Experiment - 2

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Subject Name: Full Stack- I
Subject Code: 23CSP-339

Aim: To implement a dynamic product filtering system that updates displayed items based on user dropdown selection using JavaScript and DOM manipulation.

Objective: The main objective is to-

1. Create a product dataset.
2. Build filter dropdown UI.
3. Implement filter logic using Array.prototype.filter().
4. Dynamically update the DOM.
5. Add visual feedback (filtered results in real-time).

Hardware/Software Requirements:

Category	Requirements
Hardware	i3+ CPU, 4GB RAM, 1920x1080 display
Software	VS Code, Chrome DevTools, Live Server
Backend (optional)	Node.js (for API simulation)

About the Experiment -

Concepts covered-

1. DOM query selection.
2. Event listeners.
3. Array methods: filter(), map() , join()
4. Dynamic rendering using innerHTML

Real-world Applications-

1. Product filtering in e-commerce websites.
2. Real-time UI updates without page reloads.

Code implementation -

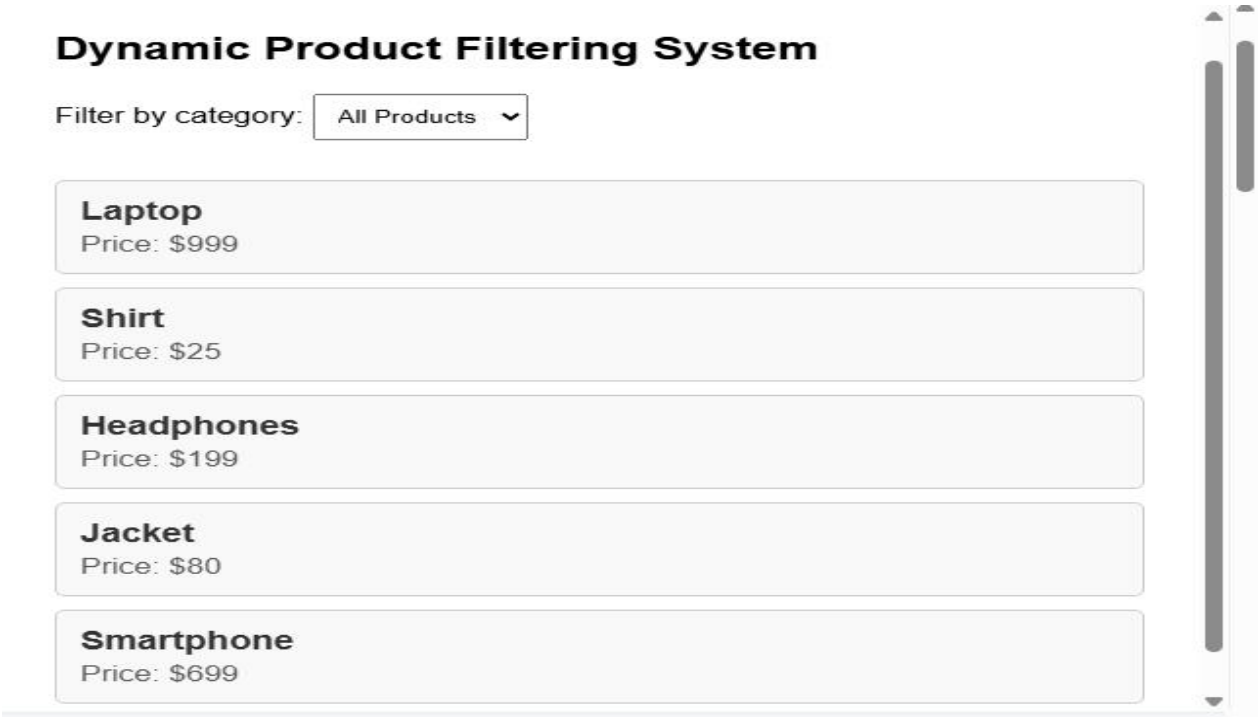
```
<!DOCTYPE html>

<html lang="en">

<head>

 <meta charset="UTF-8">

 <meta name="viewport" content="width=device-width, initial-scale=1.0">

 <title>Experiment 2 - Dynamic Product Filtering</title>

 <style>

  body {

   font-family: Arial, sans-serif;

   padding: 20px;

  }

  #filter {

   padding: 8px;

   margin-bottom: 20px;

  }

  .product {

   border: 1px solid #ccc;

   padding: 12px;

   margin: 10px 0;
```

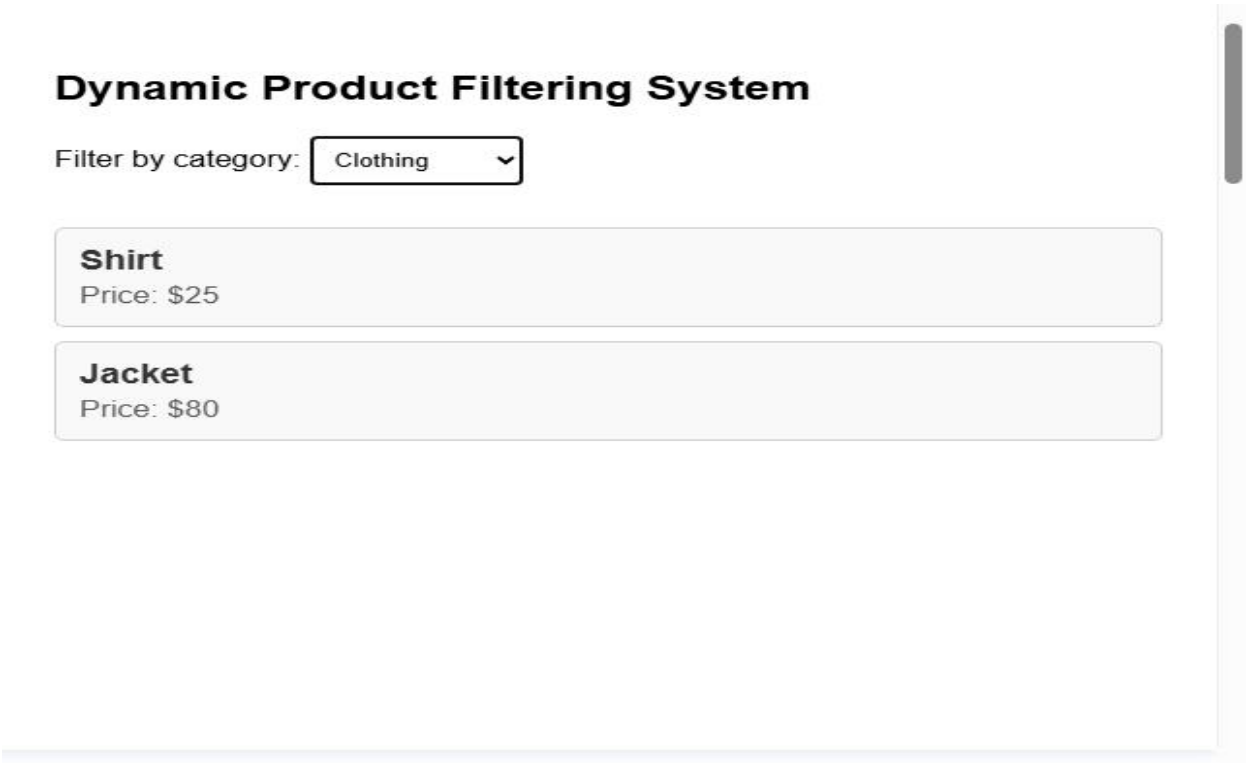
```
      border-radius: 5px;
      background: #f9f9f9;
    }
    .product h3 {
      margin: 0;
      color: #333;
    }
    .product p {
      margin: 5px 0 0;
      color: #555;
    }
  </style>
</head>
<body>
  <h2>Dynamic Product Filtering System</h2>

  <label for="filter">Filter by category:</label>
  <select id="filter">
    <option value="all">All Products</option>
    <option value="electronics">Electronics</option>
```

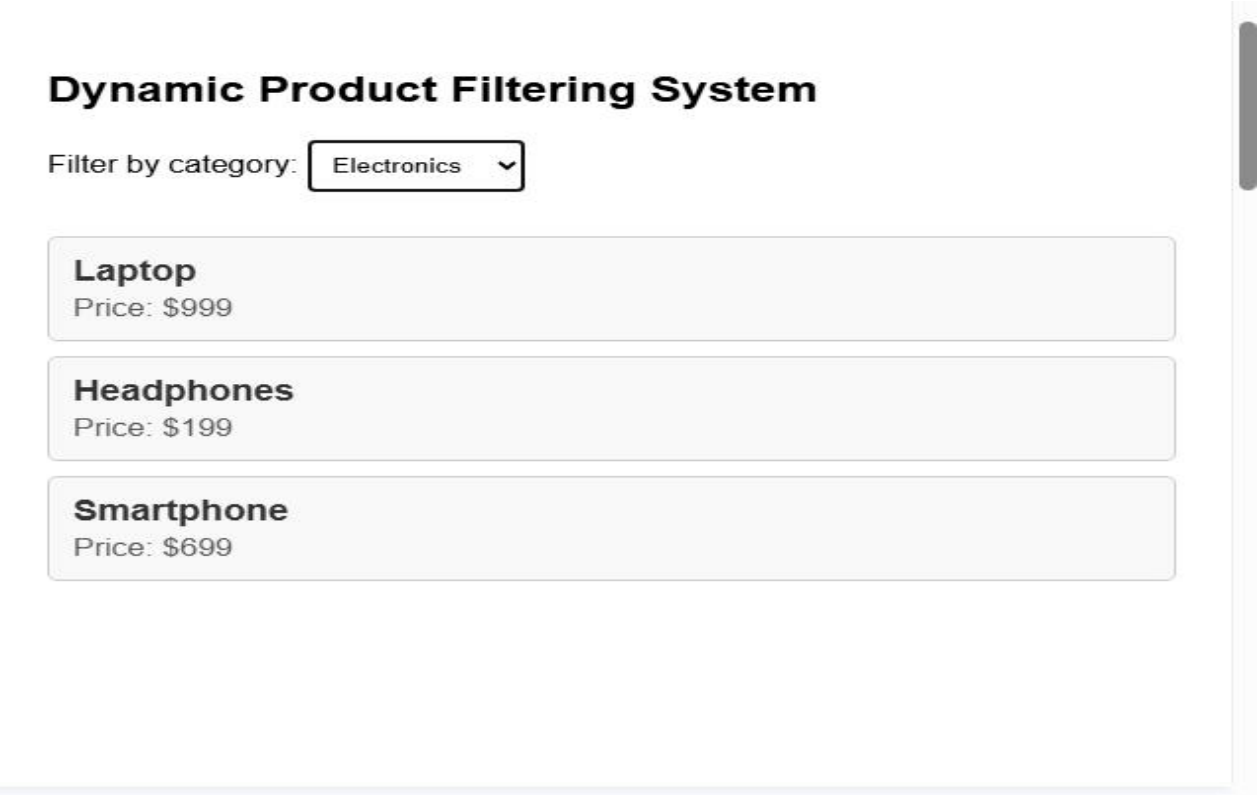
```
  <option value="clothing">Clothing</option>
</select>

<div id="products-container"></div>

<script>
  const products = [
    { name: "Laptop", category: "electronics", price: 999 },
    { name: "Shirt", category: "clothing", price: 25 },
    { name: "Headphones", category: "electronics", price: 199 },
    { name: "Jacket", category: "clothing", price: 80 },
    { name: "Smartphone", category: "electronics", price: 699 }
  ];

  document.getElementById('filter').addEventListener('change', (e) => {
    const selected = e.target.value;
    const filtered = selected === 'all'
      ? products
      : products.filter(p => p.category === selected);
    renderProducts(filtered);
```

```
  });

  function renderProducts(products) {
    const container = document.getElementById('products-container');
    container.innerHTML = products.map(p => `
      <div class="product">
        <h3>${p.name}</h3>
        <p>Price: $${p.price}</p>
      </div>
    `).join('');
  }

  // Initial render
  renderProducts(products);
 </script>
</body>
</html>
```

Output:


Dynamic Product Filtering System
Filter by category:
All Products
Laptop
Price: $999
Shirt
Price: $25
Headphones
Price: $199
Jacket
Price: $80
Smartphone
Price: $699


Dynamic Product Filtering System
Filter by category:
Clothing
Shirt
Price: $25
Jacket
Price: $80


Dynamic Product Filtering System
Filter by category:
Electronics
Laptop
Price: $999
Headphones
Price: $199
Smartphone
Price: $699