Name: Mukund Kuthe

3rd Year Section B (B1)

Practical 5 (JavaScript)

Task 1:

```
> let numbers = [2, 4, 6, 8, 10];
  console.log("Original Array:", numbers);

  // Step 2: Add a new number using push()
  numbers.push(12);
  console.log("After push(12):", numbers);

  // Step 3: Remove the last number using pop()
  numbers.pop();
  console.log("After pop():", numbers);

  // Step 4: Print the length of the array
  console.log("Array length:", numbers.length);

  // Step 5: Use map() to get squares of numbers
  let squares = numbers.map(num => num * num);
  console.log("Squares:", squares);
Original Array:  ▸ (5) [2, 4, 6, 8, 10]                    VM65:2
After push(12):  ▸ (6) [2, 4, 6, 8, 10, 12]                VM65:6
After pop():  ▸ (5) [2, 4, 6, 8, 10]                       VM65:10
Array length: 5                                            VM65:13
Squares:  ▸ (5) [4, 16, 36, 64, 100]                       VM65:17
< undefined
```

Task 2:

```
> // Step 1: Create an array of student ages
  let ages = [18, 19, 20, 21, 22];
  console.log("Original Ages:", ages);

  // Step 2: Use push() to add a new age
  ages.push(23);
  console.log("After push(23):", ages);

  // Step 3: Use pop() to remove the last age and display the array
  ages.pop();
  console.log("After pop():", ages);

  // Step 4: Print the length of the array
  console.log("Array length:", ages.length);

  // Step 5: Use map() to calculate double of each age
  let doubles = ages.map(age => age * 2);
  console.log("Doubles:", doubles);

  // Challenge: Use map() to find the cube of each element
  let cubes = ages.map(age => age ** 3);
  console.log("Cubes:", cubes);
Original Ages:  ▸ (5) [18, 19, 20, 21, 22]                 VM111:3
After push(23):  ▸ (6) [18, 19, 20, 21, 22, 23]            VM111:7
After pop():  ▸ (5) [18, 19, 20, 21, 22]                   VM111:11
Array length: 5                                            VM111:14
Doubles:  ▸ (5) [36, 38, 40, 42, 44]                       VM111:18
Cubes:  ▸ (5) [5832, 6859, 8000, 9261, 10648]              VM111:22
< undefined
```

Task 3:

```
> let products = [
    { id: 1, name: "Pen", price: 20 },
    { id: 2, name: "Notebook", price: 50 }
  ];

  console.log("Products:", products);
Products: ▾ (2) [{…}, {…}] ℹ                                    VM115:6
            ▸ 0: {id: 1, name: 'Pen', price: 20}
            ▸ 1: {id: 2, name: 'Notebook', price: 50}
              length: 2
            ▸ [[Prototype]]: Array(0)

‹· undefined
```

Task 4:

```
> // Step 1: Create an array of objects
  let products = [
    { id: 1, name: "Pen", price: 20, category: "stationery" },
    { id: 2, name: "Mug", price: 150, category: "kitchen" },
    { id: 3, name: "Notebook", price: 80, category: "stationery" },
    { id: 4, name: "Marker", price: 50, category: "stationery" }
  ];

  // Step 2: Use map() to get all product names
  let productNames = products.map(item => item.name);
  console.log("Product Names:", productNames);

  // Step 3: Use filter() to get only stationery products
  let stationeryItems = products.filter(item => item.category === "stationery");
  console.log("Stationery Items:", stationeryItems);

  // Step 4: Use reduce() to calculate total price
  let totalPrice = products.reduce((sum, item) => sum + item.price, 0);
  console.log("Total Price of Products:", totalPrice);

  // Step 5: Use forEach() to print product details
  console.log("Product List:");
  products.forEach(item => {
    console.log(`${item.name} - ${item.category} - $${item.price}`);
  });
Product Names: ▸ (4) ['Pen', 'Mug', 'Notebook', 'Marker']          VM119:11
Stationery Items: ▸ (3) [{…}, {…}, {…}]                           VM119:15
Total Price of Products: 300                                       VM119:19
Product List:                                                      VM119:22
Pen - stationery - $20                                             VM119:24
Mug - kitchen - $150                                               VM119:24
Notebook - stationery - $80                                        VM119:24
Marker - stationery - $50                                          VM119:24

‹· undefined
```

Task 5:

```
> // Step 1: Create an array of objects for students
  let students = [
    { id: 1, name: "Ravi", marks: 72 },
    { id: 2, name: "Anita", marks: 45 },
    { id: 3, name: "Kiran", marks: 88 },
    { id: 4, name: "Meena", marks: 55 },
    { id: 5, name: "Arjun", marks: 39 }
  ];

  // Step 2: Use map() to extract all student names
  let studentNames = students.map(s => s.name);
  console.log("Student Names:", studentNames);

  // Step 3: Use filter() to select students with marks > 50
  let passedStudents = students.filter(s => s.marks > 50);
  console.log("Students with marks > 50:", passedStudents);

  // Step 4: Use reduce() to calculate the average marks
  let totalMarks = students.reduce((sum, s) => sum + s.marks, 0);
  let averageMarks = totalMarks / students.length;
  console.log("Average Marks:", averageMarks);

  // Step 5: Use forEach() to print a report card format
  console.log("Report Card:");
  students.forEach(s => {
    console.log(`ID: ${s.id} | Name: ${s.name} | Marks: ${s.marks}`);
  });
Student Names:  ▸ (5) ['Ravi', 'Anita', 'Kiran', 'Meena', 'Arjun']   VM123:12
Students with marks > 50:  ▾ (3) [{…}, {…}, {…}] i   VM123:16
                             ▸ 0: {id: 1, name: 'Ravi', marks: 72}
                             ▸ 1: {id: 3, name: 'Kiran', marks: 88}
                             ▸ 2: {id: 4, name: 'Meena', marks: 55}
                               length: 3
                             ▸ [[Prototype]]: Array(0)
Average Marks: 59.8   VM123:21
Report Card:   VM123:24
ID: 1 | Name: Ravi | Marks: 72   VM123:26
ID: 2 | Name: Anita | Marks: 45   VM123:26
ID: 3 | Name: Kiran | Marks: 88   VM123:26
ID: 4 | Name: Meena | Marks: 55   VM123:26
ID: 5 | Name: Arjun | Marks: 39   VM123:26
< undefined
```