Instructions: Please read carefully

- Please rename this file as only your ID number **(e.g. 18-*****-1 Lab 8.doc or 18-*****-1 Lab 8.pdf).**
- Do not upload the Task anywhere now. Keep the task safe after you complete it. You will need it later.

Name:- Amit Podder

ID:- 20-42273-1

Section:- [F]

1. Write a code to implement Bubble Sort for the following list

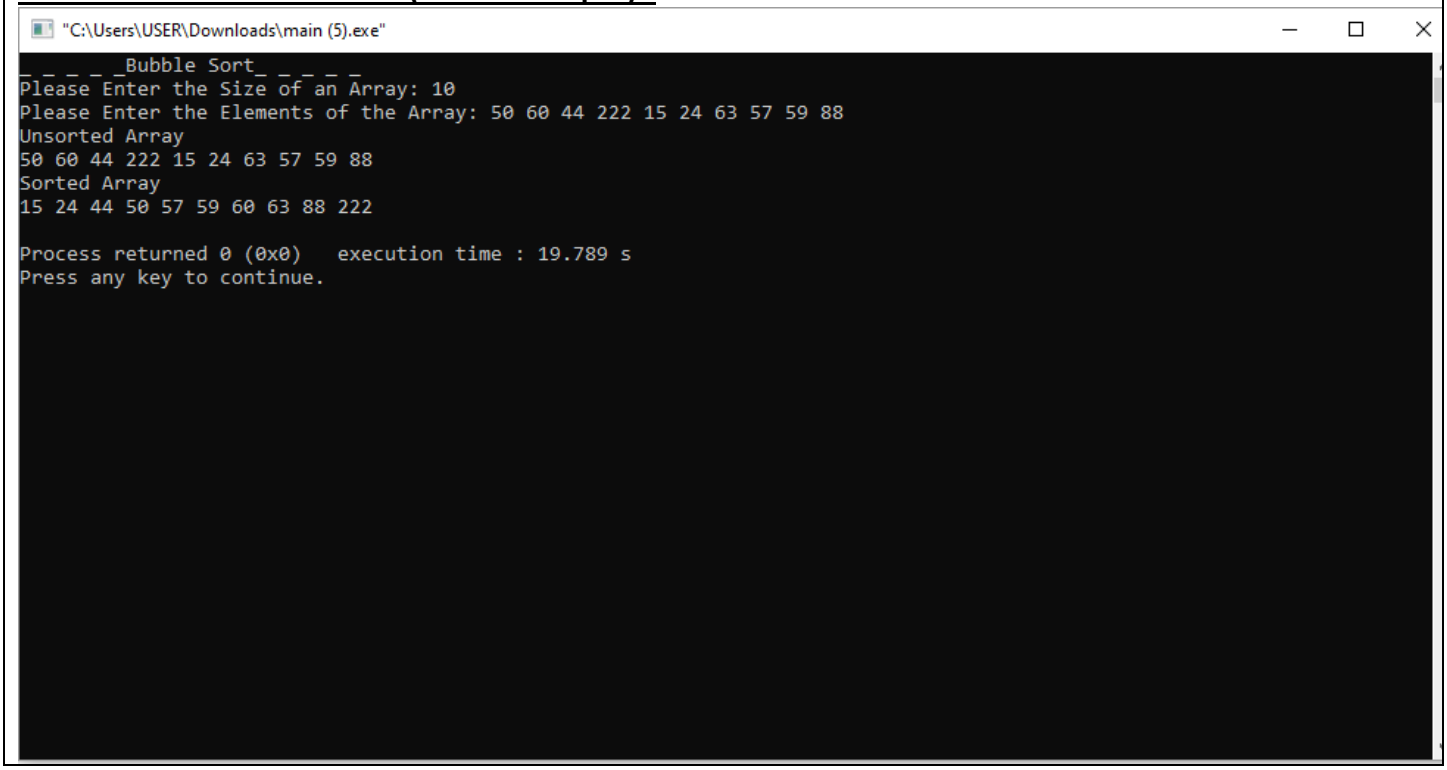
50	60	44	222	15	24	63	57	59	88

Your code here:-

```
#include <iostream>

using namespace std;

//Bubble Sort

int main()
{
   int n;
   cout<<"_ _ _ _ _Bubble Sort_ _ _ _ _"<<endl;
   cout<<"Please Enter the Size of an Array: ";
   cin>>n;

   int arr[n];
   int a,b;
   int c,d=0;
   int t;

   cout<<"Please Enter the Elements of the Array: ";
   for(int a=0;a<n;a++)
   {
      cin>>arr[a];
   }
   cout<<"Unsorted Array"<<endl;
   for(int a=0;a<n;a++)
   {
      cout<< arr[a] << " ";
   }
   cout<<endl;
   for(int a=0;a<n;a++)
   {
      for(b=a+1;b<n;b++)
      {
         if(arr[a]>arr[b])
         {
            c=arr[a];
            arr[a]=arr[b];
            arr[b]=c;
         }
```

```
      }
      t++;
   }
   cout<<"Sorted Array"<<endl;
   for(int a=0;a<n;a++)
   {
    cout<< arr[a] << " ";
   }
   cout<<endl;
   return 0;
}
```

Your whole Screenshot here: (Console Output):-



2. Write a code to implement Selection Sort for the following list

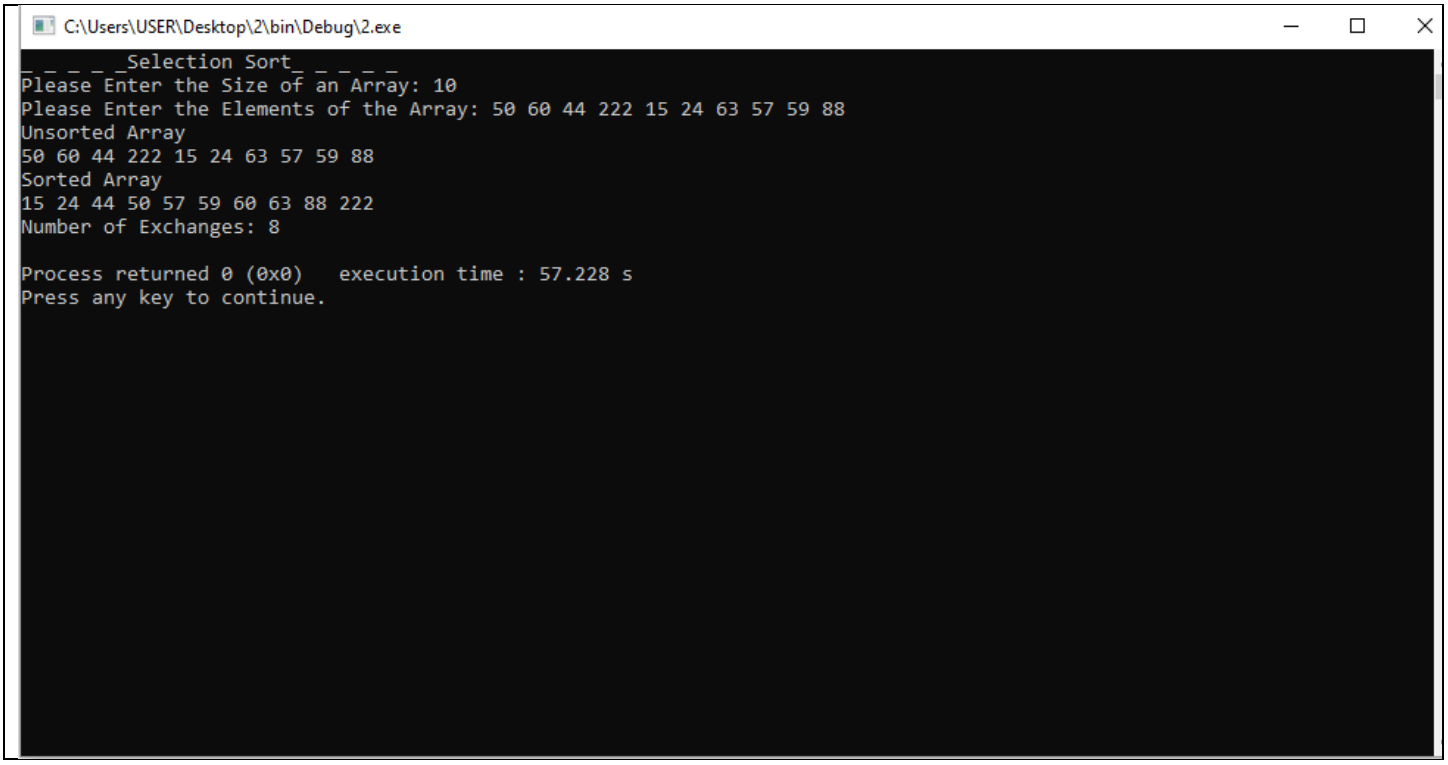
50	60	44	222	15	24	63	57	59	88

Your code here:-

```
#include <iostream>

using namespace std;

//Selection Sort

int swap_no=0;

int main()
{
   int n;
   cout<<"_ _ _ _ _Selection Sort_ _ _ _ _"<<endl;
   cout<<"Please Enter the Size of an Array: ";
   cin>>n;
```

```
    int arr[n];
    cout<<"Please Enter the Elements of the Array: ";
    for(int i=0;i<n;i++)
    {
       cin>>arr[i];
    }
    cout<<"Unsorted Array"<<endl;
    for(int i=0;i<n;i++)
    {
       cout<< arr[i] << " ";
    }
    cout<<endl;

    int i,j,loc,temp,min,accept_swap;
    for(int i=0;i<n-1;i++)
    {
       min=arr[i];
       loc=i;
       for(int j=i+1;j<n;j++)
       {
          if(min>arr[j])
          {
             min=arr[j];
             accept_swap=j;
             loc=accept_swap;
          }
       }
       if(loc==accept_swap)
       {
          swap_no++;
       }
       temp=arr[i];
       arr[i]=arr[loc];
       arr[loc]=temp;
    }
    cout<<"Sorted Array"<<endl;
    for(int i=0;i<n;i++)
    {
      cout<< arr[i] << " ";
    }
    cout<<endl;
    cout<<"Number of Exchanges: "<< swap_no << endl;

    return 0;
}
```

Your whole Screenshot here: (Console Output):-



3. Write a code to implement Insertion Sort for the following list

50	60	44	222	15	24	63	57	59	88

Your code here:-

Your whole Screenshot here: (Console Output):-

4. Write a code to implement Linear search to find a particular value in a linear array to find 63 in the following list

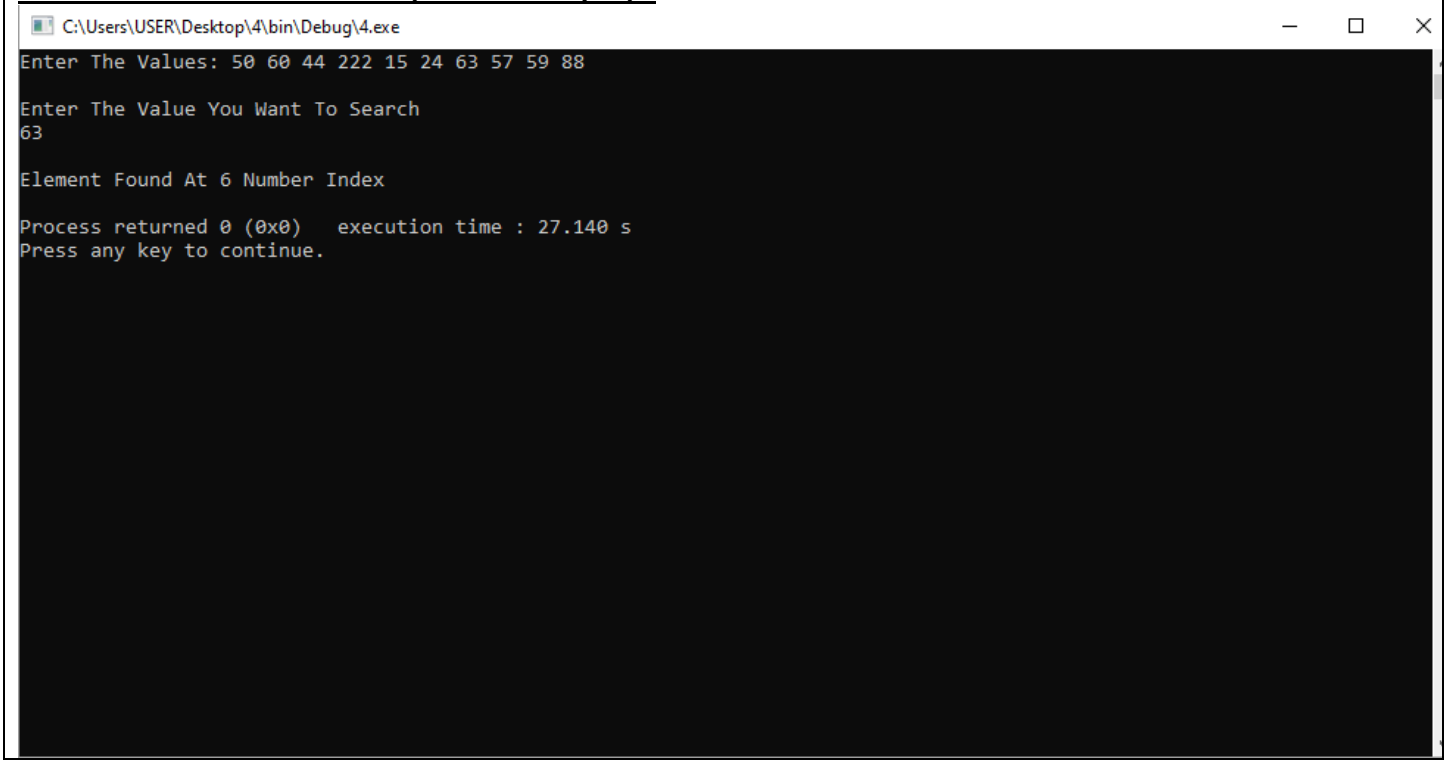
50	60	44	222	15	24	63	57	59	88

Your code here:-

```
#include <iostream>

using namespace std;

void ArrayInput(int x[],int Size);
void Searching(int x,int y[]);

void ArrayInput(int x[],int Size)
{
   for(int i=0;i<Size;i++)
   {
      cin>>x[i];
   }
   cout<<endl;
}

void Searching(int x,int y[])
{
```

```
   int flag=0;
   for(int i=0;i<10;i++)
   {
      if(x==y[i])
      {
         cout<<endl;
         cout<<"Element Found At "<<i<<" Number Index"<<endl;
         flag++;
         break;
      }
   }
   if(flag==0)
   {
      cout<<endl;
      cout<<"Element Not Found"<<endl;
   }
}

int main()
{  int a[10];
   cout<<"Enter The Values: ";
   ArrayInput(a,10);

   cout<<"Enter The Value You Want To Search"<<endl;
   int b;
   cin>>b;
   Searching(b,a);

   return 0;
}
```

Your whole Screenshot here: (Console Output):-



5. Write a Program for Binary Search Implementation to find 63 in the following list

50	60	44	222	15	24	63	57	59	88

Your code here:-

```
#include <iostream>

using namespace std;

int main()
{
   int n;
   cout<<"Please Enter the Size of an Array: ";
   cin>>n;

   int arr[n];
   int a,b;
   int c,d=0;
   int t;

   cout<<"Please Enter the Elements of the Array: ";
   for(int a=0;a<n;a++)
   {
      cin>>arr[a];
   }
   cout<<"Unsorted Array"<<endl;
   for(int a=0;a<n;a++)
   {
      cout<< arr[a] << " ";
   }
   cout<<endl;
   for(int a=0;a<n;a++)
   {
      for(b=a+1;b<n;b++)
      {
         if(arr[a]>arr[b])
         {
            c=arr[a];
            arr[a]=arr[b];
            arr[b]=c;
         }
      }
      t++;
   }
   cout<<"Sorted Array"<<endl;
   for(int a=0;a<n;a++)
   {
     cout<< arr[a] << " ";
   }
   cout<<endl;

   cout<<"_ _ _Sorted Array_ _ _"<<endl;
   cout<<"Enter The Element You Want To Search"<<endl;
   int e;
   cin>>e;
```

```
  int first=0;
  int last=9;
  int mid=(first+last)/2;
  while(first<=last)
  {
    if(arr[mid]<e)
    {
      first=mid+1;
    }
    else if(arr[mid]==e)
    {
      cout<<"Element Found At "<<mid+1<<" Number Index"<<endl;
      break;
    }
    else
    {
      last=mid-1;
    }
    mid=(first+last)/2;
  }
  if(first>last)
  {
    cout<<"Element Not Found"<<endl;
  }
  return 0;
}
```

Your whole Screenshot here: (Console Output):-