PIMPRI CHINCHWAD EDUCATION TRUST's.

PIMPRI CHINCHWAD COLLEGE OF ENGINEERING

(An Autonomous Institute)

Class : SY BTech **Acad. Yr. 2025-26** **Semester : I**

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Department: Computer Engineering **Division : A**

Course Name : Data Structures Laboratory **Course Code:BCE23PC02**

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Assignment No. 2

Problem Statement: A warehouse management system wants to sort inventory items by stock quantity to prioritize restocking.Write a program for above scenario.

Source Code :

```
#include <bits/stdc++.h>
using namespace std;

// partition and sort
int partition(vector<int> &arr, int low, int high)
{
   int pivot = arr[high];
   int i = low - 1;

   for (int j = low; j < high; j++)
   {
      if (arr[j] <= pivot)
      {
         i++;
         swap(arr[i], arr[j]);
      }
   }
   swap(arr[i + 1], arr[high]);
```

```
    return i + 1;
}

// quick sort
void quickSort(vector<int> &arr, int low, int high)
{
    if (low < high)
    {
        int pi = partition(arr, low, high);
        quickSort(arr, low, pi - 1);
        quickSort(arr, pi + 1, high);
    }
}

int main()
{
    vector<int> quantities;
    int n;

    cout << "Enter number of inventory items: ";
    cin >> n;

    cout << "Enter stock quantities:\n";
    for (int i = 0; i < n; i++)
    {
        int temp;
        cin >> temp;
        quantities.push_back(temp);
    }

    quickSort(quantities, 0, n - 1);

    cout << "\nSorted stock quantities (Ascending):\n";
    for (int i = 0; i < quantities.size(); i++)
    {
        cout << quantities[i] << " ";
    }
    cout << endl;

    return 0;
}
```

Screen Shot of Output :

```
PS D:\hariomprogramm\DSA> g++ pract.cpp -o pract
PS D:\hariomprogramm\DSA> ./pract
Enter number of inventory items: 3
Enter stock quantities:
90
75
69

Sorted stock quantities (Ascending):
69 75 90
```

Conclusion:

Thus, we have successfully implemented the C++ program to sort the student data according to their scores in exam using insertion sort to help the educational platform.