Program

/\* Merge sort \*/ #include <stdio.h> #include <conio.h>

void merge(int [],int ,int ,int ); void part(int [],int ,int );

int size; main()

{

int i, arr[30];

printf("Enter total no. of elements : "); scanf("%d", &size);

printf("Enter array elements : "); for(i=0; i<size; i++)

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

part(arr, 0, size-1);

printf("\n Merge sorted list : "); for(i=0; i<size; i++) printf("%d ",arr[i]);

getch();

}

void part(int arr[], int min, int max)

{

int i, mid;

if(min < max)

{

mid = (min + max) / 2; part(arr, min, mid); part(arr, mid+1, max); merge(arr, min, mid, max);

}

if (max-min == (size/2)-1)

{

printf("\n Half sorted list : "); for(i=min; i<=max; i++)

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

}

}

void merge(int arr[],int min,int mid,int max)

{

int tmp[30]; int i, j, k, m; j = min;

m = mid + 1; for(i=min; j<=mid && m<=max; i++)

{

if(arr[j] <= arr[m])

{

tmp[i] = arr[j];

j++;

}

else

{

}

}

tmp[i] = arr[m]; m++;

if(j > mid)

{

for(k=m; k<=max; k++)

{

tmp[i] = arr[k]; i++;

}

}

else

{

for(k=j; k<=mid; k++)

{

tmp[i] = arr[k]; i++;

}

}

for(k=min; k<=max; k++)

arr[k] = tmp[k];

}

Output

Enter total no. of elements : 8

Enter array elements : 24 13 26 1 2 27 38 15

Half sorted list : 1 13 24 26

Half sorted list : 2 15 27 38

Merge sorted list : 1 2 13 15 24 26 27 38