**MERGE SORT**

#include<stdio.h>

void mergesort(int a[], int i, int j);

void merge(int a[], int i1, int j1, int i2, int j2);

int main() {

int a[30],n,i;

printf("Enter no of elements:");

scanf("%d",&n);

printf("Enter array elements:");

for(i=0;i<n;i++)

scanf("%d",&a[i]);

mergesort(a,0,n-1);

printf("\nSorted array is :");

for(i=0;i<n;i++)

printf("%d ",a[i]);

return 0;

}

void mergesort(int a[], int i, int j) {

int mid;

if(i<j) {

mid=(i+j)/2;

mergesort(a,i,mid);

mergesort(a,mid+1,j);

merge(a,i,mid,mid+1,j);

}

}

void merge(int a[],int i1,int j1,int i2,int j2) {

int temp[50];

int i, j, k;

i=i1;

j=i2;

k=0;

while(i<=j1 && j<=j2) {

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

temp[k++]=a[i++];

}

else {

temp[k++]=a[j++];

}

}

while(i<=j1) {

temp[k++]=a[i++];

}

while(j<=j2) {

temp[k++]=a[j++];

}

for(i=i1,j=0;i<=j2;i++,j++) {

a[i]=temp[j];

}

}

