Problem H
Howl
Problem ID: ../howl

Returning to the Beautiful Gloomy Outback (BGO) after a strenuous trip to the city, you hear a faint howl in the distance. Instantly you realize it is your friend Fenrir inviting you to a howling contest.

In order to make an impressive howl that wins the contest, you know that your howl must fulfill the following criteria in order to be valid:

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- It must consist of a combination of the letters A, H, O and W. Each letter must occur at least once.

- The howl can not contain two consecutive W's, or two consecutive H's.

- The howl can not contain an H followed immediately by a W or an A.

- There can never be an A after the first occurrence of an O.

Can you produce a longer howl than Fenrir and win the contest?

Input

The first and only line of input contains a single word, the howl of Fenrir. Since Fenrir is a proper wolf, his howls are always valid. Writing down Fenrir's howl will require at most 1 MB of computer memory.

Output

A valid howl which will win the howling contest.

Sample Input 1	Sample Output 1
AAHOOW	AWAWHOO