/\*

Write C++ program to store first year percentage of students in array. Write function for sorting array of floating point numbers in ascending order using

a) Insertion sort

b) Shell Sort

\*/

#include<iostream>

using namespace std;

#define MAX 20

class Sort

{

private:

float A[MAX];

int n;

public:

Sort();

void get\_data();

void Insert\_sort();

void Shell\_sort();

void display();

};

Sort::Sort()

{

for(int i=0;i<MAX;i++)

A[i]=0;

}

void Sort::Insert\_sort()

{

int i,j;

float temp;

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

{

temp=A[i];

j=i-1;

while((j>=0)&&(A[j]>temp))

{

A[j+1]=A[j];

j=j+1;

}

A[j+1]=temp;

}

}

void Sort::get\_data()

{

cout<<"\nHow many students are there?";

cin>>n;

cout<<"\nEnter the percentage marks of each students\n";

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

cin>>A[i];

}

void Sort::Shell\_sort()

{

int i,j,d,k;

float value;

d=(n+1)/2;

for(i=d;i>=1;i=i/2)

{

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

{

value=A[j];

k=j-1;

while(k>=0&&value<A[k])

{

A[k+1]=A[k];

k=k-1;

}

A[k+i]=value;

}

}

}

void Sort::display()

{

cout<<"\n The percentage marks of Top Five Students..!!!\n";

for(int i=n-1;i>=n-5;i--)

cout<<"\n "<<A[i];

}

int main()

{

Sort obj;

int choice;

char ans='y';

obj.get\_data();

do

{

cout<<"\nMain Menu";

cout<<"\n1.Insertion Sort\n2.Shell Sort\n3.Exit";

cout<<"\nEnter your choice::";

cin>>choice;

switch(choice)

{

case 1:

obj.Insert\_sort();

obj.display();

break;

case 2:

obj.Shell\_sort();

obj.display();

break;

// case 3:

//exit(0);

}

cout<<"\nDo you want to continue?";

cin>>ans;

}

while(ans=='y' || ans=='Y');

return 0;

}

/\*

OUTPUT :

Enter the total no.of students::4

Enter the percenatge marks for second year student1::60

Enter the percenatge marks for second year student2::55

Enter the percenatge marks for second year student3::77

Enter the percenatge marks for second year student4::76

1.Insertion Sort 2. Shell Sort 3. Exit

Enter your choice::1

Top five scores are :: 77 76 60 55 0

1.Insertion Sort 2. Shell Sort 3. Exit

Enter your choice::2

Top five scores are:: 77 76 60 55 0

1.Insertion Sort 2. Shell Sort 3. Exit

Enter your choice::

\*/