

Green University of Bangladesh Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering
Semester: (Summer , Year:2022), B.Sc. in CSE (Day)
LAB REPORT NO 2

Course Title: Structured Programming Lab

Course Code: CSE 106 Section:PC-213DA

Lab Experiment Name: Linear Search & Binary Search

Student Details

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<u>Lab Report Status</u>	
Marks:	Signature:
Comments:	Date:

#include <stdio.h>
Int elmntSrch(int arr[], int size, int x) {

Int rec; Size--;

```
If (size >= 0) {
    If (arr[size] == x)
       Return size;
    Else
       Rec = elmntSrch(arr, size, x);
  Else
    Return -1;
  Return rec;
}
Int main(void) {
  Int arr[50], size, I, x, indx;
   Printf("enter the array size");
   Scanf("%d",&size);
  For(i=0;i<size;i++)
    {
    Scanf("%d",&arr[i]);
    }
    For(i=0;i<size;i++)
    Printf("%d",arr[i]);
    Printf("\n search element");
    Scanf("%d",&x);
  Indx = elmntSrch(arr, size, x);
  If (indx != -1)
    Printf("Element %d is present at index %d", x, indx);
    Printf("Element %d is not present", x);
  Return 0;
}
```

Linear Search

```
1-Step: take armay size
 2 - Step: take armay all elements and printfarmay.
 3- Step: take search element ..
 9-step: using is else faction and using
        new faction.
 5-Step! if size >= 0 return size and else
          nec then rectarin -1;
 6-Step: end.
 code: *include 2 stdio. h >
     int elmotsmen (int arm [], int size, int x)
      9 int rec;
        size --;
      if (size >=0) &
        if ( arzn [ size] == x)
          return size;
       else nec= elmn+ Stach (ann. size, x); }
       else
              return -1;
            return rec;
 int main (void) &
     int ann (50), Size, i, x, indx;
REDMI NOTPER into ("enter the array size");
AL QUAD BOORNY (" y.d; & size);
```

```
foreli=0; icsize; i+1);

Seanf("1/d", & arnti]);

fore (i=0; icsize; i++);

Printf("1/d", arnti);

Printf("1/d", arnti);

scanf("1/d", &n);

indx = elmtsreh (ann, size, n);

if (index!=-1)

Printf(" Element "1/d is present at index id", x, index);

else

printf(" Element 7/d is not present", x);

return 0;

7.
```

```
enter the array size : 4
3 4 5 6
3456
search element : 5
Element is present at index 2
[Process completed - press Enter]
```

```
Int binarySearch(int arr[], int I, int r, int x)
While (I <= r)
Int m = I + (r-I)/2;
If (arr[m] == x)
Return m;
If (arr[m] < x)
L = m + 1;
Else
R = m - 1;
}
Return -1;
Int main(void)
Int arr[50];
Int x,n,I;
Printf("enter the array size");
  Scanf("%d",&n);
  For(i=0;i<n;i++)
    {
    Scanf("%d",&arr[i]);
    }
    For(i=0;i<n;i++)
    Printf("%d",arr[i]);
```

```
Printf("\n search element");

Scanf("%d",&x);

Int result = binarySearch(arr, 0, n-1, x);

(result == -1)? Printf("Element is not present in array")
: printf("Element is present at index %d", result);

Return 0;
}
```

```
Binary Search

1. Step: take armay size and take all element.

2. Step: prints armay and take search element.

3. Step: close main faction and open newstadion

4. Step: using while loop. If matches with middle element we return the mid index.

5. Step: else if his preder the the mid element then n can also lie in right hold sularmay after the mid element.

6. Step: Else brecur fo the last half.

7-Step: end.

code: Kincludec Stdio.h.
```

```
while (.LL= 10) &
 int m=1+(n-1)(2;
 if (ann [m] == n)
 rzeturn m;
if (ann [m] (n)
   L=m+1 ;
else . ro = m-1; }
int main (void)
{ int arm [50], xinii;
  printf (" Enten the array site");
scand (" Yod", & n);
   for ( i=0; i Ln; i++) g
    scarf ("41", & ann []; }
    for ( 1=0; izn; i++)
    Printf ("Y.d" iann[i];
    printf (" In search element");
    Scanf ( " , & n);
int result = binary searce (arm, 0, n-1, n);
 (nesult = = -1) ? printf (Etement is not found);
: printf ( · Element is present at index 1/d ; result);
returno:
```

```
enter the array size : 4
5 6 7 8
5678
search element: 5
Element 5 is present at index 0
[Process completed - press Enter]
```