# Component Labeling Engine

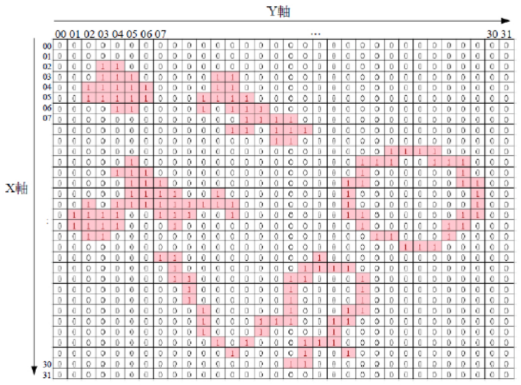
## Description

翔翔有一部簡易的紅外線攝影機，可以拍出 32x32 大小的二元影像 (Binary Image)，

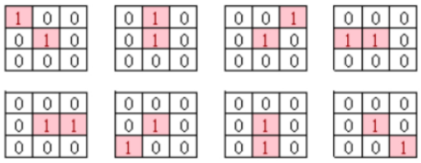
今天他到動物園拍了幾張照片，他希望幫照片中出現的動物編號。

已知照片中的動物會在影像中顯示為訊號 1，而背景則顯示為訊號 0，

相連的訊號代表同一隻動物，並且需要被編上相同的編號，而不同隻動物則需要被編上不同的編號。




p1.png



九宮格中訊號相連的八種情形

請完成一個 Component Labeling Engine，讀入一張 32x32 的二元影像，

替影像中每組相連的 component 編上獨立的編號，

依每個 component 中最早出現的訊號 (由左而右，由上而下) 從 1 開始依序編號，

最後將編號完的影像輸出。

## Input

輸入為 32x32 的二元訊號，共 32 行輸入，每行代表影像的一個 row。

## Output

輸出為 32x32 的訊號，格式和輸入相同，將輸入的 1 訊號改用編號來取代，

編號從 1 開始，最多編到 9 (代表圖像中最多只會有9個不相連的 components)。

每行輸出的最後不能有空格。

## Sample Input 1

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 1 1 1 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 1 1 1 1 1 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 1 1 1 1 1 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 1 1 0 0 0 0 1 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 0 0
 0
0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 0 0 1 1 1 0 0
 0
0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0
 0
0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 1 1 0
 0
0 0 0 0 0 1 1 1 1 0 0 1 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 0
 0
0 0 1 0 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1 0
 0
0 0 1 1 1 0 0 1 1 1 0 0 1 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 1 1
```

## Sample Output 1

```
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 1 1 1 0 0 0 0 0 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 1 1 1 1 1 0 0 0 0 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 1 1 1 1 1 0 0 0 2 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 1 1 0 0 0 0 2 0 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 2 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 2 2 0 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 0 0
 0
0 0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 0 0 3 3 3 0 0
 0
0 0 0 0 4 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 0 3 0 0
 0
0 0 0 0 0 4 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 0 0 0 0 0 3 3 0
 0
0 0 0 0 0 4 4 4 4 0 0 4 0 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 0 0 3 0
 0
0 0 4 0 4 4 4 4 4 4 4 4 4 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 0 0 3 0
 0
```

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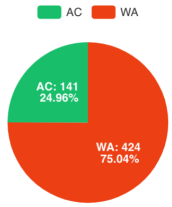
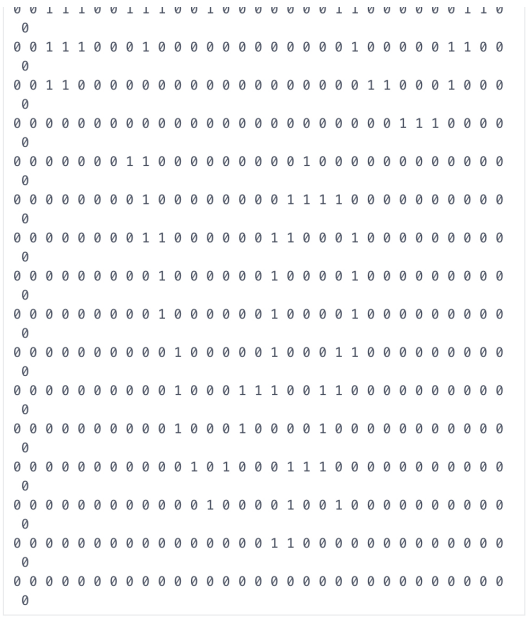
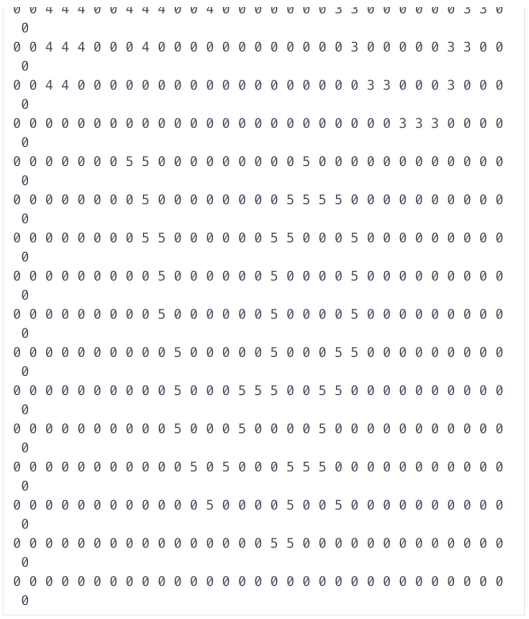
Information

| | |
|---|---|
| ID | 4 |
| Time Limit | 50MS |
| Memory Limit | 32MB |
| Created By | cycnico |
| Level | Low |
| Score | 20 |
| Tags | Show |

Statistic  Details







## Hint

1. 如果 Sample Input/Output 排版亂掉，可以縮小瀏覽器的顯示比例。
2. 題目修改自 2016 University/College IC Design Contest

Language: C++ Theme: Solarized Light

1

Contest has ended

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