## Introduction

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| |  | | --- | | problem **0** | | **Coderian Cipher** | | y points | |  |
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Our ongoing battle with the Coderians is in full force. Every day, they continue to undermine our efforts by stealing our best lunchtime offerings (yes, it’s a restaurant war.) Each morning their headquarters sends an encoded message to their stores giving them the instructions for one of our newest specials.

We’ve managed to receive a copy of today’s message. Also, with the aid of a high-powered telescope and a fluttering window curtain, we were able to see the keyboard where the decoded message was being typed. Unfortunately, we only recorded a few successive letters before our view was blocked. We know the code is a simple alphabet-shift (for example, with a 3 letter shift, ‘A’ becomes ‘D’, ‘B’ becomes ‘E’, etc.), but we don’t have time to try all possibilities. Hopefully, you will be able to decode the message so we can quickly promote our latest creation and expose their espionage before lunch.

Your program should accept as input an alphabet-shifted encoded sentence of capital letters. The last two words will be the word KEY, followed by the captured series of decoded letters. The key letters follow each other consecutively, but their location could be anywhere in the sentence, from within a single word or across words (disregarding spaces.)

Your program should use the key letters to determine the size of the alphabet shift, then output the complete decoded message.

# Example Input

XYVOIC ERH FSCWIRFIVVC SR VCI AMXL E WMHI SJ XYRE WEPEH

KEY YONR

# Example Output

TURKEY AND BOYSENBERRY ON RYE WITH A SIDE OF TUNA SALAD

Here, the key is seen spanning the third through fifth words. This code had a shift of four letters: i.e. every “A” became “E”, and every “Y” became “C”. Decoding required shifting back four letters.