Lab 10: Advanced JavaScript — Objects, Arrays, JSON, ES6

- **Objectives:**

  - Use ES6 features and fetch/display JSON. Parse and manipulate arrays/objects.

- **Tools/Tech:**

  - VS Code, Fetch API or sample JSON file, modern browser

- **Tasks/Steps:**

  1. Create a small app that fetches JSON (local or public API) and renders items (e.g., product list).

  2. Use ES6 constructs: let/const, arrow functions, template literals, destructuring.

  3. Implement filtering/sorting of the fetched data.

- **Deliverables:**

  - App with fetch functionality and code demonstrating ES6 features.

HTML CODE:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Lab 10 - Advanced JavaScript</title>
    <link rel="stylesheet" href="style.css">
</head>
<body>

    <h1>Product Store (JSON + ES6)</h1>

    <div class="controls">
        <button onclick="sortPriceLow()">Sort: Low → High</button>
        <button onclick="sortPriceHigh()">Sort: High → Low</button>
```

```html
      <button onclick="filterCategory('electronics')">Electronics</button>
      <button onclick="filterCategory('jewelery')">Jewelery</button>
      <button onclick="renderProducts(allProducts)">Reset</button>
    </div>

    <div id="product-list" class="product-list"></div>

    <script src="script.js"></script>
</body>
</html>
```

CSS CODE:

```css
body {
    font-family: Arial, sans-serif;
    background: #f4f4f4;
    margin: 0;
    padding: 20px;
}

h1 {
    text-align: center;
    margin-bottom: 20px;
}

.controls {
    text-align: center;
    margin-bottom: 20px;
}

.controls button {
    padding: 10px 15px;
    margin: 5px;
    border: none;
    background: #007bff;
    color: white;
    cursor: pointer;
    border-radius: 5px;
}

.controls button:hover {
    background: #0056b3;
}

.product-list {
    display: grid;
    grid-template-columns: repeat(auto-fit, minmax(250px, 1fr));
```

```css
    gap: 15px;
}

.card {
    background: white;
    padding: 15px;
    border-radius: 8px;
    text-align: center;
    box-shadow: 0 2px 6px rgba(0,0,0,0.1);
}

.card img {
    width: 100px;
    height: 100px;
    object-fit: contain;
}

.card h3 {
    font-size: 16px;
    margin: 10px 0;
}

.card p {
    margin: 5px 0;
    color: #555;
}
```

JS CODE:

```javascript
// API URL
const apiURL = "https://fakestoreapi.com/products";

// Fetch Products (ES6 + async/await)
const fetchProducts = async () => {
    const response = await fetch(apiURL);
    const data = await response.json();
    window.allProducts = data; // save globally
    renderProducts(data);
};

fetchProducts();

// Render Products (Arrow Function + Template Literals + Destructuring)
const renderProducts = (products) => {
    const container = document.getElementById("product-list");
    container.innerHTML = "";
```

```javascript
  products.forEach(({ title, price, category, image }) => {
    container.innerHTML += `
      <div class="card">
        <img src="${image}" alt="${title}">
        <h3>${title}</h3>
        <p>Category: ${category}</p>
        <p>Price: $${price}</p>
      </div>
    `;
  });
};

// Sorting Functions
const sortPriceLow = () => {
  const sorted = [...allProducts].sort((a, b) => a.price - b.price);
  renderProducts(sorted);
};

const sortPriceHigh = () => {
  const sorted = [...allProducts].sort((a, b) => b.price - a.price);
  renderProducts(sorted);
};

// Filter by Category
const filterCategory = (category) => {
  const filtered = allProducts.filter(product => product.category === category);
  renderProducts(filtered);
};
```

OUTPUT SCREEN

Product Store (JSON + ES6)

Sort: Low → High   Sort: High → Low   Electronics   Jewelery   Reset

Samsung 49-Inch CHG90 144Hz Curved Gaming Monitor (LC49HG90DMNXZA) – Super Ultrawide Screen QLED
Category: electronics
Price: $999.99

John Hardy Women's Legends Naga Gold & Silver Dragon Station Chain Bracelet
Category: jewelery
Price: $695

Acer SB220Q bi 21.5 inches Full HD (1920 x 1080) IPS Ultra-Thin
Category: electronics
Price: $599

Solid Gold Petite Micropave
Category: jewelery
Price: $168

WD 4TB Gaming Drive Works with Playstation 4 Portable External Hard Drive
Category: electronics
Price: $114

Fjallraven - Foldsack No. 1 Backpack, Fits 15 Laptops
Category: men's clothing
Price: $109.95

SanDisk SSD PLUS 1TB Internal SSD - SATA III 6 Gb/s
Category: electronics
Price: $109

Silicon Power 256GB SSD 3D NAND A55 SLC Cache Performance Boost SATA III 2.5
Category: electronics
Price: $109

WD 2TB Elements Portable External Hard Drive - USB 3.0
Category: electronics
Price: $64

BIYLACLESEN Women's 3-in-1 Snowboard Jacket Winter Coats
Category: women's clothing
Price: $56.99

CONCLUSION:

I_have_Completed_the_task_of_making_ProductStore.Have_a_great_lea rning_form_this.

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RUBRICS:

Performance			Lab Report		
Description	**Total Marks**	**Marks Obtained**	**Description**	**Total Marks**	**Marks Obtained**
Ability to Conduct practical	5		**Structure**	5	
Data Analysis & Interpretation	5		**Efficiency**	5	
Total Marks obtained			**Total Marks Obtained**		

Instructor Signature ─────────────────