1 linear search

```
#include <iostream>
using namespace std;
int main()
{
    int a[60],i,n,s,index;

    cout<<"enter number of elements";
    cin>>n;
    cout<<"enter the numbers";
    for(i=0;i<n;i++)
    {
        cin >> a[i];
    }
    cout << "Searching number:";
    cin >> s;
    for(i=0;i<n;i++)
    {
        if(a[i] == s)
        {
            index=i;
            break;
        }
    }
    cout << "number found at:" << index;
    return 0;
}
```

2 binary search

```
#include <iostream>
using namespace std;
int main()
{
    int a[60],b,e,m,index,i,n,s;
    cout<<"enter size:";
          cin>>n;
    cout << "Enter  numbers (in ascending order) : ";
    for(i=0; i<n; i++)
    {
        cin >> a[i];
    }
    cout << "Number to be searched : ";
    cin >> s;
    b=0;
    e=5;
    while(b<=e)
    {
        m = (b+e)/2;
        if(a[m] == s)
        {
```

```
            index = m;
            cout << "Number at " << index;
            break;
        }
        else if(a[m] > s)
        {
            e = m-1;
        }
        else
        {
            b = m+1;
        }
    }
    return 0;
}
```

3 selection sort

```
#include <iostream>
using namespace std;
int main()
{
        int i,n,a[100],j,min;
        cout<<"enter size";
        cin>>n;
        cout<<"enter numbers:";
        for(i=0;i<n;i++)
        {
        cin>>a[i];
        }
        for(i=0;i<n-1;i++)
        {
        min=i;
        for(j=i+1;j<n;j++)
        {
        if(a[j]<a[i])
        {
                min=j;
        }
        }
        swap(a[min],a[i]);
        }
        cout<<"after sorting:";
        for(i=0;i<n;i++)
        {
        cout<<a[i] <<"\n";
        }
        return 0;
}
```

4 bubble sort

```
#include <iostream>
using namespace std;
int main()
{
	int i,n,a[100],j,min,count,temp;
	cout<<"enter size:";
	cin>>n;
	cout<<"enter numbers:";
	for(i=0;i<n;i++)
	{
	cin>>a[i];
	}
	for(i=0;i<n-1;i++)
	{
	count=0;
	for(j=0;j<n-1-i;j++)
	{
	if(a[j+1]<a[j])
	{
	temp=a[j+1];
	a[j+1]=a[j];
	a[j]=temp;
	count++;
	}
	}
	if(count==0)
	{
		//cout<<"already sorted:"<<"\n";
		break;
	}


	}
	cout<<"after bubble sort:";
	for(i=0;i<n;i++)
	{
	cout<<"at "<<i <<"iteration " <<a[i] <<"is sorted "<<"\n";
	}
	return 0;
}
```

5 Quick sort

```
#include <iostream>
using namespace std;

int partition(int a[],int s,int e)
{
   int i, pivot, pindex;
   pivot = e;
   pindex = s;
```

```
    for(i=s;i<e;i++)
    {
        if(a[i]<a[pivot])
        {
            swap(a[pindex],a[i]);
            pindex++;
        }
    }
    swap(a[pivot],a[pindex]);
    return pindex;
}

int quicksort(int a[],int s,int e)
{
    if(s<e)
    {
       int pindex=partition(a,s,e);
        quicksort( a, s,pindex-1);
        quicksort( a,pindex+1, e);
    }
    return 0;
}

int main()
{
    int n, a[100];
    cout << "Enter number of elements";
    cin >> n;
    cout << "enter elements: ";
    for(int i=0;i<n;i++)
    {
        cin >> a[i];
    }
    quicksort( a,0,n-1);
    cout << "after quicksort: ";
    for(int i=0;i<n;i++)
    {
        cout << a[i] << "\n";
    }
    return 0;
}
```