Earthcraft prototype

You work in the upcoming amazing sandbox game called **Earthcraft**. The game will be played from an overhead perspective in a 2D map and it will consist on the recollection of materials to build all kind of things while you avoid enemies that will attack you.

The main designer has requested to develop a small prototype to show the base game mechanics to some investors.

In this prototype the objective will be to collect all materials without dying.

**Input**

The input to your game will be:

* The size of the map given as maximum rows and columns.
* Several positions in the map, each of them with only one of the following elements:
  + Empty - represented as '\_', by default all map is empty.
  + Player - represented as 'p', it has to be only one.
  + Material - represented as 'm'
  + Enemy - represented as 'e'
* A dot, this will help to delimitate map setup from movements.
* A sequence of movements given as a pair (±1, ±1), indicating the rows and columns to advance each round.
  + The player can only walk one position at a time in any direction.
  + If the player walks into a material position, it will be collected, when all materials are collected the game ends.
  + If the player walks into an enemy position, it will die and the game ends.

3 3 🡨 this is a 3x3 map

0 1 p 🡨 row 0 and column 1 is the player position

2 0 e 🡨 at row 2 and column 0 there is an enemy

1 2 m 🡨 at row 1 and column 2 there is a material

1 1 e 🡨 at row 1 and column 1 there is an enemy

. 🡨 From now on all inputs are movements!

1 1 🡨 Go down one row and right one column

**Output**

The output will be a matrix, showing each element and the evolution of the movements.

Initial state

|  |  |  |
| --- | --- | --- |
| \_ | p | \_ |
| \_ | e | m |
| e | \_ | \_ |

Materials collected 0/1

|  |  |  |
| --- | --- | --- |
| \_ | \_ | \_ |
| \_ | e | p |
| e | \_ | \_ |

Materials collected 1/1

You have collected all the materials! Congratulations!

*Example2 (death):*

**Input**

3 3 🡨 this is a 3x3 map

2 2 p 🡨 row 2 and column 2 is the player position

1 1 e 🡨 at row 1 and column 1 there is an enemy

0 1 m 🡨 at row 0 and column 1 there is a material

2 1 e 🡨 at row 2 and column 1 there is an enemy

. 🡨 From now on all inputs are movements!

0 -1 🡨 Go left one column, this movement will kill the player!

**Output**

Initial state

|  |  |  |  |
| --- | --- | --- | --- |
| \_ | m | \_ |  |
| \_ | e | \_ |  |
| \_ | e | p |  |

Materials collected 0/1

|  |  |  |
| --- | --- | --- |
| \_ | m | \_ |
| \_ | e | \_ |
| \_ | p | \_ |

Materials collected 0/1

You died!

*Example3 (no player):*

**Input**

2 2 🡨 this is a 2x2 map

0 0 e 🡨 at row 0 and column 0 there is an enemy

1 1 m 🡨 at row 1 and column 1 there is a material

0 1 e 🡨 at row 0 and column 1 there is an enemy

. 🡨 From now on all inputs are movements!

-1 0 🡨 Go up one row

**Output**

Error: It has to be a player!

*Example4 (bounded move):*

**Input**

3 3 🡨 this is a 3x3 map

2 2 p 🡨 row 2 and column 2 is the player position

1 1 m 🡨 at row 1 and column 1 there is a material

0 1 e 🡨 at row 0 and column 1 there is an enemy

2 1 m 🡨 at row 2 and column 1 there is a material

. 🡨 From now on all inputs are movements!

-3 2 🡨 Go up 3 row and right 2 column, this is a not allowed movement!

-1 -1 🡨 Go up one row and left one column

1 0 🡨 Go down one row

**Output**

Initial state

|  |  |  |
| --- | --- | --- |
| \_ | e | \_ |
| \_ | m | \_ |
| \_ | m | p |

Materials collected 0/2

Can't move that distance! (-3, 2)

|  |  |  |
| --- | --- | --- |
| \_ | e | \_ |
| \_ | m | \_ |
| \_ | m | p |

Materials collected 0/2

|  |  |  |
| --- | --- | --- |
| \_ | e | \_ |
| \_ | p | \_ |
| \_ | m | \_ |

Materials collected 1/2

|  |  |  |
| --- | --- | --- |
| \_ | e | \_ |
| \_ | \_ | \_ |
| \_ | p | \_ |

Materials collected 2/2

You have collected all the materials! Congratulations!

*Example5 (several players):*

**Input**

2 2 🡨 this is a 2x2 map

0 0 p 🡨 at row 0 and column 0 there is a player

1 1 p 🡨 at row 1 and column 1 there is another player. It should report an ERROR!

0 1 e 🡨 at row 0 and column 1 there is an enemy

. 🡨 From now on all inputs are movements!

1 1 🡨 Go down one row and right one column

**Output**

Error: It can't be several players!

Simplified version (without movements)

Earthcraft prototype

You work in the upcoming amazing sandbox game called **Earthcraft**. The game will be played from an overhead perspective in a 2D map and it will consist on the recollection of materials to build all kind of things while you avoid enemies that will attack you.

The main designer has requested to develop a small prototype to show the base game mechanics to some investors.

At this early stage of the prototype your task is just to create the map, setting the player, materials and enemies on the right location, taking note of the total of materials in the map.

**Input**

The input to your game will be:

* The size of the map given as maximum rows and columns.
* Several positions in the map, each of them with only one of the following elements:
  + Empty - represented as '\_', by default all map is empty.
  + Player - represented as 'p'.
  + Material - represented as 'm'
  + Enemy - represented as 'e'
* A dot, this will help to delimitate when all positions are set.

3 3 🡨 this is a 3x3 map

0 1 p 🡨 row 0 and column 1 is the player position

2 0 e 🡨 at row 2 and column 0 there is an enemy

1 2 m 🡨 at row 1 and column 2 there is a material

1 1 e 🡨 at row 1 and column 1 there is an enemy

. 🡨 Map is finished!

**Output**

The output will be a matrix, showing each element on the correct position and the number of materials.

|  |  |  |
| --- | --- | --- |
| \_ | p | \_ |
| \_ | e | m |
| e | \_ | \_ |

Materials to collect: 1

*Example2*

**Input**

2 2 🡨 this is a 2x2 map

0 0 p 🡨 row 0 and column 0 is the player position

0 1 e 🡨 at row 0 and column 1 there is an enemy

1 1 m 🡨 at row 1 and column 1 there is a material

. 🡨 Map is finished!

**Output**

|  |  |
| --- | --- |
| p | e |
| \_ | m |

Materials to collect: 1