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**Data Structures and Algorithm**

**Lab – 12 understanding functions of STL library**

**Here implementing insertion sort.**

**Source Code**

#include <iostream>

#include <vector>

using namespace std;

void insertionSort(vector<int>& value){//passing value so that we can modify values

//here size is not necessary.

int j, val;

//iterate through entire list

for (int a = 1; a < value.size(); a++){

val = value[a];

j = a - 1;

while (j >= 0 && value[j] > val){

value[j + 1] = value[j];

j = j - 1;

}//end while loop

value[j + 1] = val;

}//end for loop

}//end insertionSort Function

int main()

{

vector <int> arr;

vector <int> ::iterator i;

vector <int> ::reverse\_iterator ir;

int j;

cout << "Enter any elements to sort: ";

cin >> j;

while (j != -1){

arr.push\_back(j);

cin >> j;

}

cout << endl << "The enterd numbers are: ";

for (i = arr.begin(); i != arr.end(); ++i)

cout << \*i << '\t';

insertionSort(arr);

cout << endl << "The enterd numbers after insertion sort: "<<endl;

for (i = arr.begin(); i != arr.end(); ++i)

cout << \*i << '\t';

cout <<endl<< "Output of rbegin and rend\t:\t";

for (ir = arr.rbegin(); ir != arr.rend(); ++ir)

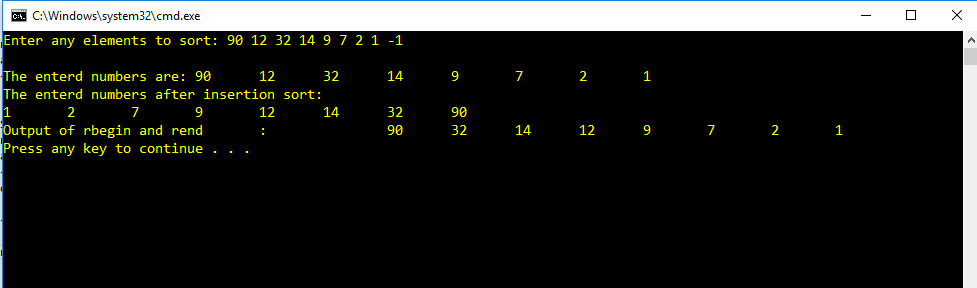
cout << '\t' << \*ir;

cout << endl;

return 0;

}

**OUTPUT**

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