1) Write a code to perform linear search and binary search operation on a array

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#include<stdio.h>
int arr[50];

int linear_search(int n, int key) {
	int i;
	for(i = 0;i < n; i++) {
		if(arr[i] == key) {
			return i;
			//break;
		}
	}
	return -1;
}

int BubbleSort(int size) {
   int i, j, temp;
   for(i = 0; i < size - 1; i++) {
      for(j = 0; j < size - i - 1; j++) {
         if(arr[j] > arr[j + 1]) {
            temp = arr[j];
            arr[j] = arr[j + 1];
            arr[j + 1] = temp;
         }
      }
   }
   printf("Array after sorting: \n");
   for(i = 0; i < size; i++) {
		printf("Arr[%d]: %d\n", i, arr[i]);
	}
}

int binary_search(int n, int key) {

	int low = 0, high = n - 1, mid;
	BubbleSort(n);
	while(low <= high) {
		mid = (low + high)/2;
		if(arr[mid] == key) {
			return mid;
			//break;
		}
		else if(arr[mid] < key) {
			low = mid + 1;
		}
		else {
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                high = mid - 1;
            }
        }
        return -1;
}

int main() {
        int n, i, key, pos, choice;
        printf("Enter the size of the array: ");
        scanf("%d", &n);

        printf("Enter the elements of the array: \n");
        for(i = 0; i < n; i++) {
            printf("Arr[%d]: ", i);
            scanf("%d", &arr[i]);
        }
        printf("Enter the elements to be searched: ");
        scanf("%d", &key);
        printf("Enter 1 for linear search\nEnter 2 for binary search: \n");
        scanf("%d", &choice);

        switch(choice) {
            case 1:
                pos = linear_search(n, key);
                if(pos == -1) {
                    printf("Element not found: ");
                }
                else {
                    printf("Element found at position %d\n", pos + 1);
                }
                break;

            case 2:
                pos = binary_search(n, key);
                if(pos == -1) {
                    printf("Element not found: ");
                }
                else {
                    printf("Element found at position %d\n", pos + 1);
                }
                break;

            default:
                printf("Invalid Choice\n");
        }
        return 0;
}
```