**Intersection of two sets.** Given two arrays a[] and b[], each containing *n* distinct 2D points in the plane, design a subquadratic algorithm to count the number of points that are contained both in array a[] and array b[].

**Permutation.** Given two integer arrays of size *n*, design a subquadratic algorithm to determine whether one is a permutation of the other. That is, do they contain exactly the same entries but, possibly, in a different order.

**Dutch national flag.** Given an array of *n* buckets, each containing a red, white, or blue pebble, sort them by color. The allowed operations are:

* *swap*(*i*,*j*): swap the pebble in bucket i*i* with the pebble in bucket *j*.
* *color*(*i*): determine the color of the pebble in bucket *i*.

The performance requirements are as follows:

* At most *n* calls to *color*().
* At most *n* calls to *swap*().
* Constant extra space.