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