Experiment No 8

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ROll No:- 65

Div:-A

Subject:- Data Structures

Title: Implementation of Searching Algorithms

Problem Statements:

1) Write a C program to find the position of a given value within following data set using Linear search : 9, 45, 0, -78, 88, 67, -23, 89.90, 34, 44.89.

```
#include<stdio.h>
int linear_search(float a[], float key,int n)
{
   for(int i=0;i<10;i++)
   {
      if(key == a[i])
         return i;
   }
   return -1;
}
int main()
{
   float key;
   int ans;

   float a[10] = {9, 45, 0, -78, 88, 67, -23, 89.90, 34, 44.89};

   printf("Enter Key to be searched\n");
   scanf("%f",&key);
```

```
    ans = linear_search(a,key,10);

    if(ans == -1)
        printf("Element not found\n");

    else
        printf("Element found at location: %d",ans+1);
}
```

2) Write a C program to find the position of a target value within a sorted array using Binary search.

```
#include<stdio.h>
int main()
{
    int a[5] = {10,26,34,49,66};

    int key;
    printf("Enter element to search\n");
    scanf("%d",&key);

    int start = 0, end = 5-1;
    int mid = (start + end)/2;
    while(start <= end)
    {
        if(key == a[mid])
        {
            printf("Element found at location: %d",mid+1);
            break;
        }
        else if(key > a[mid])
        {
            start = mid + 1;
        }
        else
        {
            end = mid - 1;
        }
        mid = (start + end)/2;
    }
    if(key != a[mid])
    {
        printf("Element Not found\n");
    }
}
```