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
                       44
                                   222
                                                          24
50
            60
                                               15
                                                                     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):-
 "C:\Users\USER\Downloads\main (5).exe"
                                                                                                                                                 ×
_____Bubble Sort_____
Please Enter the Size of an Array: 10
Please Enter the Elements of the Array: 50 60 44 222 15 24 63 57 59 88
Unsorted Array
50 60 44 222 15 24 63 57 59 88
Sorted Array
15 24 44 50 57 59 60 63 88 222
Process returned 0 (0x0) execution time : 19.789 s
Press any key to continue.
```

| 2. V | Vrite a cod | e to implem | ent Selection | n Sort fo | r the follow | ing list | | | |
|-------------|-----------------------|-------------|--------------------------------|-----------|--------------|----------|----|----|----|
| 50 | 60 | 44 | 222 | 15 | 24 | 63 | 57 | 59 | 88 |
| Your co | de here:- | | | | | | | | |
| #include | <iostream></iostream> | | | | | | | | |
| using nar | nespace std | l; | | | | | | | |
| //Selection | on Sort | | | | | | | | |
| int swap | _no=0; | | | | | | | | |
| int main(|) | | | | | | | | |
| { int n; | | | | | | | | | |
| cout<< | "Please Ent | _ | "< <e f an Array: ";</e | ndl; | | | | | |

```
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;</pre>
return 0;
```

Your whole Screenshot here: (Console Output):-

```
×
 C:\Users\USER\Desktop\2\bin\Debug\2.exe
                                                                                                                         Please Enter the Size of an Array: 10
Please Enter the Elements of the Array: 50 60 44 222 15 24 63 57 59 88
Unsorted Array
50 60 44 222 15 24 63 57 59 88
Sorted Array
15 24 44 50 57 59 60 63 88 222
Number of Exchanges: 8
Process returned 0 (0x0)
                            execution time : 57.228 s
Press any key to continue.
```

| 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 44 222 15 24 63 57 59 88 60

```
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++)</pre>
    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):-
C:\Users\USER\Desktop\4\bin\Debug\4.exe
                                                                                                              ×
Enter The Values: 50 60 44 222 15 24 63 57 59 88
Enter The Value You Want To Search
Element Found At 6 Number Index
Process returned 0 (0x0) execution time : 27.140 s
Press any key to continue.
```

| 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;</pre>
  cout<<"Enter The Element You Want To Search"<<endl;</pre>
  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):-

```
Please Enter the Size of an Array: 10
Please Enter the Elements of the Array: 50 60 44 222 15 24 63 57 59 88
Unsorted Array
50 60 44 222 15 24 63 57 59 88
Sorted Array
15 24 44 50 57 59 60 63 88 222

__Sorted Array
Enter the Element You Want To Search
63
Element Found At 8 Number Index
Process returned 0 (0x0) execution time: 47.195 s
Press any key to continue.
```