

#MANDIRA BARVE - TIA03

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
int binarySearch(int array[], int size, int target) {
```

```
    int left = 0;
```

```
    int right = size - 1;
```

```
    while (left <= right) {
```

```
        int mid = left + (right - left) / 2;
```

```
        if (array[mid] == target) {
```

```
            return mid; // Found the element at index mid
```

```
        }
```

```
        if (array[mid] < target) {
```

```
            left = mid + 1; // Search the right half
```

```
        } else {
```

```
            right = mid - 1; // Search the left half
```

```
        }
```

```
    }
```

```
    return -1; // Element not found
```

```
}
```

```
int main(int argc, char *argv[]) {
```

```
    if (argc < 2) {
```

```
        printf("Usage: %s <array elements>\n", argv[0]);
```

```
        return 1;
```

```
    }
```

```
    int array[argc - 1];
```

```
    for (int i = 1; i < argc; i++) {
```

```
        array[i - 1] = atoi(argv[i]);
```

```
    }
```

```
    int size = argc - 1;
```

```
    // Sort the array (you can use any sorting algorithm)
```

```
    for (int i = 0; i < size - 1; i++) {
```

```
        for (int j = 0; j < size - i - 1; j++) {
```

```
            if (array[j] > array[j + 1]) {
```

```
                int temp = array[j];
```

```
                array[j] = array[j + 1];
```

```
                array[j + 1] = temp;
```

```
            }
```

```
        }
```

```
    }
```

```
    printf("Sorted array: ");
```

```
    for (int i = 0; i < size; i++) {
```

```
        printf("%d ", array[i]);
```

```
    }
```

```
    printf("\n");
```

```
int search;
printf("Enter the search term: ");
scanf("%d", &search);

int result = binarySearch(array, size, search);
if (result != -1) {
    printf("Search term %d found at index %d\n", search, result);
} else {
    printf("Search term %d not found\n", search);
}

return 0;
}
```

=====OUTPUT=====

```
(ghost kali)-[~/OS]
$ ./a.out 10 54 654 74 3
Sorted array: 3 10 54 74 654
Enter the search term: 3
Search term 3 found at index 0
```

```
(ghost kali)-[~/OS]
$
```