# Competitive Programming SS23

## Submit until end of contest

**Problem: frenzy** (1.0 second timelimit)

*Note:* This is a problem that is harder to solve than usual. Solve the other problems first before spending too much time on this one.

Oh boy, it happened again. Without daily exercise your trained combat snail Brutus fell into a frenzy. Extrapolating her current movement through the living room, you fear that she will savagely ransack your precious collection of lexicographically large strings. As always, her rage is primarily directed against characters that appear multiple times in a string. During the misappropriation of each of your strings she will repeatedly devour one of those duplicated characters until all characters are distinct. Nothing can stop Brutus from unleashing her wrath upon the helpless strings. But you can still subtly guide her aggression by making some characters more tempting to eat. Use a little bit of MSG to limit the losses.

**Input**   The input contains a strings of at most $5 \cdot 10^5$ lowercase Latin letters.

**Output**   The lexicographically largest string you can make Brutus leave behind.

**Sample input**

    brutus

    abacaba

    nasosaepessn

    monosodiumglutamate

    ilikewriting

    nevergonnagiveyouup

    momsspaghetti

**Sample output**

    bruts

    cba

    soapen

    onsdiumgltae

    lkewrting

    vronagieyup

    omspagheti