9. Write a C program to search a number using Binary Search method

```
#include <stdio.h>
int main() {
   int arr[100], n, i, key, low, high, mid, found = 0;
   printf("Enter number of elements in the array: ");
   scanf("%d", &n);
   printf("Enter %d elements in sorted order:\n", n);
   for (i = 0; i < n; i++) {
      scanf("%d", &arr[i]);
   }
   printf("Enter the element to search: ");
   scanf("%d", &key);
   low = 0;
   high = n - 1;
   while (low <= high) {
      mid = (low + high) / 2;
      if (arr[mid] == key) {
         printf("Element %d found at position %d (index %d).\n", key, mid + 1, mid);
         found = 1;
         break;
      }
      else if (arr[mid] < key) {
         low = mid + 1;
      }
      else {
         high = mid - 1;
      }
   }
   if (!found) {
      printf("Element %d not found in the array.\n", key);
```

```
    }

    return 0;
}
```

main.c — Share — Run

```c
#include <stdio.h>
int main() {
    int arr[100], n, i, key, low, high, mid, found = 0;
    printf("Enter number of elements in the array: ");
    scanf("%d", &n);
    printf("Enter %d elements in sorted order:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Enter the element to search: ");
    scanf("%d", &key);
    low = 0;
    high = n - 1;
    while (low <= high) {
        mid = (low + high) / 2;
        if (arr[mid] == key) {
            printf("Element %d found at position %d (index %d).\n",
                key, mid + 1, mid);
            found = 1;
            break;
        }
        else if (arr[mid] < key) {
            low = mid + 1;
        }
        else {
            high = mid - 1;
        }
    }
    if (!found) {
```

Output

```
Enter number of elements in the array: 5
Enter 5 elements in sorted order:
12 23 25 56 48
Enter the element to search: 56
Element 56 found at position 4 (index 3).


=== Code Execution Successful ===
```