C++ Fundamentals – Exam Preparation

What does this document defines and describes?

1. Reverse words

Write a program that reads **lines** of **space separated words** from the standard input (until "end" word is met), reverse the order of all given words and outputs the result to the standard output (**words should be space-delimited**).

Examples

Input	Output
Hello there How are you end	you are How there Hello
end	"" (empty)
I did not quite understand that end	that understand quite not did I

2. Numeral System

Write a program that reads the digits of a base-10 numeral system – exactly 10 unique non-space characters on a single line, representing the symbols used for the digits 0-9 (inclusively) – then reads two numbers represented in that numeral system, then prints their sum in that numeral system.

Examples

Input	Output	Explanation
abcdefghij cba ja	daa	a=0, b=1, …, j=9 cba = 210 ja = 90 90 + 210 = 300 = daa
0123456789 42 512	554	Numeral system matches normal base-10 (0=0, 1=1, …, 9=9)
qwertyuiop popiu tutiy	wtytyw	q=0, w=1, …, p=9 popiu = 98976 tutiy = 46475 98976 + 46475 = 145451 = wtytyw

3. Ultimate Reverse words (it's over 9000)

Write a program that reads **lines** of space separated words from the standard input (until "end" word is met), **reverse the order*** of all given words (with the same size) and outputs the result to the standard output.

NOTE: the reverse of words follows a special procedure:

- Only words with the same character count are swapped;

- The first word containing 1 letter should be swapped with the last(**N**) word containing 1 letter. The second word with 1 letter should be swapped with the one before the last (**N - 1**) word container 1 letter.
- The same goes for 2 letter words, 3 letters words … **N** letter words;
- Punctuation should remain in the same place. (commas, dots, question marks, etc …);
- After the reverse all sentences should again start with capital letters. All other letters should be lowercase;

Examples

Input	Output	Explanation
Dude, what is this nightmare of a task!	Task, this of what nightmare is a dude!	First 4 letter word “Dude” swapped with last one “task”. Second 4 letter word “what” swapped with one before last “this” First 2 letter word “is” swapped with last one “of” “Task” transformed to “task”; “dude” transformed to “Dude”
Testing, testing, read all about it.	Testing, testing, read all about it.	Testing <-> testing
I can not believe - that a simple c++ program could have crashed so many times.	A c++ not crashed - many i simple can program times have believe so that could.	I <-> a can <-> c++ many <-> that times <-> could crashed <-> believe
Don’t hate the player – hate the game!	Don’t game the player – hate the hate!	hate <-> game the <-> the