

AIM: Create an array of size n and write a program to sort a given array by selection sort and bubble sort.

(SELECTION SORT)

PROGRAM:

```
# include <iostream>

using namespace std;

int main()
{
    // program for selection sort

    int ar[100],i,j,n,temp;
    cout<<"enter the size of array:";
    cin>>n;
    cout<<"\nenter elements in the array"<<endl;
    for(i=0;i<n;i++)
    {
        cout<<"enter element:";
        cin>>ar[i];
    }
    cout<<"\nyour array is :";
    for(i=0;i<n;i++)
    {
        cout<<ar[i]<<" ";
    }
    for(i=0;i<n;i++)
    {
        for(j=i+1;j<n;j++)
        {
            if(ar[i]>ar[j])
            {
                temp=ar[i];
```

```

        ar[i]=ar[j];
        ar[j]=temp;
    }
}
}

cout<<"\narray after sorting is:";

for(i=0;i<n;i++)
{
    cout<<ar[i]<<" ";
}
}

```

OUTPUT

```

PS C:\Users\chuna> cd "c:\Users\chuna\" ; if ($?) { g++ sel_sort.cpp -o sel_sort } ; if ($?) { .\sel_sort }
enter the size of array:5

enter elements in the array
enter element:5
enter element:4
enter element:3
enter element:2
enter element:1

your array is :5 4 3 2 1
array after sorting is:1 2 3 4 5
PS C:\Users\chuna>

```

(BUBBLE SORT)

PROGRAM:

```

#include <iostream>

using namespace std;

int main()
{
    // for bubble sort

    int ar[100],i,j,n,temp;

    cout<<"enter the size of array:";

    cin>>n;

    cout<<"enter elements in array"<<endl;

```

```
for(i=0;i<n;i++)
{
    cout<<"enter element:";
    cin>>ar[i];
}
cout<<"\n your array is:";
for(i=0;i<n;i++)
{
    cout<<ar[i]<<" ";
}

//Logic of bubble sort
for(i=0;i<n;i++)
{
    for(j=0;j<n-i;j++)
    {
        if(ar[j]>ar[j+1])
        {
            temp=ar[j];
            ar[j]=ar[j+1];
            ar[j+1]=temp;
        }
    }
}
cout<<"\n after sorting your array is:";
for(i=0;i<n;i++)
{
    cout<<ar[i]<<" ";
}
}
```

OUTPUT

```

PS C:\Users\chunax> cd "c:\Users\chuna\" ; if ($?) { g++ bubl_sort.cpp -o bubl_sort } ; if ($?) { .\bubl_sort }
enter the size of array:5
enter elements in array
enter element:2
enter element:4
enter element:9
enter element:6
enter element:1

your array is:2 4 9 6 1
after sorting your array is:1 2 4 6 9
PS C:\Users\chunax>

```

(BINARY SEARCH)

Write a program to search any integer in your array using binary search concept.

PROGRAM:

```

#include <iostream>

using namespace std;

int main()
{
    //for binary search

    int ar[100],beg,mid,end,n,num,i,j,found=0;

    cout<<"enter the size of array:";

    cin>>n;

    cout<<"enter elements in the array\n";

    for(i=0;i<n;i++)
    {
        cout<<"enter elements:";

        cin>>ar[i];

    }

    cout<<"\ndisplay array:";

    for(i=0;i<n;i++)
    {
        cout<<ar[i]<<" ";
    }
}

```

```

}

// sorting array
for(i=0;i<n;i++)
{
    for(j=i+1;j<n;j++)
    {
        int temp;
        if(ar[i]>ar[j])
        {
            temp=ar[i];
            ar[i]=ar[j];
            ar[j]=temp;
        }
    }
}

cout<<"\nafter the soring your array is\n";
for(i=0;i<n;i++)
{
    cout<<ar[i]<<" ";
}

cout<<"\nenter the element you want to search:";
cin>>num;
beg=0;
end=n;
mid=(beg+end)/2;
for(i=0;i<n;i++)
{
    if(num==ar[mid-1])
    {

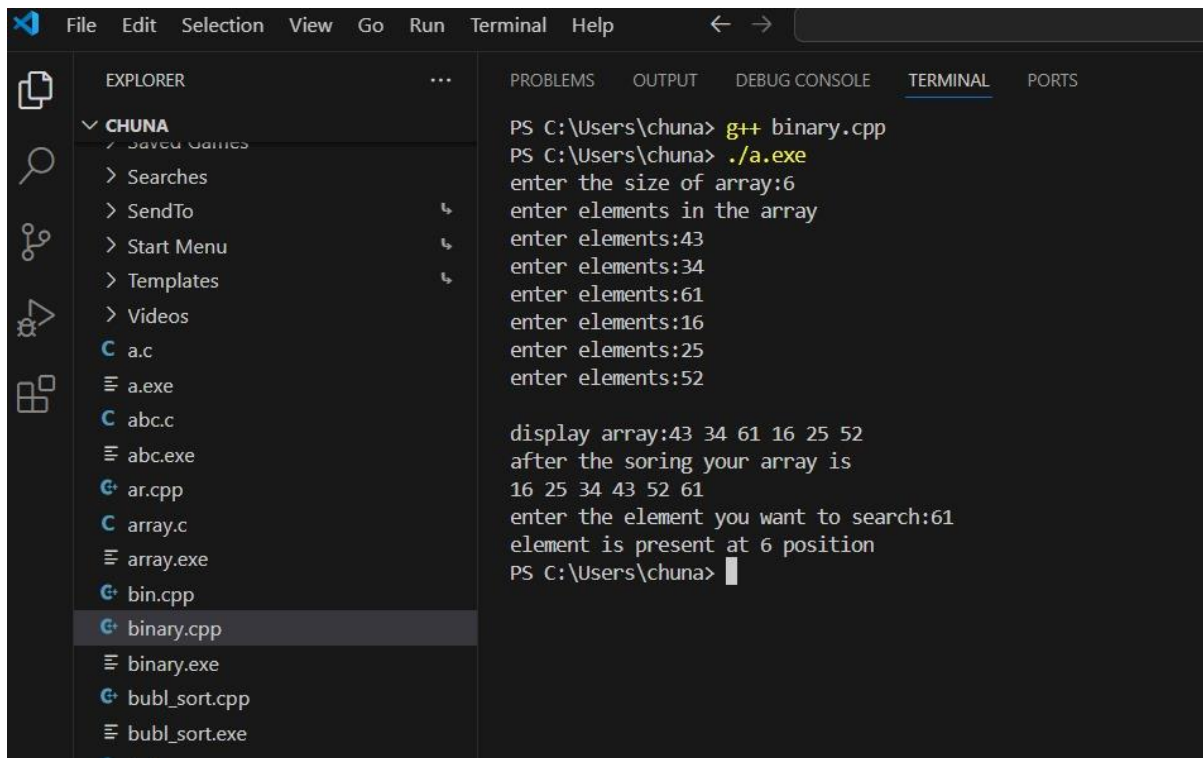
```

```
        found=1;
    }
    else if(num<ar[mid-1])

    {

        end=mid-1;
    }
    else if(num>ar[mid-1])
    {
        beg=mid+1;
    }

    mid=(beg+end)/2;
}
mid=(beg+end)/2;
if(found==1)
{
    cout<<"element is present at "<<mid<<" position";
}
else
{
    cout<<"element is not present in the array";
}
}
```

OUTPUT

```
File Edit Selection View Go Run Terminal Help
EXPLORER
CHUNA
  Saved Games
  > Searches
  > SendTo
  > Start Menu
  > Templates
  > Videos
  a.c
  a.exe
  abc.c
  abc.exe
  ar.cpp
  array.c
  array.exe
  bin.cpp
  binary.cpp
  binary.exe
  bubl_sort.cpp
  bubl_sort.exe

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\chuna> g++ binary.cpp
PS C:\Users\chuna> ./a.exe
enter the size of array:6
enter elements in the array
enter elements:43
enter elements:34
enter elements:61
enter elements:16
enter elements:25
enter elements:52

display array:43 34 61 16 25 52
after the soring your array is
16 25 34 43 52 61
enter the element you want to search:61
element is present at 6 position
PS C:\Users\chuna>
```

GITHUB LINK FOR PRACTICAL :

https://github.com/Nishikant-Chunarkar/DATA_STRUCTURE_PRACTICAL