Assignment-4: Filter Method

Note:Use javascript filter method to solve these problems.

Introduction to the `filter()` Method

The JavaScript `filter()` method is used to create a new array containing only the elements that satisfy a specified condition. It does not modify the original array but returns a new one with the filtered elements.

Syntax:
const newArray = array.filter(callbackFunction);

- `callbackFunction` runs for each element in the array.
- If the callback function returns `true`, the element is included in the new array.
- If it returns `false`, the element is excluded.

Example:
let numbers = [1, 2, 3, 4, 5, 6];
let even_Number = numbers.filter(num => num % 2 === 0);
console.log(even_numbers); // Output: [2, 4, 6]

Assignment Questions

1.Identifying Even-Numbered Employee IDs
A company has a list of employee IDs. Filter out only those with even numbers.

let employeeIDs = [101, 102, 103, 104, 105, 106, 107, 108, 109, 110];

2.Finding Short-Named Customers for a Loyalty Program
A shopping mall wants to send a personalized gift to customers whose names have fewer than 5 characters. Filter out such names.

const customers = ["Amit", "Raj", "Vikas", "Sanjay", "Priya", "Rohan"];

3.Filtering Out Defective Products

A warehouse stores product quality ratings, where negative numbers indicate defective products. Remove all defective products.

```
const productRatings = [-5, 8, -2, 10, 3, -7, 6];
```

4.Cleaning Up a List of User Input Values

An online form collects user responses, but some values are missing or invalid (falsy). Remove all falsy values before storing the data.

```
const responses = [0, "Yes", "", undefined, null, "No", NaN, false, "Maybe"];
```

5.Finding Products with the Letter 'A' in the Name

A supermarket wants to highlight products that contain the letter 'a' in their names.

```
const products = ["Apple", "Banana", "Grapes", "Mango", "Kiwi", "Papaya"];
```

6.Selecting High-Achieving Students for a Scholarship

A university wants to offer scholarships to students with a GPA higher than 3.5.

```
const students = [
 { name: "Neha", gpa: 3.5 },
 { name: "Rahul", gpa: 2.8 },
 { name: "Anjali", gpa: 3.9 }
];
```

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7.Finding In-Stock Grocery Items

A grocery store wants to show only available items on its website.

```
const groceries = [
 { name: "Milk", stock: 10 },
```

```
  { name: "Eggs", stock: 0 },
  { name: "Bread", stock: 5 }
];
```

8.Filtering Out Multi-Promotion Products

A store wants to find products that are eligible for both seasonal and special discount promotions (divisible by both 3 and 5).

```
const productDiscounts = [10, 15, 20, 30, 45, 50, 60];
```

9.Extracting Gmail Users for an Email Campaign

A company is sending promotional emails and needs to filter out customers using Gmail.

```
const users = [
  { name: "Aryan", email: "aryan@gmail.com" },
  { name: "Suresh", email: "suresh@yahoo.com" },
  { name: "Meena", email: "meena@gmail.com" }
];
```

10.Eliminating Duplicate Orders in an E-Commerce System

An e-commerce system has duplicate order IDs that need to be removed.

```
const orderIDs = [1001, 1002, 1002, 1003, 1004, 1004, 1005];
```

11.Filtering Out High-Paid Engineering Employees

A company wants to analyze employees in the Engineering department earning more than ₹50,000.

```
const employees = [
  { name: "Siddharth", salary: 60000, department: "Engineering" },
  { name: "Kavita", salary: 45000, department: "Marketing" },
```

```
  { name: "Manoj", salary: 70000, department: "Engineering" }
];
```

12.Finding Best-Selling Books After 2000

A bookstore wants to recommend books published after 2000 with a rating of at least 4.0.

```
const books = [
  { title: "Ramayana", year: 1999, rating: 4.5 },
  { title: "Mahabharata", year: 2005, rating: 3.8 },
  { title: "Bhagavad Gita", year: 2010, rating: 4.2 }
];
```

13.Identifying Weekend Travel Dates

A travel agency wants to list only weekend travel dates for customers.

```
const travelDates = ["2025-02-24", "2025-02-25", "2025-02-26", "2025-02-27", "2025-02-28",
"2025-03-02"];
```

14.Filtering Current Year Transactions for Tax Reports

A financial institution needs to filter out transactions from 2024 for tax reporting.

```
const transactions = [
  { id: 1, amount: 2000, date: "2024-01-10" },
  { id: 2, amount: 3000, date: "2023-05-15" },
  { id: 3, amount: 1500, date: "2024-02-20" }
];
```

15.Detecting Palindromic Usernames

A gaming platform wants to find usernames that are palindromes.

```
const usernames = ["nayan", "radar", "ganga", "kiran", "malayalam"];
```