Problem 8: Hidden Signature – A TESTING PROBLEM

Overview

Security researchers often report that they have identified the author(s) of a particular piece of malware by finding the author’s signature within the code. So, why would any author ever do such a thing? Well, some certainly do it out of vanity or a desire for notoriety, but in other cases, companies will do it to protect intellectual property. Apple computer is famous for including “Stolen from Apple Computer” Easter eggs within its software and/or ROM chips.

In a similar vein, “signatures” of virus code are often used to scan hard disks to determine possible infections.

Problem

In this problem, you will be given a potential signature and a potential piece of code. It is your job to determine if that signature is found within the code. For purposes of this problem, the signature is considered to be present if ALL OF its individual characters are found within the sample code IN THE SAME ORDER OF APPEARANCE, although they DO NOT NECESSARILY have to be CONSECUTIVE. For instance, “program” can be found within “please recognize our attempts to be clever”. [Solution: “please recognize our attempts to be clever.”] Note that some or all letters may be consecutive and that there may be more than one way to find the signature. All we are detecting is whether or not ANY solution exists. Matches are defined to be case sensitive, i.e. ‘d’ does not match ‘D’.

Input

The input consists of two non-empty lines of text. The first contains the signature for which we are searching. The second contains the code base through which we are searching it. No newline characters will appear in either string. Both lines will contain fewer than 1024 characters.

Output

The output consists of a single phrase, formatted as in the examples, indicating whether or not a match has been found.
Example 1

**Input**

program
please recognize our attempts to be clever

**Output**

Signature found

Example 2

**Input**

aa bb cc
abcdefg abcdefg abcdefg

**Output**

Signature NOT present

About TESTING PROBLEMS

YOU ARE NOT TO WRITE A SOLUTION TO THIS PROBLEM!!!!

Rather, a flawed solution to this problem exists on the web page referenced by the submission program on your desktop. You must determine an input set for which our solution gives the wrong answer. You will also need to supply the correct output for the input that you submit. Once you have determined these, you must fill in the fields on the web page and submit your answer.