Report File FULL STACK

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Subject Name: Full Stack

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

```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

```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('');
}
```

Expected Output

- A dropdown for category filtering
- Product cards showing name and price
- Real-time update of displayed products when a filter is selected

Electronics ∨

Laptop

$999

Headphones

$199

All Products ∨

Laptop

$999

Shirt

$25

Headphones

$199