Lahore Garrison University

DHA Phase 6 Lahore

Lab Task 10

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Section	**G**
Subject	**Web Technologies Lab**
Instructor Name	**Mr. M Yousaf**

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.

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Lab 10 — Advanced JavaScript (Fetch + ES6)</title>
  <style>
    body { font-family: Arial; padding: 20px; }
    .product-card {
      border: 1px solid #ccc;
      padding: 15px;
      border-radius: 8px;
      margin: 10px 0;
    }
    button {
      padding: 8px 15px;
      margin-right: 10px;
      cursor: pointer;
    }
```

```
  </style>
</head>
<body>
<h2>Product List (Fetched from JSON using ES6)</h2>
<button id="sortAsc">Sort by Price (Low → High)</button>
<button id="sortDesc">Sort by Price (High → Low)</button>
<button id="filterCheap">Filter Price < 50</button>
<div id="productContainer"></div>
<script>
```

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

```
const fetchProducts = async () => {
  const response = await fetch("products.json");   // local JSON file
  const data = await response.json();
  return data.products;
};
```

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

```
 const displayProducts = (products) => {
  const container = document.getElementById("productContainer");
  container.innerHTML = "";

  products.forEach(({ id, name, price, category }) => {   // DESCTRUCTURING
    container.innerHTML += `
      <div class="product-card">
        <h3>${name}</h3>
        <p><b>Category:</b> ${category}</p>
        <p><b>Price:</b> $${price}</p>
      </div>
    `;
  });
};

// main app
let globalProducts = [];
```

```
fetchProducts().then((products) => {
  globalProducts = products;
  displayProducts(globalProducts);
});
```

Task 3: Implement filtering/sorting of the fetched data

```
document.getElementById("sortAsc").addEventListener("click", () => {
  const sorted = [...globalProducts].sort((a, b) => a.price - b.price);
  displayProducts(sorted);
});

document.getElementById("sortDesc").addEventListener("click", () => {
  const sorted = [...globalProducts].sort((a, b) => b.price - a.price);
  displayProducts(sorted);
});

document.getElementById("filterCheap").addEventListener("click", () => {
  const filtered = globalProducts.filter(p => p.price < 50);
  displayProducts(filtered);
});
</script>
</body>
</html>
```

products.json

```
{
 "products": [
  { "id": 1, "name": "Keyboard", "price": 25, "category": "Electronics" },
  { "id": 2, "name": "Mouse", "price": 18, "category": "Electronics" },
  { "id": 3, "name": "Headphones", "price": 55, "category": "Audio" },
  { "id": 4, "name": "USB Drive", "price": 12, "category": "Storage" },
  { "id": 5, "name": "Webcam", "price": 80, "category": "Electronics" }
 ]
}
```

Output:

Sort by Price (ascending):

Sort by Price (descending):

Filter Price (Less than 50):

Deliverables:

- App with fetch functionality and code demonstrating ES6 features.

CONCLUSION:

This lab helped me understand how to use ES6 features along with fetching and displaying JSON data. I also learned how to apply sorting and filtering on objects and arrays to build dynamic web applications.

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 _____