Lab: Combinatorial Problems

This document defines the lab for the "Algorithms – Fundamentals (C#)" course @ Software University.

Please submit your solutions (source code) to all below-described problems in Judge.

1. Permutations without Repetitions

Given a set of elements, find all permutations without repetitions.

Examples

Input	Output
A B C	A B C A C B B A C B C A C B A C A B
A B	A B B A

2. Permutations with Repetitions

Given a multi-set of elements, find all permutations.

Examples

Input	Output
A B B	A B B B A B B B A

3. Variations without Repetitions

Given a set of elements, find all variations of k elements without repetitions.

Examples

Input	Output
A B C 2	A B A C

Follow us:

	B A
	B C
	C A
	C B

4. Variations with Repetition

Given a set of elements, find all variations of k elements with repetitions.

Examples

Input	Output
A B C 2	A A A B A C B A B B B C C A C B C C

5. Combinations without Repetition

Given a set of elements, generate all combinations of k elements without repetition.

Examples

Input	Output
A B C 2	A B A C B C

6. Combinations with Repetition

Given a set of elements, generate all combinations of k elements with repetition.

Examples

Input	Output
A B C 2	A A A B

	A C
	B B
	B C
	C C

7. N Choose K Count

Given a **n** and **k**, calculate the number of possible **n choose k** combinations (without repetition).

Examples

Input	Output
3 2	3
5 3	10

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