# EXPERIMENT - 11

# Aim: To sort the elements of an array using insertion sort

## Pseudo code

Read n

Initialize an array arr of size n

Read n elements into arr

For i from 0 to n-1

Set key as arr[i]

Set j as i-1

While j >= 0 and arr[j] > key

Move arr[j] to arr[j+1]

Decrement j

End While

Place key at arr[j+1]

End For

For i from 0 to n-1

Print arr[i]

End For

## Source code:

#include<iostream>

using namespace std;

int main(){

    int n;

    cin>>n;

    int arr[n];

    for (int i=0;i<n;i++){

        cin>>arr[i];

    }

    for(int i=0;i<n;i++){

        int key=arr[i];

        int j=i-1;

        while(arr[j]>key && j>=0){

            arr[j+1]=arr[j];

            j--;

        }

        arr[j+1]=key;

    }

    for (int i=0;i<n;i++){

        cout<<arr[i]<<" ";

    }

    cout<<endl;

}

## Output:

**5**

**97 86 24 36 74**

**24 36 74 86 97**

## Learning from experiment

* Input an array in C++.
* Perform insertion sort.