

Programming Refresher Workshop

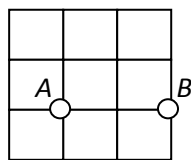
Session 5 Exercises

Learning objective:

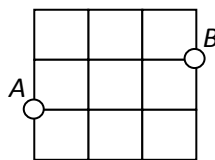
- Recursion

Exercise 13 (ex13): North-East Paths

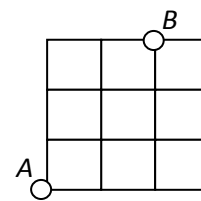
In a special town where pedestrians are only allowed to move northwards or eastwards, each of the following examples shows the total number of unique NE-paths, $ne(x, y)$, to get from point A to point B, where B is x rows north and y columns east of A. Assume that x and y are non-negative integers. By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



$$ne(0, 2) = 1$$



$$ne(1, 3) = 4$$



$$ne(3, 2) = 10$$

Write a recursive function $ne(x, y)$ that returns the number of NE-paths.

Sample run #1:

```
Enter rows and columns apart: 0 2
Rows and columns apart: 0 2
Number of NE-paths = 1
```

Sample run #2:

```
Enter rows and columns apart: 1 3
Rows and columns apart: 1 3
Number of NE-paths = 4
```

Sample run #3:

```
Enter rows and columns apart: 3 2
Rows and columns apart: 3 2
Number of NE-paths = 10
```