Problem D. Cycle String?

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Great wizard gave Alice and Bob a cycle string of length $2 \cdot n$, which has no repeated substrings of length n. In a cycle string, character s_{i+1} comes after s_i. Also, s_1 comes after s_{2n}.

Unfortunately, evil gin shuffled all the symbols of the string. Help Alice and Bob restore the original string so that the above condition is satisfied.

Input

The first line contains one string s of length $2 \cdot n$ ($2 \le 2 \cdot n \le 1\,000\,000$) which consists only of the lowercase Latin letters.

Output

Print "`NO`" (without quotes) to the first line if it is impossible to restore the string so that the condition is satisfied. Otherwise, in the first line print "`YES`" (without quotes).

In the second line print one string — the restored string.

If there are multiple answers, print any.

Examples

standard input	standard output
`cbbabcacbb`	`YES` `abbabcbccb`
`aa`	`NO`
`afedbc`	`YES` `afedbc`

Note

In the first example, substrings of the restored string are: "`abbab`", "`bbabc`", "`babcb`", "`abcbc`", "`bcbcc`", "`cbccb`", "`bccba`", "`ccbab`", "`cbabb`", "`babba`".

Note that the first example does not contain repetitions, however it can be rewritten as another cycle with no repetitions. Thus, the solution is not unique — the given example is also a correct solution.

In the second example, it is impossible to restore the string so that no repetition exists.

In the third example, there is no need to change anything.