**Question 1**

**Write a program to find the key element in sorted and rotated Array**

**Steps**

1. Take input of an array n.
2. sort the array (**O(n sq) / O(n log n**) Time Complexity MergeSort.
3. Left Rotate the array by the mid element.
4. Write a program to search an element in time complexity **O(logn)**

**Arr[] =** { 3,4,2,1,9,8,7,6} **//** original array

**Arr[] =** {1,2,3,4,6,7,8,9}  **//** sorted array

**Arr[]** = {6,7,8,9,1,2,3,4} // rotated array

**Key =** 8

**Output**

Key found at position 3 / Index 2

**Question 2**

You are given an array A consisting of N positive integers. Each integer represents the number of players from a country, for a total of N countries.

Find the maximum number of teams that can be formed by forming teams of size **K** such that each player in the team is from a different country.

**Input:** N = 4, K = 3, arr[] = {4, 3, 5, 3}

**Output:** 5

**Explanation:**

Consider the countries are named W, X, Y and Z. The possible ways of forming the teams are {W1, X1, Y1}, {W2, Y2, Z1}, {W3, X2, Y3}, {X3, Y4, Z2}, {W4, Y5, Z3} such that in each set there is no more than 1 person from a country.

Therefore, the total count of teams formed is 5.