Pretty subwords

Kasia and Kasia have a pretty string s of length n. They know that its subwords (consecutive subsequences) are also pretty, the longer they are the better. They want to choose two disjoint subwords from their string. Since Kasia and Kasia are identical, they want their subwords to be identical as well. What's the biggest possible length of such disjoint subwords?

Input

```
n
s
```

Output

Output one number - the biggest possible length of two identical disjoint subwords of s.

Scoring

Subtask	Constraints	Points
1	$n \leq 500$	22
2	$n \leq 200'000$	70
3	$n \leq 1'000'000$	8

Example

Input	Output
15 bbacbacbacdbaca	3
21 kkkasiakacperkasiakkk	6
26 abcdefghijklmnopprstuvwxyz	1