



KIET Group of Institutions, Ghaziabad

Department of Computer Applications

(An ISO – 9001: 2015 Certified & 'A' Grade accredited Institution by NAAC)

Design and Analysis of Algorithm

RCA 352: Session 2020-21

DAA Lab

Experiment-No.2

Objective: Implement the LINEAR SEARCH algorithm to sort the given list of N numbers and plot graph.

Scheduled Date:	Compiled Date:	Submitted Date:
17-8-2020	23-8-2020	26-8-2020

Algorithm:

Linear_search(Input: Array A, Size N,item)

N: Number of values to be sort

A: Array of Size N

Program:

```
#include<stdio.h>
#include<conio.h>
#include<process.h>
int count=0;
void main()
{
    void getdata(int[50],int);
    void putdata(int[50],int);
    int linear_search(int a[],int,int);
    int i,a[100],n,loc,item;
    clrscr();
    printf("enter the value of n\n");
    scanf("%d",&n);
    getdata(a,n);
    printf("\nbefor sorting\n");
    putdata(a,n);
    printf("search element");
    scanf("%d",&item);
    loc=linear_search(a,n,item);
    if(loc==-1)
    printf("not found");
    else
    printf("found ");

    printf("\n value of count is  %d",count);
    getch();
}
```



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```
void getdata(int x[50],int n)
{
    int k;
    printf("enter the value  for sorting\n");
    for(k=0;k<n;k++)
    {
        scanf("%d",&x[k]);
    }
}
void putdata(int x[50], int n)
{
    int k;
    for(k=0;k<n;k++)
    {
        printf("%d\t",x[k]);
    }
    printf("\n");
}

int linear_search(int a[],int n,int item)
{
    int i;
    count++;
    for(i=0;i<n;i++)
    {
        count++;
        if (a[i]==item)
        count++;
        return i;
    }
    count++;
    return -1;
}
```



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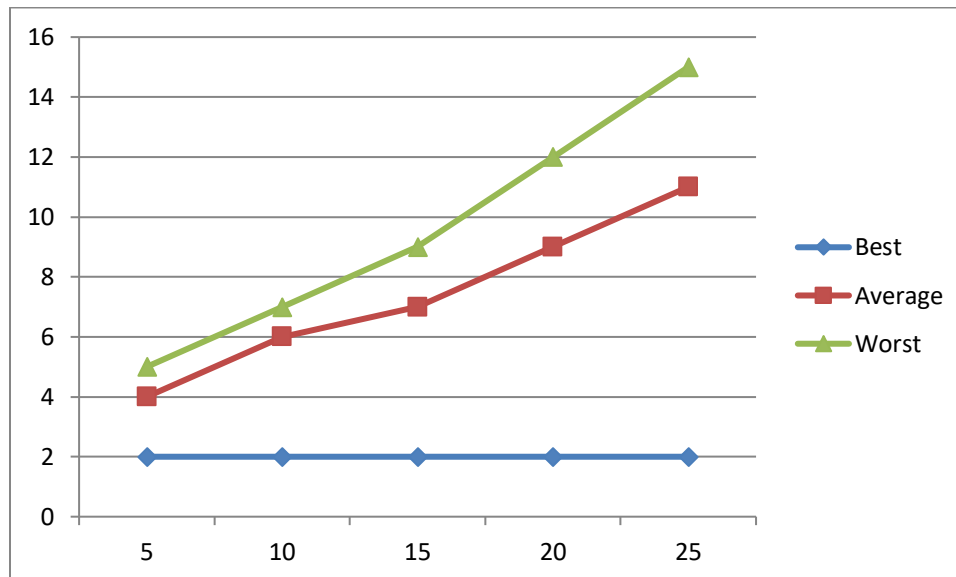
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Output:

Input Size	Best Case	Average Case	Worst Case
5	2	4	5
10	2	6	7
15	2	7	9
20	2	9	12
25	2	11	15

Graph:





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Conclusion

Case	Running Time : Growth of Function mathematically	Running Time : Growth of Function after observing graph
Best Case	$O(1)$	$O(1)$
Average Case	$O(n)$	$O(n)$
Worst Case	$O(n)$	$O(n)$