Experiment No 1.6

**Shell Sort :**

#include<iostream>

#include<math.h> #define max 100

using namespace std; class Shell

{

       public:

               int n,arr[max];

               void getData()               { int i;                         cout<<"How many array Elements :";  cin>>n;

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

               }     void ShellSort()

    {

           int i, j, k, temp,f=0;              for(i = n/2.0   ; i > 0 ;   i = i/2.0){             cout<<endl<<"(Pass : "<<f++<<" )(inc = "<<i<<"):  \t ";

            displayData();

                    for(j = i; j < n; j++){

                        for(k = j-i; k >= 0; k = k-i){                                      if(arr[k+i] >= arr[k])

                                        break;                                     else {                                    temp = arr[k];                            arr[k] = arr[k+i];                                    arr[k+i] = temp;

                                    }

                           }

                   }

            }

    }

   void displayData()

               {          int i;     for(i=0;i<n;i++)                  cout<<arr[i]<<"\t";

               }

}b;

int main()

{

b.getData();

b.ShellSort();  cout<<endl<<"Sorted Array Elements are :"<<endl;

b.displayData();  cout<<endl;

}

**Output :**

How many array Elements :4

Enter Array Elements :

20

10

1

3

(Pass : 0 )(inc = 2):      20    10 1    3

(Pass : 1 )(inc = 1):      1   3 20    10

Sorted Array Elements are :

1    3 10    20