

18 Intelligence Service

6 points

Introduction

An encrypted message has been received here by the HP Intelligence Service. We need to be able to understand the encrypted messages, and we need a fast way to do it. Our experts have found how sentences are encrypted.

1. Each letter in the sentence is replaced by the following letter in the alphabet. That is, an **A** would be replaced by a **B** (**Z**, then, will be replaced by **A**).
2. Each word in the sentence transformed in the following way:
 - a. Divided in two equally long parts (**ABCD** → **AB CD**)
 - b. Each side is reversed (**AB CD** → **BA DC**)
 - c. The two parts are put together again (**BA DC** → **BADC**)
 - d. If the word has an odd number of letters (e.g. 5) then you have to divide the word leaving the middle letter invariable in the process. That is (**ABCDE** → **AB C DE** → **BA C ED** → **BACED**)

Program a decoder that receives the encrypted sentence as an input and returns the original message.

Input

The input of the program will be only one sentence. The sentence will not contain neither punctuation marks, nor symbols different than letters. All letters will be uppercase.

MFXDFNP UP IQ

Output

The program must output the decrypted message.

WELCOME TO HP

