Practice 6 – Combinatorics

Ex1) Steps

- **Problem**
  : Consider the process of stepping from integer x to integer y along integer points of the straight line. The length of each step must be non-negative and can be one bigger than, equal to, or one smaller than the length of the previous step.
  What is the minimum number of steps in order to get from x to y ? The length of both the first and the last step must be 1

- **Input**
  The input begins with a line containing n, the number of test cases. Each test case that follows consists of a line with two integers: $0 \leq x \leq y \leq 2^{31}$

Ex1) Steps – Sample Case

```
Input # of Test: 2
[[Test Case 0]]
Input x and y (ex. 2 3): 45 50
Answer: 4
[[Test Case 1]]
Input x and y (ex. 2 3): 2 50
Answer: 13
```

Ex2) Permutations

- **Problem**
  : There are n beads, which are marked a number from 1 to n.
  When extracting k of the beads and trying to arrange them, print out all possible cases.

- **Input**
  The number of beads n and extracting k are entered

- **Output**
  Print all possible cases in ascending order

Ex2) Permutations – Sample Case

```
Input number n, k : 4 2
1 2
1 3
1 4
2 1
2 3
2 4
3 1
3 2
3 4
4 1
4 2
4 3
```