

**Intermediate Division
Data Compression**

PROBLEM: Wikipedia defines data compression as “the process of encoding information using fewer bits than an unencoded representation would use through the use of specific encoding schemes.” If you download files, you are familiar with .zip and .jar formats that compress the original file in order to make the transfer time faster.

In the article “How File Compression Works” by Tom Harris on the web site howstuffworks.com, Mr. Harris notes that most types of computer files are redundant. That is they have the same information listed over and over again. Think back to how many IF-THEN statements you used to solve the Contest #1 program.

John F. Kennedy’s famous 1961 speech contained the following famous line: “ASK NOT WHAT YOUR COUNTRY CAN DO FOR YOU – ASK WHAT YOU CAN DO FOR YOUR COUNTRY.” The line has 17 words, 61 letters, 17 spaces, one dash and one period. To compress the line, you need to look for redundancies. The following table summarizes the data:

WORD	COUNT
ASK	2
NOT	1
WHAT	2
YOUR	2
COUNTRY	2
CAN	2
DO	2
FOR	2
YOU	2

The line using redundant compressed format can be compressed as follows:

2ASK1NOT2WHAT2YOUR2COUNTRY2CAN2DO2FOR2YOU1–1.

INPUT: There will be 5 lines of input. Each will be a string containing words, spaces and punctuation. Data can’t be entered one character at a time. It must be entered as one string.

OUTPUT: Print the string in redundant compressed format. Note that the words are listed in the order that they first appear and punctuation is printed at the end of the string again in the order that it first appears.

SAMPLE INPUT

1. YES I CAN! YES I CAN! YES I CAN!
2. SHE LOVES YOU! YEAH! YEAH! YEAH!
3. SEA SHELLS SEA SHELLS BY THE SEA SHORE.

SAMPLE OUTPUT

1. 3YES3I3CAN3!
2. 1SHE1LOVES1YOU3YEAH4!
3. 3SEA2SHELLS1BY1THE1SHORE1.