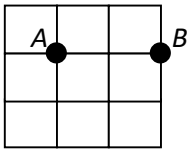
Practice Exercise #36: North-East Paths

http://www.comp.nus.edu.sg/~cs1020/4_misc/practice.html

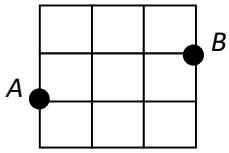
Objective:
Programming with recursion

Task statement:

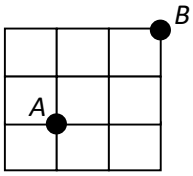
In a special town where pedestrians are allowed to walk only northwards or eastwards, each of the following examples shows the total number of unique north-east paths **ne(x, y)** to get from point *A* to point *B*, where *B* is **x** rows north and **y** columns east of *A*. Assume that **x** and **y** are non-negative integers. By convention, ne(0, 0) is defined to be 1.



ne(0,2) = 1



ne(1,3) = 4



ne(2,2) = 6

Write a recursive method to compute the number of north-east paths, as well as to display all the north-east paths. Sample runs are shown below. You may observe that you are to explore northwards before exploring eastwards in the path if there is a choice.

Note that each letter 'N' or 'E' in the output is always followed by a space character. For example, in the first example below, the output path is "**E E** ", i.e. there is a space after the second 'E'.

```
Enter rows apart: 0
Enter columns apart: 2
E E
Number of paths = 1
```

```
Enter rows apart: 1
Enter columns apart: 3
N E E E
E N E E
E E N E
E E E N
Number of paths = 4
```

```
Enter rows apart: 2
Enter columns apart: 2
N N E E
N E N E
N E E N
E N N E
E N E N
E E N N
Number of paths = 6
```