Exercise on Searching and Sorting

1. Write a C program to find whether a given number exists in an array of **N** integers using **linear search**. Print the index if found, else print "Not found."
2. Modify the linear search program to count how many times a given number appears in the array.
3. You have a list of student roll numbers. Write a program to check if a new student's roll number already exists in the list using linear search.
4. Given a sorted array of **N** integers, write a program to search for a number using **binary search**. Print its index if found.
5. Modify the binary search program to find the **first occurrence** of a repeated element in a sorted array.
6. Write a binary search program that also **counts how many comparisons** are performed during the search.
7. Write a program to sort an array of **N** integers in **ascending order** using **bubble sort**.
8. Modify the bubble sort program to sort the array in **descending order**.
9. Write a program for bubble sort to **count the number of swaps** needed to sort the array.
10. You have a list of students with roll numbers and scores. You have to find the student with the highest score and display their roll number and score**.**