# 1 Partial DNA

## Description

Given a long sequence of DNA as a string, output the first 10 chars followed by three dots followed by the last 10 chars.

## Note

We are using a file input (use FILE, fopen, fscanf) and the standard console output (printf).

## Input Format

You are given a string whose length is at least 20 bytes long, consisting only of A, C, G, and T.

## Output Format

Output as described.

## Sample Input (input.txt)

```
ACACAGGGTTAAAAATTTCG
```

## Sample Output

```
ACACAGGGTT...AAAAATTTCG
```

# 2   Random Mutation

## Description

You are given two long sequences of DNAs as two strings. The two strings are called $A$ and $B$ for convenience, and their length is equal, being $n$. You are going to mutate them at random as follows:

- Pick a number $l$ at random which specifies the length of substrings being mutated - note that $l$ should be between 1 and $n$

- Pick a number $a$ at random, at which the mutation starts in string $A$ - note that $a$ should be between 0 and $n - l$

- Pick a number $b$ at random, at which the mutation starts in string $B$ - note that $a$ should be between 0 and $n - l$

- Finally, you are going to mutate $A$ and $B$ to get a new string $A'$ and $B'$ by swapping the substring $A[a..(a + l - 1)]$ and $B[b..(b + l - 1)]$

## Note

We are using a file input (use FILE, fopen, fscanf) and the standard console output (printf).

## Input Format

You are given two strings whose length is equal and at least 20 bytes long, consisting only of A, C, G, and T.

## Sample Input (input.txt)

```
ACACAGGGTTAAAAATTTCG
TAGACAGTACTGACTAATGC
```

## Sample Output

```
A: ACACAGGGTTAAAAATTTCG
B: TAGACAGTACTGACTAATGC
Random numbers: l = 4, a = 0, b = 10
    01234567890123456789
A': TGACAGGGTTAAAAATTTCG
B': TAGACAGTACACACTAATGC
```