# Helen's Abduction

*Paris has entered Sparta and he has to fight in order to abduct the wife of Menelaus, Helen.*

After Paris got into Sparta, he has to fight his way to Helen's chamber. In order to do that, he has to walk through the city where dangerous enemies are watching out for threats, but he also has to be careful not to get exhausted and not be able to proceed with his mission. If Paris successfully reaches to her chamber, they safely escape from the Spartans.

A standard field of Sparta looks like this:

| Field of Sparta | Legend |
|---|---|
| ------H---<br>-------S--<br>--S-------<br>----------<br>-----P---- | **P ➔ Paris**, the player character<br>**S➔ Spartan, enemy**<br>**H ➔ Helen**<br>**- ➔ Empty space** |

Each turn proceeds as follows:

- **First**, Spartan **spawns** on the given indices.
- **Then, Paris** moves in a direction, which **decreases** his energy by 1.
  - It can be "**up**", "**down**", "**left**", "**right**"
  - If Paris tries to move **outside** of the field, he **doesn't** move but **still** has his energy **decreased**.
- If an enemy is on the **same cell** where Paris moves, Paris fights him, which **decreases** his energy by 2. If Paris' energy **drops** at 0 or below, he **dies** and you should mark his position with '**X**'.
- If Paris **kills** the enemy successfully, the enemy **disappears**.
- If Paris reaches the **index** where **Helen** is, **they both run away** (disappear from the field)**, even if his energy is 0 or below.**

## Input

- On the **first line** of input, you will receive **e** – **the energy** Paris has.
- On the **second line** of input, you will receive **n** – the **number of rows** the field of Sparta will consist of. Range: **[5-20]**
- On the next **n lines**, you will receive how each row looks.
- Then, **until** Paris dies, or reaches Helen, you will receive a **move command** and **spawn row and column**.

## Output

- If Paris is **runs out of energy**, print "**`Paris died at {row};{col}.`**"
- If Helen is **abducted**, print "**`Paris has successfully abducted Helen! Energy left: {energy}`**"
- Then, in all cases, **print** the **final state of the field** on the **console**.

## Constraints

- The field will always be **rectangular**.
- Paris will **always** run out of energy or **reach Helen**.
- There will be **no case** with spawn on **invalid** indices.

- There will be **no case** with **two enemies on the same cell**.
- There will be **no case** with enemy **spawning** on the indices **where Paris is**.
- There will be **no case** with enemy **spawning** on the indices **where Helen is**.

## Examples

| Input | Output | Comments |
|---|---|---|
| 100<br>5<br>--H--<br>-----<br>-----<br>-----<br>--P--<br>up 3 0<br>up 3 1<br>up 3 2<br>up 3 3 | Paris has successfully abducted Helen!<br>Energy left: 96<br>-----<br>-----<br>-----<br>SSSS-<br>----- | Turn 1: An enemy **spawns** at [3;0], Paris **moves** to [3;2], his energy **decreases** by 1.<br>Turn 2: An enemy **spawns** at [3;1], Paris **moves** to [2;2], his energy **decreases** by 1.<br>Turn 3: An enemy **spawns** at [3;2], Paris **moves** to [1;2], his energy **decreases** by 1.<br>Turn 4: An enemy **spawns** at [3;3], Paris **moves** to [0;2], his energy **decreases** by 1, but he also **moves to the index where Helen is** – they both run away. |
| 3<br>5<br>--H--<br>-----<br>-----<br>-----<br>--P--<br>up 3 2 | Paris died at 3;2.<br>--H--<br>-----<br>-----<br>--X--<br>----- | Turn 1: An enemy **spawns** at [3;2], Paris **moves** to [3;2], his energy **decreases** by 1 and **fights** the enemy at that index. Paris' energy is **decreased** by 2, dropping it to **0 or below** => Paris **dies**. |
| 3<br>5<br>--H--<br>-----<br>-----<br>-----<br>--P--<br>left 1 0<br>down 2 0<br>up 3 0 | Paris died at 3;1.<br>--H--<br>S----<br>S----<br>SX---<br>----- | Turn 1: An enemy **spawns** at [1;0], Paris **moves** to [4;1], his energy **decreases** by 1.<br>Turn 2: An enemy **spawns** at [2;0], Paris **tries to move** down, but [5;1] is an **invalid index**, so he **stays** at [4;1]. His energy still **decreases**.<br>Turn 3: An enemy **spawns** at [3;0], Paris **moves** to [3;1], his energy **drops** to 0 and he **cannot** continue his mission. |