Santa's Secret Helper

After the successful second Christmas, Santa needs to gather information about the behavior of children to plan the presents for next Christmas. He has a secret helper, who is sending him **encrypted** information. Your task is to **decrypt it** and create a list of the children who have been good.

You will receive an **integer**, which represents **a key** and afterwards some **messages**, which you **must decode** by **subtracting the key** from the **value** of **each character**. After the decryption, to be considered a valid match, a message should:

- Have a name, which **starts after '@'** and contains **only letters from the Latin alphabet**
- Have a behaviour type - **"G"(good) or "N"(naughty)** and must be **surrounded by "!"** (exclamation mark).

The order in the message should be: **child's name -> child's behavior.** They can be separated from the others by **any character except: '@', '-', '!', ':' and '>'.**

You will be receiving message until you are given the "**end**" command. Afterwards, print the names of the children, who will receive a present, each on a new line.

Input / Constraints

- The **first line holds n** – the number which you have to subtract from the characters – **integer in range [1…100];**
- On the next lines, you will be receiving encrypted messages.

Output

Print the **names of the children**, each on a new line

Examples

Input	Output	Comments
3 CNdwhamigyenumje$J$ CEreelh-nmguuejn$J$ CVwdq&gnmjkvng$Q$ end	Kate Bobbie	We receive three messages and to decrypt them we use the key: First message has decryption key 3. So we substract from each characters code 3 and we receive: @Kate^jfdvbkrjgb!G! @Bobbie*kjdrrbgk!G! @Stan#dkjghskd!N! **They are all valid** and they contain a child's name and behavior – G for good and N for naughty.
Input	**Output**	**Comments**
3 N}eideidmk$'(mnyenmCNlpamnin$J$ ddddkkkkmvkvmCFrqqru-nvevek$J$nmgievnge ppqmkkkmnolmnnCEhq/vkievk$Q$ yyegiivoguCYdohqwlqh/kguimhk$J$ end	Kim Connor Valentine	We receive four messages. They are with key 3: Kzbfabfajh!$%jkvbkj@Kim^jkfk!G! aaaahhhhjshsj@Connor*ksbsbh!G!kjdfbskdb mmnjhhhjklijkk@Ben,shfbsh!N! vvbdffsldr@Valentine,hdrfjeh!G!