Practice Lessons

Oct. 23 2025

1). Partition List

Reference: https://leetcode.com/problems/partition-list/description/

- Given an ordered sequence `str` of integers and an integer `x`, partition it such that all nodes less than `x` come before nodes greater than or equal to `x`.

- **Requirement:**
  - You should **preserve the original relative order** of the nodes in each of the two partitions.
  - Use **singly linked list** to store the input and process it.

Input

- Integers separated by space; the last one is the '`x`'.

Output

- The well separated sequence (numbers separated by space).

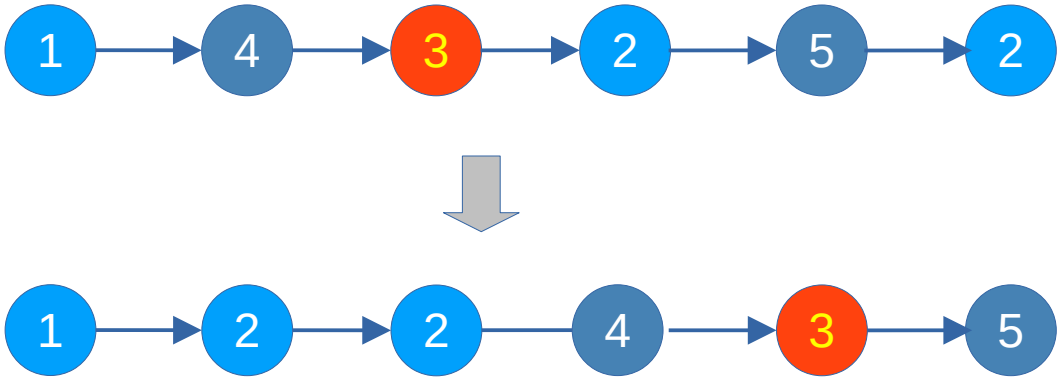
Sample input & output

Input

```
1 4 3 2 5 2 3
```

Output

```
1 2 2 4 3 5
```



2). Polynomial Multiplication

- Refer to the algorithms in the slides (polynomial addition):

  https://josephcclin.github.io/courses/data_structures/slides/ds_linked_list_part2.pdf

  - Using the codes (pseudo-codes) for polynomial **addition** to implement the polynomial multiplication.

Input and Output Format

Input (until EOF):

NUMBER_TERMS

float coefficients separated by space

integer exponents separated by space

NUMBER_TERMS

float coefficients separated by space

integer exponents separated by space

Sample Input & Output

- Sample input:

```
2
2 1
4 3
3
1 3 1
4 2 0
```

- Sample output:

```
6
2 1 6 3 2 1
8 7 6 5 4 3
```

Note: You must use linked lists to represent polynomials.