

Stack, Queue and Files Task

Stack

◆ Easy

1. Reverse a String Using Stack

Input a string from the user and print its reverse using a stack.

2. Evaluate Postfix Expression

Evaluate an expression like "5 3 + 8 *" using a stack and print the result.

◆ Medium

3. Browser History Navigation

Implement a simple browser history using a stack of links (strings). When the user navigates to a new page, it's added to the stack. When the user clicks the "back" button, the last visited page is popped from the stack.

4. XML/HTML Tag Validator

Validate whether all HTML or XML tags in a file are properly nested and closed using a stack (e.g., `<div><p></p></div>` is valid, but `<div><p></div></p>` is not).

Queue

◆ Easy

1. Rotate Queue Elements by K

Given a queue and a number K, rotate the elements of the queue K times to the left.

Example: Queue: 1 2 3 4 5, K=2 → 3 4 5 1 2

2. Sort a Queue Using Only Queue Operations

Sort the elements in a queue without using arrays or lists—only another queue and basic comparisons.

◆ Medium

3. Sliding Window Maximum Using Queue

Given an array and a window size k, find the max of each window using a queue.

Example: arr = [1,3,-1,-3,5,3,6,7], k = 3 → Output: [3,3,5,5,6,7]

📁 File Management (Read, Write, Info) – 6 Problems

◆ Easy

1. Write Names to File

Take 5 names from user input and write them to a file line by line.

2. Search for a Word in a File

Ask the user for a word, and search if it exists in a file. Print the line numbers where it was found.

◆ Medium

3. **Count Lines, Words, and Characters**

Read a file and count how many lines, words, and characters it contains.

4. **Word Frequency Counter**

Read a file and count how many times each word appears. Display the results sorted by frequency.

5. **Filter and Save Specific Lines**

From a file with multiple lines, extract only lines that contain a specific keyword (e.g., "error") and save them to errors.txt.

▲ Advanced

5. **Split and Merge Files**

Write a program to split a large text file into multiple small files and then merge them back into the original format.