <a href="../index.htm"><button style="border: none;"
onmouseover="this.style.color='red'">GO BACK TO INDEX</button></a>
  </div>
</body>
</html>
```

OUTPUT SCREENSHOT:

