# Problem 2 – Monopoly

Monopoly is such a fun game but you’ve always been looking for something more. Besides, you want it to be fun even in single player mode. So you came up with a really nice idea which needs to be tested.

The rules are quite simple – there is a rectangular game field in which the **player** starts with 50 **money** at the **top** **left** corner. He **always** moves in the following way:

If he is moving **right**, he follows the row to the **last** column. Then he gets to the last column

in the row **next** row and starts **moving** left until he reaches the **first** column. The pattern

**repeats** to the end of the game field.

He moves one step at a time. On his way down, he will encounter one of the following objects:

* **H (hotel)** – the player spends **all** his money to buy the hotel. He then gets **10 money per turn** for it. A new hotel contributes to the income from the turn it is bought.
* **J (Jail)** – the player **cannot** move for **two** turns
* **F (Free)** – nothing happens here, the game just advances with one step
* **S (Shop)** – the player has to spend money equal to the **product** of the current **row** and **column** number (assume the first row/col is at position 1). If he doesn’t have enough money, he spends all that he has.

For each of the objects except **F** you need to print a corresponding message to the console. At the end of the output, print the **total** turns done in the game and the **final** amount of money. Consider a **turn** to be an **iteration** of the game loop. **Note** that **contrary** to logic, a player can buy a hotel for 0 money.

### Input

* On the first line of input you receive integers **R** and **C** – the dimensions of the field
* On the next **R** lines – you are given a string with length **C** containing only one of the valid objects (**H, J, F, S**)

### Output

* On the first several lines print a message that describes what happened to the player:
  + Buys a hotel – {**Bought a hotel for <money>. Total hotels: <hotels>.**}
  + Goes to jail – {**Gone to jail at turn <turn>.**}
  + Enters to shop – {**Spent <money> at the shop.**}
* On the last two lines after the player has reached the last cell:
  + {**Turns <turns>**}
  + {**Money <money>**}

### Constraints

* 1 ≤ R,C ≤ 10
* Time/memory allowed: 100ms/16MB

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| **Input** | **Output** |
| 4 4  HHHF  FFFF  SFFF  FFFF | Bought a hotel for 50. Total hotels: 1.  Bought a hotel for 10. Total hotels: 2.  Bought a hotel for 20. Total hotels: 3.  Spent 3 money at the shop.  Turns 16  Money 417 |

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| **Input** | **Output** |
| 1 3  HJF | Bought a hotel for 50. Total hotels: 1.  Gone to jail at turn 1.  Turns 5  Money 50 |

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| **Input** | **Output** |
| 2 4  FFFF  SFFH | Bought a hotel for 50. Total hotels: 1.  Spent 2 money at the shop.  Turns 8  Money 38 |