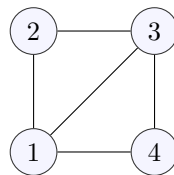


## Lab 7: Backtracking

- Q1** Write a function, `nColoring()`, to print out one solution of the coloring problem with  $V$  regions and  $m$  colors.

```
int graphColoring(bool graph[V][V], int m, int i, int color[V]);
```



For example, given 3 colors  $\{1, 2, 3\}$ , one possible solution for the above map is:  $[1\ 2\ 3\ 2]$ .

- Q2** Write a function, `nQueens()`, to print out one solution of the N-queen problem.

```
int nQueens(int** board, int N, int col);
```

For example, one possible solution for the N-queen problem with  $n = 4$  is:

x	x	Q	x
Q	x	x	x
x	x	x	Q
x	Q	x	x

- Q3** Write a function, `nQueensAll()`, to print out the number of all possible solutions of the N-queen problem.

```
int nQueensAll(int** board, int N, int col);
```

The number of possible solutions to different  $n$  are:

n	number of possible solutions
4	2
5	10
6	4
7	40
8	92
10	724
12	14200