

Word Game Application

Players must enter **exactly three words**, and the system should generate a “mystery code” using the following rules:

1. If the player enters anything other than **three alphabetic words**, the system must display "**Invalid input**".
2. If **all three words have the same length**, the system should combine them by taking characters alternately from each word (e.g., $w1[0], w2[0], w3[0], w1[1], w2[1], w3[1], \dots$).
3. If the words have **different lengths**, the system must:
 - o Identify the **shortest word**.
 - o For each index i in the shortest word, append the character from the shortest word first, followed by characters from the other two words at index i .
4. Once the combined string is formed:
 - o If its length is **even**, reverse the string and append its length at the end.
 - o If its length is **odd**, move the first **two characters to the end** and prefix the length.
5. The final output must always be displayed in **lowercase**.

Input

Enter three words

abc def ghi

Output

9gbehcfiad

Input

Enter three words

hi code play

Output

loipch6

Input

Enter three words
flower sun plant

Output

unstlfwopa3

Input

Enter three words
cat ball pen

Output

pbecalatn3