* Assignment 6 *

Title :- Personal Information System using Sorting and Searching for STL and vector Container.

Problem Statement :-

Write a C++ program using STC for sorting and searching user defined record such as personal records using vector container.

OR.

Write C++ program using STL for sorting and searching user defined records such as Item records (Item Code, name, Cost etc) using vector. Container.

Prerequites :- object oriented programming.

objective :-

To ~~te~~ learn the concept of STL, Searching Sorting and vector container.

Theory :-

STL :- The Standard Template library is a set of C++ template classes to provide common programming data structures and function such as list, stacks, array etc. It is a library of Containers, classes, algorithms and iterators. It is a generalized library and so its components are parameterized. A working knowledge of

Template classes is a prerequisites for working with STL.

STL has four components.

1) Algorithms.
   - Sorting
   - Searching
   - Numeric
   - Partition operation etc.

2) Containers:-
- Sequence Containers - vector, list, array etc.
- Container adaptors - queue, stack, etc.
- Associative Containers - set, multiset, map, multimap.
- Associative & unordered Container - unordered - set unordered multiset, unordered - map.

3) Functions:-
- The STL includes classes that overload the functions call operators. Instances of such classes are called function objects or functors. functors allows the working of associated functions to be with the help of parameter to be passed.

4) Iterators:- As the name suggest, iterators are used for working upon a sequence of value They are the major features that allows generality in STL.

Utility library.
- Define in header <utility>
- pair

Sorting:-
It is one of the most basic functions applied to data. It means arranging the data in a particular fashion which can be increasing or decreasing. There is a built in function in c++ STL by the name of sort(). This function, internally uses Introsort.

Facilities:- linux operating system, G++

Algorithm.
1. Start.
2. Give a header file to use vector.
3. Create a vector naming personal records.
4. Initilize variables to store name, birth date and telephone number.
5. Using iterator store as many records you want to store using predefined function as push-back.
6. Create another vector item-record
7. Initialize variable to store Item code, item name, quantity and cost.
8. Using iterators and predefined functions, store the data.
9. Using predefined function sort(), sort the data, stored according to the requirement.

(10) Using predegined function search, search the element from the vector the user wants to check.
(11) Display and the functions using a menu.
(12) stop.

Conclusion :- Hence, we have successfully implemented the concept of STL and how it makes data structure easy.