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 -

```html
<!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>
```

```html
    <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);
```
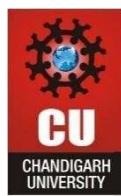
```
    });


    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
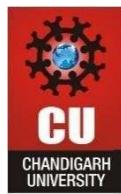
Filter by category: [Clothing ▾]

Shirt
Price: $25

Jacket
Price: $80

Dynamic Product Filtering System

Filter by category: [Electronics ⌄]

Laptop
Price: $999

Headphones
Price: $199

Smartphone
Price: $699