

Boat Race Simulator

You have the task to write a simulator of a boat race. You will receive **two** characters, which will **represent** the two **boats**.

After that you will receive **n** random strings. Each string on an **odd** line represents the **speed** of the **first boat** and on an **even** line – the **speed** of the **second boat**. The boat **moves** with the count of the tiles, equal to the **length** of the given **string**. The **first boat**, which reaches **50 tiles** is the **winner**.

Our boats can be **upgradable**, which means when we receive the string “UPGRADE” we **add 3** to the **ASCII** codes of **both** of the boats characters and after that, we use those **characters** to represent the boats. If you receive “UPGRADE”, you should **not move** the boats.

If one of the boats **reaches 50** moves – print the character of the **winner** and **stop** taking any **input**. If **neither** of the boats reach **50** moves – print the boat, which reached the **most moves**.

Input

- On the **first line**, you will receive the **character** of the **first boat**
- On the **second line**, you will receive the **character** of the **second boat**
- On the **third line**, you will receive **n** – the number of lines, which will follow

Output

Print only the **character representation** of the **winning boat**.

Constraints

- **n** will be in the interval [1...20]
- The length of the stings will be between [1...100] characters
- At the **end**, the boats will **not** have **equal moves**

Examples

Input	Output	Comments
! (7 move need for speed go fast and furious UPGRADE stopTheBoat UPGRADE	.	First boat → '!', second boat → '(' “move” → 4 letters long → first boat (odd row) moves 4 tiles “need for speed” → 14 letters long → second boat (even row) moves 14 tiles. “go” → 2 letters long → first boat (odd row) moves 2 tiles. “fast and furious” → 16 letters long → second boat moves 16 tiles. “UPGRADE” → add 3 to '!' → upgrades to '\$', add 3 to '(' → upgrades to '+'. “stopTheBoat” → 11 letters long → second boat moves 11 tiles. “UPGRADE” → add 3 to '\$' → upgrades to '"', add 3 to '+' → upgrades to '.'. Winner – second boat → 41 moves > 6 moves → second boat wins