**PROGRAM FOR MERGE SORT:**

#include<iostream>

using namespace std;

class msort

{

private:

int a[100],b[100],c[100],n,m,i,j,k,p,temp;

public:

void arr1();

void arr2();

void sort1();

void sort2();

void merge();

};

void msort::arr1()

{

cout<<"\nEnter size of First Array : ";

cin>>n;

cout<<"\nEnter Elements in 1st array:\n";

for(i=1;i<=n;i++)

{

cin>>a[i];

}

}

void msort::sort1()

{

for(p=1;p<=n-1;p++)

{

for(j=1;j<=n-1;j++)

{

if(a[j]>a[j+1])

{

temp=a[j];

a[j]=a[j+1];

a[j+1]=temp;

}

}

}

cout<<"\nAfter Sorting first array : \n";

for(i=1;i<=n;i++)

{

cout<<a[i]<<endl;

}

}

void msort::arr2()

{

cout<<"\nEnter size of Second Array : ";

cin>>m;

cout<<"\nEnter Elements in 2nd array:\n";

for(i=1;i<=m;i++)

{

cin>>b[i];

}

}

void msort::sort2()

{

for(p=1;p<=m-1;p++)

{

for(j=1;j<=m-1;j++)

{

if(b[j]>b[j+1])

{

temp=b[j];

b[j]=b[j+1];

b[j+1]=temp;

}

}

}

cout<<"\nAfter Sorting second array : \n";

for(j=1;j<=m;j++)

{

cout<<b[j]<<endl;

}

}

void msort::merge()

{

i=1,j=1;

for(k=1;k<=n+m;k++)

{

if(a[i]<b[j])

{

c[k]=a[i];

i++;

if(i>n)

{

for(j=1;j<=m;j++)

{

k++;

c[k]=b[j];

}

}

}

else

{

c[k]=b[j];

j++;

if(j>m)

{

for(i=1;i<=n;i++)

{

k++;

c[k]=a[i];

}

}

}

}

cout<<"\n\nAfter Merging Two Arrays:\n";

cout<<"----------------------------";

for(k=1;k<=n+m;k++)

{

cout<<"\n"<<c[k];

}

}

int main()

{

msort m;

m.arr1();

m.sort1();

m.arr2();

m.sort2();

m.merge();

return 0;

}

**OUTPUT:**

Enter size of First Array : 4

Enter Elements in 1st array:

8

3

4

1

After Sorting first array :

1

3

4

8

-------------------------------

Enter size of Second Array : 4

Enter Elements in 2nd array:

2

9

7

5

After Sorting second array :

2

5

7

9

-------------------------------

After Merging Two Arrays:

1

2

3

4

5

7

8

9