

CS 122 – Homework #2 – “Dungeon Treasure” – due February 6, 2019

While visiting a friend’s house, a trap door opens, and you fall into a dungeon. Your job is to navigate the dungeon, collecting gold coins. The dungeon contains 25 rooms, arranged in five rows and five columns. When you fell in, you arrived in the middle room, numbered [2][2]. To begin your quest, you must grab the gold coins in this room. The number of coins you find tells you the direction you should travel to the next room in your journey. And as you enter each room, the number of coins you find again tells you how to proceed to the next room.

The following table indicates the direction of travel according to the number of coins you found in the current room [i][j]:

1 coin: go to [i - 1][j - 1]	2 coins: go to [i - 1][j]	3 coins: go to [i - 1][j + 1]
4 coins: go to [i][j - 1]	5 coins: stop; the game is over	6 coins: go to [i][j + 1]
7 coins: go to [i + 1][j - 1]	8 coins: go to [i + 1][j]	9 coins: go to [i + 1][j + 1]

If you arrive in a room that has exactly 5 coins, then you collect these 5 coins and the game is immediately over. The game also ends if your direction of travel takes you out of the dungeon (if the row and/or column number is outside the range 0..4), or if you arrive into a room you have visited already.

Write a program called `Dungeon.java` that follows this game. This is not a game in the sense that there is a strategy, but you have to follow the direction given the number of coins in each room. Ghouls will be stalking you to make sure you do not cheat or waste time in any particular room.

Your program will read from standard input. The input to your program will be the 25 numbers representing the number of coins in each of the dungeon’s rooms. For example, the input may look like this:

```
5 4 6 6 7
3 4 2 4 8
3 4 2 8 4
6 2 8 6 8
2 4 4 1 4
```

The input will consist of 5 lines of text, and each line will contain five numbers. You may assume that the input will be valid: each number will be an integer in the range 1..9. There will be at least one space between each number on a line, and there might be trailing spaces on a line. Therefore, you may find it convenient to tokenize each line to identify each of its five numbers.

The output should list the number of coins encountered in each room, in chronological order. Print one space between each number. Finally, the program should announce the total number of gold coins collected. For example, for the above input case, the output should read exactly as follows:

```
2 2 6 6 7 4
Total coins: 27
```