

**Experiment No.9:****Name:** Atharv Uday Wadadekar**Class:** SY-IT**Roll No.**66**Program:**

```
#include<stdio.h>
#include<stdlib.h>
void sort(int a[], int n);
void search(int a[],int n, int s);
void main(){
    int n,i,c,s;
    printf("Enter the number of elements in the array:");
    scanf("%d",&n);
    int arr[n];
    for(i = 0; i<n ; i++){
        printf("Enter element %d:",(i+1));
        scanf("%d",&arr[i]);
    }
    sort(arr,n);
    do{
        printf("\nMenu:\n1.Display sorted array\n2.Search element\n3.Exit\nEnter option:");
        scanf("%d",&c);
        switch(c){
            case 1: printf("Sorted array:\n");
                    for(i = 0; i<n; i++){
                        printf("%d\t",arr[i]);
                    }
                    break;
            case 2: printf("Enter element to search:\n");
                    scanf("%d",&s);
                    search(arr,n,s);
                    break;
            case 3: break;
            default:printf("Invalid input!");
        }
    }while(c!=3);
}

void sort(int a[],int n){
    int i,j,temp;
    for(i = 0; i<n ; i++){
        for(j = 0 ; j<n-i-1; j++){
            if(a[j]>a[j+1]){
                temp = a[j];
                a[j] = a[j+1];
                a[j+1] = temp;
            }
        }
    }
}

void search(int a[],int n, int s){
    int flag=0;
    int beg,mid,end;
```

```

beg = 0;
end = n-1;
while(beg<=end){
    mid = (beg+end)/2;
    if(s<a[mid]){
        end = mid-1;
    }else if(s>a[mid]){
        beg = mid+1;
    }else if(s==a[mid]){
        printf("Element %d found at position %d",s,mid);
        flag = 1;
        break;
    }
}
if(flag==0){
    printf("Element not found in the array");
}
}

```

### Output:

```

Activities Terminal Oct 9 14:32
dl0417@ltadmin: ~/AtharvSVIT66
dl0417@ltadmin:~/AtharvSVIT66$ ./a.out
Enter the number of elements in the array:5
Enter element 1:9
Enter element 2:2
Enter element 3:14
Enter element 4:7
Enter element 5:11
Menu:
1.Display sorted array
2.Search element
3.Exit
Enter option:1
Sorted array:
2      7      9      11      14
Menu:
1.Display sorted array
2.Search element
3.Exit
Enter option:2
Enter element to search:
11
Element 11 found at position 3
Menu:
1.Display sorted array
2.Search element
3.Exit
Enter option:2
Enter element to search:
12
Element not found in the array
Menu:
1.Display sorted array
2.Search element
3.Exit
Enter option:3
dl0417@ltadmin:~/AtharvSVIT66$

```