1. Bubble Sort

Program A

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

int main()
{
    int n, i, arr[50], j, temp;

   cout<<"Enter  Size of the Array (Max. 50): \n";
   cin>>n;

   cout<<"Enter "<<n<<" Array Elements: \n";
   for(i=0; i<n; i++)
      cin>>arr[i];

   for(i=0; i<n; i++)
   {
      for(j=0; j<(n-i-1); j++)
      {
         if(arr[j]>arr[j+1])
         {
            temp = arr[j];
            arr[j] = arr[j+1];
            arr[j+1] = temp;
         }
      }
   }

   cout<<"\nArray Sorted Successfully!\n";

   cout<<"\nThe New Sorted Array is: \n";
   for(i=0; i<n; i++)
      cout<<arr[i]<<" ";

   cout<<endl;

   return 0;
}
```

Program B

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

void bubbleSort(int [], int); //function declaration

int main()
{
   int n, i, arr[50];

   cout<<"Enter  Size of the Array (Max. 50): ";
   cin>>n;

   cout<<"Enter "<<n<<" Array Elements: \n";
   for(i=0; i<n; i++)
      cin>>arr[i];

   bubbleSort(arr,n);

   cout<<"\nArray Sorted Successfully!\n";

   cout<<"\nThe New Sorted Array is: \n";
   for(i=0; i<n; i++)
      cout<<arr[i]<<" ";

   cout<<endl;

   return 0;
}

//function definition
void bubbleSort(int arr[], int n)
{
   int i, j, temp;

   for(i=0; i<n; i++)
   {
      for(j=0; j<(n-i-1); j++)
      {
         if(arr[j]>arr[j+1])
         {
            temp = arr[j];
            arr[j] = arr[j+1];
            arr[j+1] = temp;
         }
      }
   }
}
```

2. Insertion Sort

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

int main()
{
   int i, j, n, temp, arr[50];

   cout<<"Enter  Size of the Array (Max. 50): \n";
   cin>>n;

   cout<<"Enter "<<n<<" Array Elements: \n";
   for(i=0; i<n; i++)
      cin>>arr[i];

   cout<<"Array Elements before being Sorted: ";
   for (i = 0; i < n; i++)
      cout << arr[i] <<" ";

   cout<<endl;

    // Sorting the array using insertion sort technique
   for (i = 1; i < n; i++) {
      temp = arr[i];
      j = i - 1;

      while(j>=0 && temp <= arr[j])  /* Move the
elements greater than temp to one position ahead
from their current position*/
      {
         arr[j+1] = arr[j];
         j = j-1;
      }
      arr[j+1] = temp;
   }

   cout<<"\nArray Elements after being sorted: ";
   for (i = 0; i < n; i++)
      cout << arr[i] <<" ";

   cout<<endl;

   return 0;
}
```

3. Selection Sort

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

int main()
{
   int i, j, n, small, arr[50];

   cout<<"Enter  Size of the Array (Max. 50): \n";
   cin>>n;

   cout<<"Enter "<<n<<" Array Elements: \n";
   for(i=0; i<n; i++)
      cin>>arr[i];

   cout<<"Array Elements before being sorted: ";
   for (i = 0; i < n; i++)
      cout << arr[i] <<" ";

   cout<<endl;

  // Sorting the array using selection sort technique
   for (i = 0; i < n-1; i++)    // One by one move
boundary of unsorted sub-array
   {
      small = i; //minimum element in unsorted
array

      for (j = i+1; j < n; j++)
         if (arr[j] < arr[small])
            small = j;

// Swap the minimum element with the first element
   int temp = arr[small];
   arr[small] = arr[i];
   arr[i] = temp;
   }

   cout<<"\nArray Elements after being sorted: ";
   for (i = 0; i < n; i++)
      cout<< arr[i] <<" ";

   cout<<endl;

   return 0;
}
```