

Necronomicon

June 2022

C++ — 1 SEC — 512 MB

The Book Club at the Guild of Sorcerers is a highly respected society. Last month, its members were scrutinising the scrolls of Plato; the month prior, they were perusing the plays of Shakespeare.

This month, they want to tackle something different. Dredged up from the depths of the Forbidden Library, numerous copies of the Necronomicon have been discovered. The knowledge in the leaves of this book is strictly proscribed, but, fortuitously, the writing is indecipherable.

Legend has it that the Necronomicon is brimming with indomitable spells capable of transfiguration, transmutation, and resuscitation. To prevent the unworthy from attempting to wield such power, the spells have been cunningly hidden within the passages. A substring of characters is a spell if it also appears reversed in the passage. Whispers of rumours claim that a substring may overlap with its reversed occurrence.

All good sorcerers know that the longer the spell, the greater its potency. All of the Book Club members have been challenged to find the most potent spell in their copy of the Necronomicon.

INPUT You will be given an integer n , followed by a string of n uppercase letters - a passage from the Necronomicon.

$1 \leq n \leq 10,000$

OUTPUT Output a string, the most potent spell contained in the Necronomicon passage. If multiple exist, output any one of them.

SAMPLE For example, suppose the passage is ABDEFGHIJJKOWKKJIHEDCBA. This text contains multiple spells, the most potent of which is HIJKK.

INPUT	OUTPUT
5 AAAAA	AAAAA
12 AKISDFUSIDKA	SI
20 KDHFGDHSJDHJFHGJFDHS	HF