

Folder SEM 3\Exp7

2 printable files

(file list disabled)

SEM 3\Exp7\Bin_Search.c

```
1  #include <stdio.h>
2
3  // Function to perform binary search
4  int binarySearch(int arr[], int size, int key)
5  {
6      int left = 0;
7      int right = size - 1;
8
9      while (left ≤ right)
10     {
11         int mid = left + (right - left) / 2;
12
13         if (arr[mid] == key)
14         {
15             return mid; // Return the index of the found element
16         }
17         if (arr[mid] < key)
18         {
19             left = mid + 1; // Search in the right half
20         }
21         else
22         {
23             right = mid - 1; // Search in the left half
24         }
25     }
26     return -1; // Return -1 if the element is not found
27 }
28
29 int main()
30 {
31     int arr[] = {1, 2, 5, 5, 6, 9}; // Note: Array must be sorted for binary search
32     int size = sizeof(arr) / sizeof(arr[0]);
33     int key;
34
35     printf("Enter the element to search for (Binary Search): ");
36     scanf("%d", &key);
37
38     int index = binarySearch(arr, size, key);
39     if (index ≠ -1)
40     {
41         printf("Element %d found at index %d.\n", key, index);
42     }
43     else
44     {
45         printf("Element %d not found in the array.\n", key);
```

```
46     }
47
48     return 0;
49 }
50
```

SEM 3\Exp7\Linear_Search.c

```
1  #include <stdio.h>
2
3  // Function to perform linear search
4  int linearSearch(int arr[], int size, int key)
5  {
6      for (int i = 0; i < size; i++)
7      {
8          if (arr[i] == key)
9          {
10             return i; // Return the index of the found element
11          }
12      }
13      return -1; // Return -1 if the element is not found
14 }
15
16 int main()
17 {
18     int arr[] = {5, 2, 9, 1, 5, 6};
19     int size = sizeof(arr) / sizeof(arr[0]);
20     int key;
21
22     printf("Enter the element to search for (Linear Search): ");
23     scanf("%d", &key);
24
25     int index = linearSearch(arr, size, key);
26     if (index != -1)
27     {
28         printf("Element %d found at index %d.\n", key, index);
29     }
30     else
31     {
32         printf("Element %d not found in the array.\n", key);
33     }
34
35     return 0;
36 }
37
```