#include  <iostream>

using namespace std;

int shellSort(int arr[], int n)

{

    for (int gap = n/2; gap > 0; gap /= 2)

    {

        for (int i = gap; i < n; i += 1)

        {

            int temp = arr[i];

            int j;

            for (j = i; j >= gap && arr[j - gap] > temp; j -= gap)

                arr[j] = arr[j - gap];

            arr[j] = temp;

        }

    }

    return 0;

}

void printArray(int arr[], int n)

{

    for (int i=0; i<n; i++)

        cout << arr[i] << " ";

}

int main()

{

    int arr[] = {12, 34, 54, 2, 3}, i;

    int n = sizeof(arr)/sizeof(arr[0]);

    cout << "Array before sorting: \n";

    printArray(arr, n);

    shellSort(arr, n);

    cout << "\nArray after sorting: \n";

    printArray(arr, n);

    return 0;

}