Coin Flipper

Micah wants to know if he flips his new gold coin 40 times, how many times will he get a any specific 3 coin sequence. TTT,TTH,THT,THH,HTT,HTH,HHT,HHH

Input Format

The first line will contain a single integer **P** (1<=**P**<=100), which is the number of data sets. Each data set contains 2 lines the first line containing the data set number and the second line contaning the sequence. This sequence will always be a 40 character string. This string wiull only be made up of H and T, strictly uppercase.

Constraints

At most there will 100 data sets, and the sequence is only made up of H and T.

Output Format

The output should be the data set number followed by the 8 3-digit sequence frequencies separated by spaces.

Sample Input 0

```
4
1
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
2
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
3
HHTTTHHTTTHTHHTHHTTHTTTTHHHTHTTHTTHTTTHTH
4
HTHTHHHTHHHTHTHHHHTTTHTTTTTHHTTTTTHTHHHHT
```

Sample Output 0

```
1 0 0 0 0 0 0 0 38
2 38 0 0 0 0 0 0 0
3 4 7 6 4 7 4 5 1
4 6 3 4 5 3 6 5 6
```