Task 5: Filtering Numbers using Higher-Order Functions

Objective:

Create a function that uses a higher-order function to filter an array of numbers based on different criteria. The function should take an array as input and use the `filter` method to achieve this.

Pre-requisites:

- Basic JavaScript (variables, functions, arrays)
- Higher-order functions
- Array methods (filter)

Concepts Covered:

- Higher-order functions
- Array methods
- Functional programming in JavaScript

Setup:

Install Node.js:

- Ensure Node.js is installed on your machine. You can download it from nodejs.org.

Tasks:

1. **Create Filtering Function:**
   - **Task:**
     - Define a function named `filterNumbers`.
     - The function should take an array of numbers and a filtering criterion as input.
     - Use the `filter` method to filter numbers based on the given criterion.
     - The function should return a new array containing the filtered numbers.
   - **Outcome:**
     - Ensure the function filters numbers correctly based on the given criteria and returns a new array.

Example:

JavaScript File (`filterNumbers.js`):

```javascript
// Define the filterNumbers function
function filterNumbers(arr, criterion) {
    switch(criterion) {
        case 'even':
            return arr.filter(num => num % 2 === 0);
        default:
            return arr;
    }
}
```

```
    }

// Example Usage:
console.log(filterNumbers([1, 2, 3, 4, 5, 6], 'even')); // Output: [2, 4, 6]
console.log(filterNumbers([1, 2, 3, 4, 5, 6], 'odd'));  // Output: [1, 3, 5]
console.log(filterNumbers([-1, -2, 3, 4, -5, 6], 'negative')); // Output: [-1, -2,
-5]
```

Instructions:

- **Perform the following tasks:**
    - Write the required code in `filterNumbers.js` .
    - Run the file using Node.js to ensure the code executes without errors and demonstrates the use of higher-order functions and array methods.

Example Input:

1. `filterNumbers([1, 2, 3, 4, 5, 6], 'even')`

Expected Output:

1. `[2, 4, 6]`

Resources:

- **Grammar and types - JavaScript | MDN**
  This chapter discusses JavaScript's basic grammar, variable declarations, data types and li...
  https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Grammar_and_types#declarations

- **Higher-Order Functions :: Eloquent JavaScript**
  https://eloquentjavascript.net/05_higher_order.html

- **Array.prototype.filter() - JavaScript | MDN**
  The filter() method of Array instances creates a shallow copy of a portion of a given array, f...
  https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/filter

Videos:
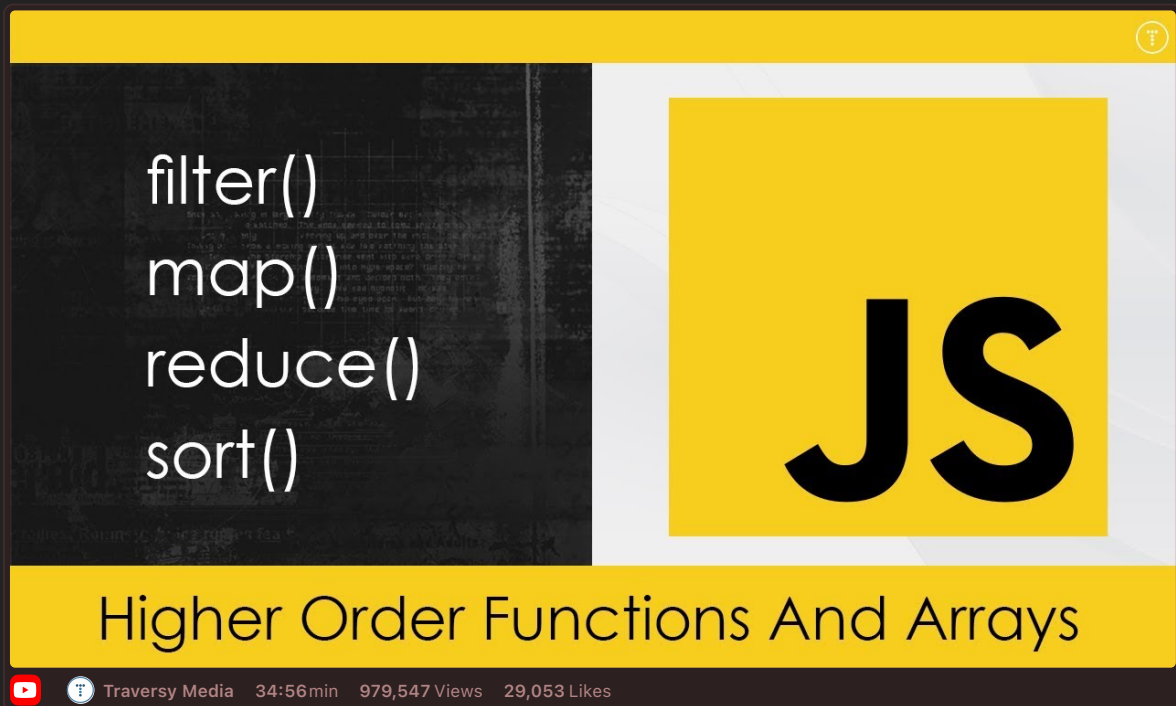
GitHub Instructions:

1. **Open in Visual Studio Code:**
   - After clicking on the "Open in Visual Studio Code" button from the GitHub Classroom confirmation page, Visual Studio Code (VSCode) will open the repository directly.
   - If prompted, select "Open" or "Allow" to open the repository in VSCode.

2. **Open the Terminal in VSCode:**
   - In VSCode, open a terminal by selecting Terminal > New Terminal from the top menu.

3. **Complete the Task:**
   - In VSCode, write your solution in the `filterNumbers.js` file.

4. **Run and Test Your Code:**
   - In the VSCode terminal, navigate to the directory containing `filterNumbers.js`.
   - Run your code to ensure it works correctly. Use the following commands:

     ```
     node filterNumbers.js
     ```

5. **Commit Your Changes:**
   - In the VSCode terminal, add your changes to git:

     ```
     git add filterNumbers.js
     ```

   - Commit your changes with a meaningful message:

created with ◈ craft

```
git commit —m "Completed task 3"
```

6. **Push Your Changes to Your Repository:**
   - Push your changes to your forked repository:

```
git push origin main
```

7. **Create a Pull Request:**
   - Go to your repository on GitHub.
   - Click on the "Pull Requests" tab.
   - Click the "New Pull Request" button.
   - Ensure the base repository is the original template repository and the base branch is `main`.
   - Ensure the head repository is your forked repository and the compare branch is `main`.
   - Click "Create Pull Request".
   - Add a title and description for your pull request and submit it.

Summary of Commands:

```
# Open in Visual Studio Code

# Open terminal in VSCode

# Complete the task by editing filterNumbers.js

# Navigate to the directory containing filterNumbers.js
cd path/to/your/filterNumbers.js

# Run your code
node filterNumbers.js

# Add, commit, and push your changes
git add filterNumbers.js
git commit —m "Completed task 3"
git push origin main

# Create a pull request on GitHub
```