Practical File: Dynamic Product Filter with Dropdown using JavaScript DOM Manipulation

Aim:

To design and implement a dynamic product filter with dropdown functionality using JavaScript DOM manipulation.

Theory:

DOM (Document Object Model) manipulation in JavaScript allows us to dynamically modify the structure, style, and content of a webpage. In this practical, we implement a product filter that displays products based on the selected category from a dropdown. When a category is selected, JavaScript filters the product list and updates the webpage dynamically without reloading.

Algorithm / Steps:

1. Create an HTML page with a dropdown menu for product categories.

2. Define a list of products in JavaScript with category attributes.

3. Write a function to render all products dynamically inside a container.

4. Add an event listener to the dropdown menu to detect changes.

5. On change, filter the products based on the selected category.

6. Update the DOM by displaying only the filtered products.

Source Code:

HTML Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Dynamic Product Filter</title>
  <style>
    body { font-family: Arial, sans-serif; padding: 20px; }
    .product-list { display: flex; flex-wrap: wrap; gap: 15px; }
    .product { border: 1px solid #ccc; padding: 10px; border-radius: 8px; width: 150px; text-align: center; }
    select { padding: 5px; margin-bottom: 20px; }
  </style>
</head>
<body>
  <h2>Product Filter</h2>
  <label for="category">Filter by Category: </label>
```

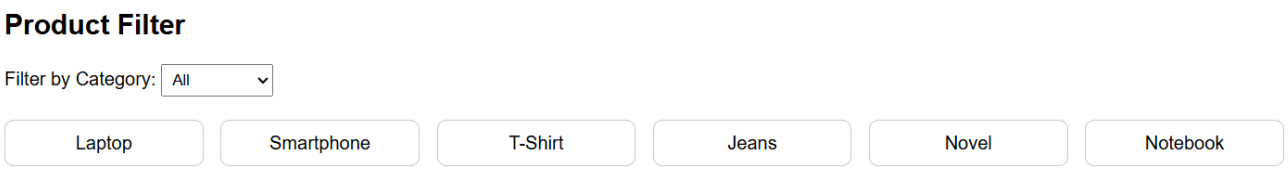
```
  <select id="category">
    <option value="all">All</option>
    <option value="electronics">Electronics</option>
    <option value="clothing">Clothing</option>
    <option value="books">Books</option>
  </select>
  <div class="product-list" id="productList"></div>
  <script src="script.js"></script>
</body>
</html>
```

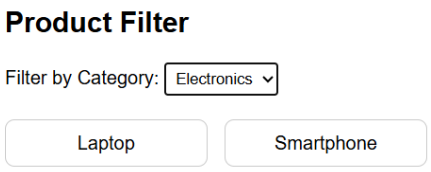
JavaScript Code:

```
// script.js
const products = [
  { id: 1, name: "Laptop", category: "electronics" },
  { id: 2, name: "Smartphone", category: "electronics" },
  { id: 3, name: "T-Shirt", category: "clothing" },
  { id: 4, name: "Jeans", category: "clothing" },
  { id: 5, name: "Novel", category: "books" },
  { id: 6, name: "Notebook", category: "books" }
];

const productList = document.getElementById("productList");
const categoryDropdown = document.getElementById("category");

function renderProducts(filter) {
  productList.innerHTML = "";
  const filteredProducts = filter === "all" ? products : products.filter(p => p.category === filter);
  if (filteredProducts.length === 0) {
    productList.innerHTML = "<p>No products found.</p>";
    return;
  }
  filteredProducts.forEach(product => {
    const div = document.createElement("div");
    div.classList.add("product");
    div.textContent = product.name;
    productList.appendChild(div);
  });
}

renderProducts("all");

categoryDropdown.addEventListener("change", (e) => {
  renderProducts(e.target.value);
});
```

Output:

• Initially, all products are displayed.
• When a category is selected, only products belonging to that category are displayed.





Conclusion:

Thus, we successfully created a dynamic product filter using JavaScript DOM manipulation, which updates the product list based on the selected category from a dropdown menu.