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UNIVERSITY INSTITUTE OF ENGINEERING

Advanced Database Management System

Experiment 2

23CSP-339

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 2: Dynamic Product Filter with DOM Manipulation

Aim

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

Objectives

- Create a product dataset
- Build filter dropdown UI
- Implement filter logic using `Array.prototype.filter()`
- Dynamically update the DOM
- Add visual feedback (e.g., filtered results)

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:

- DOM query selection
- Event listeners
- Array methods: `filter()`, `map()`, `join()`
- Dynamic rendering using `innerHTML`

Real-world Applications:

- Filtering products in e-commerce websites
- Real-time UI updates without page reloads

Code Implementation

HTML

```
<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>
```

JavaScript

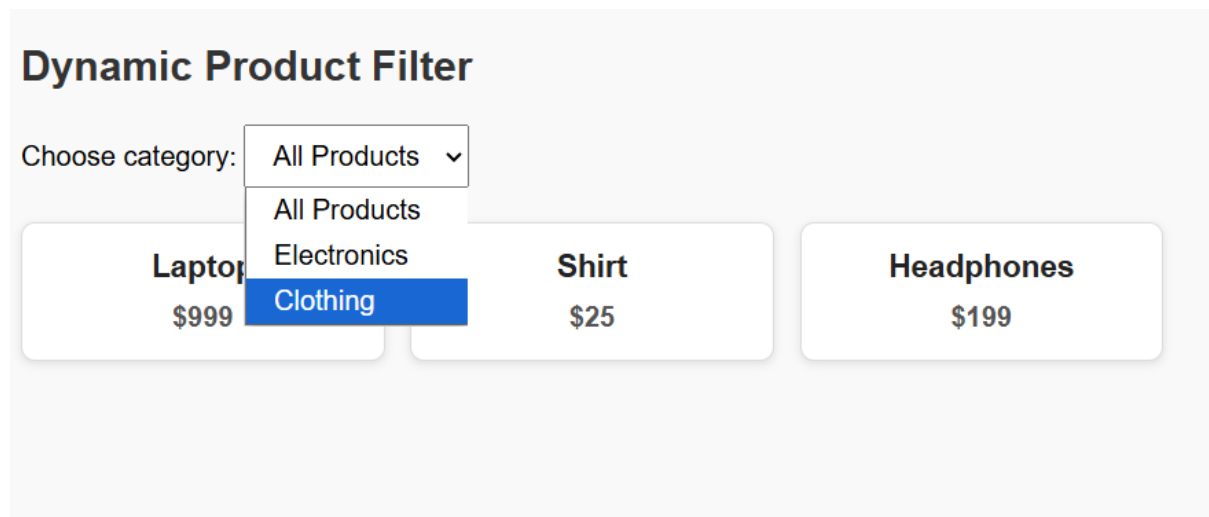
```
const products = [
  { name: "Laptop", category: "electronics", price: 999 },
  { name: "Shirt", category: "clothing", price: 25 },
  { name: "Headphones", category: "electronics", price: 199 }
];
```

```
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>${p.name}</h3>
      <p>${p.price}</p>
    </div>
  `).join("");
}
```

```
// Initial render
renderProducts(products);
```

Expected Output



Learning Outcomes

- Learned how to select and manipulate DOM elements dynamically.
- Gained experience in using event listeners to handle user interactions.
- Practiced applying array methods like `filter()`, `map()`, and `join()` to process data.
- Learned to render and update UI content in real time without page reload.
- Understood real-world use of filtering techniques in e-commerce websites.