Marwadi University	**Marwadi University** **Faculty of Technology** **Department of Information and Communication Technology**	
Sem : 5	**Name :Pushti Depani**	
Day : 3	**Date : 19/10/2022**	**Enrolment No: 92000133018**

Competitive Programming Club

Date – 19/10/2022

Programming language - Your Preferable language

Problem Statement

Nobita has **N** strings. Each string consists only of letters from `A` to `Z`. Nobita would like to bundle their strings into *groups* of size **K**. Each string must belong to exactly one group.

The *score* of a group is equal to the length of the longest prefix shared by all the strings in that group. For example:

- The group `{RAINBOW, RANK, RANDOM, RANK}` has a score of 2 (the longest prefix is `'RA'`).
- The group `{FIRE, FIREBALL, FIREFIGHTER}` has a score of 4 (the longest prefix is `'FIRE'`).
- The group `{ALLOCATION, PLATE, WORKOUT, BUNDLING}` has a score of 0 (the longest prefix is `''`).

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case begins with a line containing the two integers **N** and **K**. Then, **N** lines follow, each containing one of Nobita 's strings.

Output

For each test case, output one line containing `output -x: y`, where `x` is the test case number (starting from 1) and `y` is the maximum sum of scores possible.

$1 \leq T \leq 100$.

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2 ≤ N ≤ 10^5.
2 ≤ K ≤ N.
K divides N.
Each of Nobita 's strings contain at least one character.
Each string consists only of letters from A to Z.

- Test set 1
`Each of Nobita 's strings contain at most 5 characters.`

- Test set 2
`The total number of characters in Nobita 's strings across all test cases is at most 2 × 10^6.`

Sample

- Input 1:
8 2
G
G
GO
GO
GOO
GOO
GOOO
GOOO
```

- testcase- 1:

output -: 10

- Input 2:
1
6 3
RAINBOW
```

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FIREBALL
RANK
RANDOM
FIREWALL
FIREFIGHTER
```

- testcase 2:
```
 Output 6
```

**Explaination**

 In Sample output -2, Nobita can achieve a total score of 10 by make the groups:
 - `{G, G}`, with a score of 1.
 - `{GO, GO}`, with a score of 2.
 - `{GOO, GOO}`, with a score of 3.
 - `{GOOO, GOOO}`, with a score of 4.

* Sample #2

 In output -1, Nobita can achieve a total score of 6 by make the groups:
 - `{RAINBOW, RANK, RANDOM}`, with a score of 2.
 - `{FIREBALL, FIREWALL, FIREFIGHTER}`, with a score of 4.

**Your Code** :

**Understanding about problem :**
**This problem is mainly for the tree where we create node and sub nodes. This problem can be solved using tried method where we start from root note and**
```

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add subsequent characters. As it is mentioned that the letters are from a-z so the string will have 26 characters. If the node does not exist then create a new node and make the pointer corresponding to that node, keep on inserting the node till you reach the last node.

Note : If you can't understand the problem, feel free to contact us and we'll help you. Please don't copy and paste from anywhere.

ALL THE BEST

Team CP Club