

## DSA PRACTICAL NO. :- 03

**AIM:-** [A]: Create an array of size n and write a program to sort a given array by selection sort and bubble sort.

[B]: Write a program to search any integer in your array using binary search concept

### Program:

[A] SELECTION SORT :

```
#include<stdio.h>

void main ()
{
    int a[100],z,j,i,temp;
    printf("enter the array size\n");
    scanf("%d",&z);
    printf("enter the array element\n");
    for(i=0;i<z;i++)
    {
        scanf("%d",&a[i]);
    }
    for(i=0;i<z;i++){
        for(j=0;j<=z;j++)
        {
            if (a[i]>a[j])
            {
                temp=a[i];
                a[i]=a[j];
                a[j]=temp;
            }
        }
    }
}
```

```

        }

    }

}

printf("Array after sorting is\n");
for (i=0;i<z;i++)
{


printf("%d\n",a[i]);

}

}

```

## Output:



```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\mithaw\c program> gcc selection.c
PS C:\Users\mithaw\c program> ./a.exe
enter the array size
3
enter the array element
61
23
48
Array after sorting is
61
48
23
PS C:\Users\mithaw\c program>

```

## [A] BUBBLE SORT :

```

#include<stdio.h>

void main ()
{

    int a[100],e,i,j,temp;

    printf("enter array size\n");

    scanf("%d",&e);

```

```
printf("enter array element\n");  
for(i=0;i<e;i++)  
{  
    scanf("%d",&a[i]);  
}  
  
for(i=0;i<e;i++)  
{  
    for (j=0;j<=e;j++)  
    {  
        if(a[j]>a[j+1])  
        {  
            temp=a[j];  
            a[j]=a[j+1];  
            a[j+1]=temp;  
        }  
    }  
}  
printf("Array after sorting is\n");  
for(i=0;i<e;i++)  
{  
    printf("%d\n",a[i]);  
}  
}
```

**Output:**

```
terminal Help  ← →  🔍 c program  [Icons] 08
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\mithaw\c program> gcc bubble.c
PS C:\Users\mithaw\c program> ./a.exe
enter array size
3
enter array element
60
50
40
Array after sorting is
40
50
60
PS C:\Users\mithaw\c program> █
```

## [B] Binary search:

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

```
void main()
```

```
{
```

```
    int i, j, n, mid, low, high, item, found = 0;
```

```
    printf("Enter the size of array\n");
```

```
    scanf("%d", &n);
```

```
    int a[n];
```

```
    printf("Enter %d elements:\n", n);
```

```
    for (i = 0; i < n; i++)
```

```
    {
```

```
        scanf("%d", &a[i]);
```

```
    }
```

```
    printf("Enter element you want to search: \n");
```

```
    scanf("%d",&item);
```

```

low = 0,high = n-1;

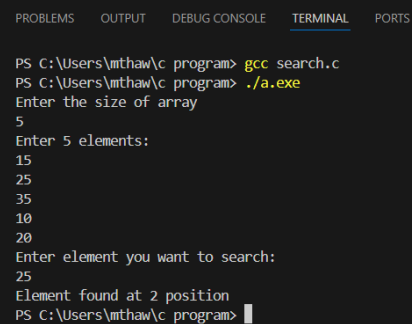
for(i=0;i<(n+1)/2;i++){
    mid=(low + high)/2;
    if(item == a[mid]){
        printf("Element found at %d position\n",mid+1);
        found = 1;
        break;
    }
    else if(item < a[mid]){
        high = mid -1;
    }
    else if(item > a[mid]){
        low = mid + 1;
    }
}

if(found != 1){
    printf("Element not found :(\n");
}

}

```

## Output:



```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\Users\mithaw\c program> gcc search.c
PS C:\Users\mithaw\c program> ./a.exe
Enter the size of array
5
Enter 5 elements:
15
25
35
10
20
Enter element you want to search:
25
Element found at 2 position
PS C:\Users\mithaw\c program>

```

Github link : <https://github.com/MayurThaware122/DSA>