# The Battle of the Five Armies

The five armies refer to the Goblins, Wolves, Elves, Men and Dwarves joining forces to fight off the orcs.

In order to do that, they have to go through the land and fight off the orcs. If they successfully reach Mordor, they will win the fight against the evil.

A standard map of the Middle World looks like this:

|  |  |
| --- | --- |
| **The Middle World** | **Legend** |
| ------M--- -------O-- --O------- ---------- -----A---- | **A** 🡺 The **Army**, the player character  **O**🡺 Orcs**, enemy**  **M** 🡺 Mordor  - 🡺 **Empty space** |

Each turn proceeds as follows:

* **First**, Orcs **spawn** on the given index.
* **Then, the army** moves in a direction, which **decreases** their armor by 1.
  + It can be "**up**", "**down**", "**left**", "**right**"
  + If **the army** tries to move **outside** of the field, they **don't** move but **still** have their energy **decreased**.
* If an enemy is in the **same cell** where the army moves, the army fights him, which **decreases** their armor by 2. If the army’s armor **drops** at 0 or below, they **die** and you should mark this position with '**X**'.
* If the army **kills** the enemy successfully, the enemy **disappears**.
* If the army reaches the **index** where **Mordor** is, **they win the war** (disappear from the field)**, even if their armor is 0 or below.**

## Input

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

## Output

* If the army **runs out of armor**, print "The army was defeated at {row};{col}."
* If the army **reaches Mordor**, print "The army managed to free the Middle World! Armor left: {armor}"
* Then, in all cases, **print** the **final state of the map** on the **console**.

## Constraints

* The map will always be **rectangular**.
* The army will **always** run out of armor or reach Mordor.
* There will be **no case** with spawn on the **invalid** index.
* There will be **no case** with **two enemies in the same cell**.
* There will be **no case** with enemy **spawning** on the index **where the army or Mordor is**.

## Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 100  5  --M--  -----  -----  -----  --A--  up 3 0  up 3 1  up 3 2  up 3 3 | The army managed to free the Middle World! Armor left: 96  -----  -----  -----  OOOO-  ----- | Turn 1: An enemy spawns at [3;0], the army moves to [3;2], their armor decreases by 1.  Turn 2: An enemy spawns at [3;1], the army moves to [2;2], their armor decreases by 1.  Turn 3: An enemy spawns at [3;2], the army moves to [1;2], their energy decreases by 1.  Turn 4: An enemy spawns at [3;3], the army moves to [0;2], their energy decreases by 1, but they also move to the index where Mordor is – they win the war |
| 3  5  --М--  -----  -----  -----  --A--  up 3 2 | The army was defeated at 3;2.  --М--  -----  -----  --X--  ----- |  |