#### Problem Set 3 Exercise #26: Maximum Pair Frequency

Reference: Lecture 9 notes

Learning objective: Two-dimensional array

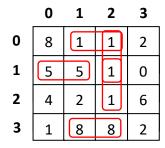
Estimated completion time: 50 minutes

#### **Problem statement:**

[CS1010 AY2010/11 Semester 1 Exam, Q6]

Consider a 4\*4 integer array mtx in which each element is a non-negative integer between 0 and 9 inclusive. We say that mtx contains a pair with value v if there exist two consecutive elements within the same row or column in mtx that have the value v.

For example, consider the following array:



It contains a total of five pairs:

- Pair 1: mtx[0][1] and mtx[0][2] with a value of 1
- Pair 2: mtx[0][2] and mtx[1][2] with a value of 1
- Pair 3: mtx[1][0] and mtx[1][1] with a value of 5
- Pair 4: mtx[1][2] and mtx[2][2] with a value of 1
- Pair 5: mtx[3][1] and mtx[3][2] with a value of 8

#### Write a function:

that returns the maximum number of pairs of the same value contained in array mtx. In the above example, get\_max\_pairs (mtx) returns 3 corresponding to the number of pairs with a value of 1.

Complete the skeleton program max pairs.c for the above task.

A tip is given at the end of next page.

## Sample run #1:

```
Enter values:
8 1 1 2
5 5 1 0
4 2 1 6
1 8 8 2
Maximum number of pairs: 3
```

## Sample run #2:

```
Enter values:
8 1 1 1
5 5 5 1
4 4 4 6
1 1 8 8
Maximum number of pairs: 4
```

# Useful tip:

Each array element is a non-negative integer value between 0 and 9 inclusive.