# Permutations

**Create a new project called ArrayLists. Inside of this project, create two new classes: Permutation and ALTester.**

**Permutations method 1. public static void nextPermutation()**

Produce random permutations of the numbers 1 to 10. (Note: “Permutation” is a mathematical name for an arrangement.) For example, there are six permutations of the numbers 1,2,3: 123, 132, 231, 213, 312, and 321.

To generate a random permutation, you need to fill an ArrayList with the numbers 1 to 10 so that no two entries of the array have the same contents.

You could do it by brute force, by calling Math.random() until it produces a value that is not yet in the array. Instead, you should implement a smarter method.

Make a second ArrayList and fill it with the numbers 1 to 10. Then pick one of those at random, *remove it*, and print the random number out. Repeat ten times.

**ALTester method 1. Main method**

Call the **nextPermuation()** method ten times. The output should look like the following :

Random Permutation List Generator

List 1: 4 6 8 1 9 7 10 5 3 2

List 2: 6 8 1 7 3 4 9 10 5 2

List 3: 2 4 9 6 8 1 10 5 7 3

List 4: 8 5 4 3 2 9 6 7 1 10

List 5: 10 3 2 6 8 9 5 7 4 1

List 6: 9 10 3 2 1 5 6 8 4 7

List 7: 3 8 5 9 4 2 10 1 6 7

List 8: 3 2 4 5 7 6 9 8 10 1

List 9: 4 1 5 10 8 3 6 2 7 9

List 10: 3 5 2 4 1 7 9 6 8 10