C programs on Array 2

1. Write a C program that interchanges the odd and even position elements in an array. (Hint: If the array size is odd, the last element is not swapped)
   Example:
   Before interchange:
   $$arr[\,] = \{2,6,1,9,8,10,7,5\}$$
   After interchange:
   $$6\ 2\ 9\ 1\ 10\ 8\ 5\ 7$$

2. Write a C program to move all the EVEN numbers to beginning and the ODD numbers to end of the same array.
   Example:
   Before arrange:
   $$arr[\,] = \{1,3,2,4,5,6,7,9,11,12,21,50\}$$
   After interchange:
   $$50\ 12\ 2\ 4\ 6\ 5\ 7\ 9\ 11\ 3\ 21\ 1$$

3. Twenty numbers are entered from the keyboard into an array. Write a C program to find out how many of them are positive, how many are negative, how many are even and how many odd using conditional operators.

4. Given an array $arr[\,]$ of size N and a number K, where K is smaller than the size of the array. Write a C program to find the K^{th} smallest element in the given array. Given that all array elements are distinct.
   Example I:
   Input: $arr[\,] = \{7, 10, 4, 3, 20, 15\},\ K = 3$
   Output: 7
   Example II:
   Input: $arr[\,] = \{7, 10, 4, 3, 20, 15\},\ K = 4$
   Output: 10

5. Write a C program to find the first peak element which is not smaller than its neighbours.

   Example:

   Input: $array[\,] = \{5, 10, 20, 15\}$

   Output: 20

   Explanation: The element 20 has neighbors 10 and 15, both of them are less than 20.

6. Given an array $arr[]$ of size N-1 with integers in the range of $[1, N]$. Write a C program to find the missing number from the first N integers. (Note: There are no duplicates in the array)
   Example:
   Input: $arr[] = \{1, 2, 4, 6, 3, 7, 8\}$
   Output: 5
   Explanation: Here the size of the array is 7, so the range will be [1, 8]. The missing number between 1 to 8 is 5

7. Given an array of n elements that contains elements from 0 to N-1, with any of these numbers appearing any number of times. Write a C program to find these repeating numbers. (Note: The repeating element should be printed only once)