Mutating the NBA

Professor Farnsworth has once again descended into a moronic battle of science and wits against his arch nemesis Professor Wernstrom, though this time it is a battle of honour on the basketball court. The Professor has decided to create a team of undefeatable mutants very unlike but not quite dissimilar to the ones he used to fight the Globetrotters to defend earths dignity. His diabolical scheme is to use the DNA of the best NBA players to manufacture the perfect team. But he wants to use players who have a varied expertise to make sure that each mutant is the best possible one for the team composition.

Help the Professor so that he is best able to analyze the sequence of any two players.

Input Format

The input consists of two lines, where each sequence a and b are the DNA sequence of the players.
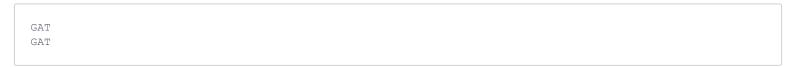
Constraints

$1 \le |a|, |b| \le 3100$

You have to use the DP algorithm to solve this problem, as described in class.

Output Format
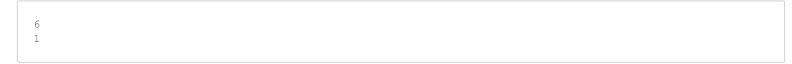
First output the optimal score of aligning the two sequences. Assume that scoring matrix adds 2 to the score for a match and -1 for a mismatch.

Then output the number of best alignments possible for the two sequences. Because the number of alignments can be very large, output them modulo $10^9 + 9 = 1000000009$
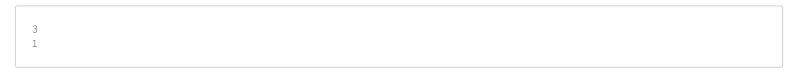
Sample Input 0

```
GAT
GAT
```

Sample Output 0

```
6
1
```

Sample Input 1

```
CAG
AAG
```

Sample Output 1

```
3
1
```

Sample Input 2

```
ACGCCG
ACCACG
```

Sample Output 2

```
8
1
```