4. DNA

Program Name: DNA.java   Input File: dna.dat

Each strand of DNA is built out of four nucleotides (or bases) called adenine (A), thymine (T), cytosine (C), and guanine (G). Genetic information is determined by the sequence of bases along the strand.

In this problem, you will find the longest common base sequence in two strands of DNA. Each strand is represented by the sequence of letters A, T, C, and G. For example, in the two strands ACTG and TGCA the longest common sequence is TG. The two strands need not have the same length. It is quite possible for the two strands to have no common sequence (a sequence of 1 base does not count) but in no case will the two strands have more than one longest common sequence.

Input
The first line will contain a single integer n that indicates the number of pairs of DNA strands that follow. Each pair of DNA strands will occupy two separate lines, one strand per line. There will be 2n lines to represent all the DNA strands.

Output
For each pair of DNA strands, you will print the length of the longest common sequence followed by a space and then the longest common sequence found. If there is no common sequence your output will be 1.

Example Input File
```
2
ATGGCATAAGTAT
TGCAGCTGCATCAGGAT
ACTG
TGCA
```

Example Output to Screen
```
4 GCAT
2 TG
```