**Assignment No:-**

**Assignment Name:- Write a Program for sorting given array in ascending/descending order with n=1000,2000,3000,find exact time of execution using Merge Sort .**

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**------------------------------------------------------**

**#include<iostream.h>**

**#include<conio.h>**

**#include<stdio.h>**

**class MERGE\_39**

**{**

**private:**

**int A[10],ele;**

**public:**

**void READ\_39();**

**void MERGE\_SORT\_39(int l,int h);**

**void PROCESS\_39(int l, int h,int m);**

**void DISPLAY\_39();**

**};**

**void MERGE\_39::READ\_39()**

**{**

**cout<<"\n How many elements you want to strore=>";**

**cin>>ele;**

**cout<<"\n Enter Elements=> \n";**

**for(int i=1;i<=ele;i++)**

**cin>>A[i];**

**MERGE\_SORT\_39(1,ele);**

**}**

**void MERGE\_39::MERGE\_SORT\_39(int l,int h)**

**{**

**int mid;**

**if(l<h)**

**{**

**mid=int((l+h)/2);**

**MERGE\_SORT\_39(l,mid);**

**MERGE\_SORT\_39(mid+1,h);**

**PROCESS\_39(l,mid,h);**

**}**

**}**

**void MERGE\_39::PROCESS\_39(int low,int high,int mid)**

**{**

**int B[10];**

**int i=low;**

**int k=low;**

**int j=mid+1;**

**while((i<=mid)&&(j<=high))**

**{**

**if(A[i]>=A[j])**

**{**

**B[k]=A[i];**

**i++;**

**k++;**

**}**

**else**

**{**

**B[k]=A[j];**

**j++;**

**k++;**

**}**

**}**

**if(i>mid)**

**{**

**while(j<=high)**

**{**

**B[k]=A[j];**

**j++;**

**k++;**

**}**

**}**

**else**

**{**

**while(i<=mid)**

**{**

**B[k]=A[i];**

**i++;**

**k++;**

**}**

**}**

**for(int kl=low;kl<=high;kl++)**

**{**

**A[kl]=B[kl];**

**}**

**}**

**void MERGE\_39::DISPLAY\_39()**

**{**

**for(int i=1;i<=ele;i++)**

**cout<<A[i]<<" ";**

**}**

**void main()**

**{**

**clrscr();**

**MERGE\_39 m;**

**m.READ\_39();**

**cout<<"\n Aftert Sorting :\n";**

**m.DISPLAY\_39();**

**getch();**

**}**