

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

Input	Output	Comments
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<p> E A 10 UPGRADE start driveWithTheSpeedOfLight go driveWithTheSpeedOfLightOrFaster Should not be read a Should not be read b Should not be read </p>	<p>H</p>	<p> We start with an UPGRADE and the first boat is represented by 'H' and the second by 'D' After the 5th line of input the first boat has made 50 moves and you should not take as an input the other lines. </p>
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