

Assignment-No-11

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Title :- Item Record System using sorting and searching for 5 Th and vector container.

Problem Statement:

White a C++ program using STL for sorting and searching user defined records such as Item records Commen code, name, cost, quantity, etc) using vector container.

Learning Objectives: -

To learn the concept of STL, searching, sorting and vertor container.

Learning Outcomes: -

After completion of this assignment, students will be able to up implement the concept of STL and Vector container.

SIN and UIW requirements:>

1.> 64-bit open source Windows

2> Open source C++ programming tool like



Theory:>

STL: > The Standard Template hibrary (STL) is a sty

C++ template classes to provide common programming

data structures and functions such as lists, stacks

array, etc. It is a library of container classes

algorithms and iteratores. It is a generalized library

and so, its components are parameterized.

5TL has 4 components:

1) Algorithms: > The algorithms are used to process the contents of the containers. The functionalities provided in container are not sufficient to perform complex operations hence the algorithms are used to support more complex operations for the containers.

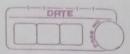
2> Containers: > The container is a collection of object of different types. These objects store the data. The wont owner can be implemented using template classes. There are two types of containers:

O Sequence container: - Implement data structures which can be accessed in a sequential manner.

eg: > vector, list, deque, arrays, exc.

D Associative containers: - Implement sourced data

D Associative containers: - Implement sourced data structures that can be quickly searched: ey: - Set, multiset, map & multimap, etc.



3.> Functions: > The STZ includes classes that overload the function call operator. Instances of such classes are called function objects or functors functors allow the working of the associated function to be customized with the help of parameters to be passed.

4) Iterators: > The iterators are basically objects but sometimes they can be pointers and hence iterators specify the positions in container. The iterators are used to traverse the contents of container.

· 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 brilt in function in C++ STL by the name of sort (). This function internally was Intero Sort. In more details it is implemented using hybrid of Duick Sort, Heap Sort and Insertion sort. By default, it was Duick Sort, but if Outle sort is doing unfair partioning and taking more time Notation in the array size belomas really small, it snitches to Insertion.

Syntax:-

SOrt (Start-address, endaddress)

> Stort address > the address of first element of array = end-address of the next contiguous sociation of the last element of array.



A Scarching is

Prince is used for searching an element in a vertor.

It returns an iterator to the first element in

the range [pirst, last) that compares equal to value
to be searched. If no such elements is found, the

function returns last.

Algorithm: >

(1) Start

DEnchede Header files such as: i'ostream, stollibin, vector, algorithm and string.

1 Define class 'Item Record's

(4) In public section, initialize variables, îtem name, item-vade, cost and quantity

match, it returns 1 or else returns o.

@ Overload < operator such that it returns 1 if is itemcode > fem rode else returns o.

Destrice class; define vector of class stemperord.

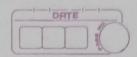
8.) Define insert() function, which accepts item-name, item-name, which accepts item-name, item-name, which accepts item-name, and quantity from user and puts

it is container.

Jefine display() function which displays Records for each item. wusing for each() function.

(10) Define print() function which is linked to display() to print perords one by one-

be found. cliency find() and sterator search
the item record.



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	12) Define the duto function, and accept item code to be deleted. Using find () and iterator search the item and using occase () delete it.
-	to be deleted . Using find () and iterator search
-	the item and using occuse () delete it.
	A MANAGER OF THE PARTY OF THE P
X	B. In main () breate an object of class. (4) Display menu and accept users choice. (5) Based on choice of user, call respective function. (6) Stop.
	(14) Display menu and accept users choice.
	Based on choice of user, call respective function.
1	16) Stop.
1	23 Wall Smale Mark 3 23 male Court
-	Test Case:
	D Insertion of records. 2 Display
	THE GENERALLY MEET COOK WHEN WITH
	Input: Expected output
	item_name = Mouse Item Name: Mouse
	îtem-code = 10001 Item code: 10001
	COSt = 1000 Ifem Cost: 1000
	quantity= 100 Item Quantity: 100
	STEE and here it makes done structures carried
	Esse Actual output
	Item Name: Mouse Test lase Passed.
	Jem Code: 10001
	Ifem Cost: 1000
	Item Quantity: 100.
1	Disearching of records and Sorting:-
-	Input:
	item_name = Mouse item-name = PenDrive
	item - code = 1000) 1 tem - w de = 10002
	item=cost = 1000 cost = 10
	quantity = 180 quantity = 1800.



Actual Output. Expected Output found found Item Name: PenDrive Tem-Name: Pen Drave Item lode: 10002 Ifem lost: 10 Item code: 10002 Tem lost: 10 Item Quantity: 1000 Item Quantity: 1000 Item Namez: Mouse Item Name: Mouse Item Cede: 10001 Item Code: 10001 Item Cost: 1000 Item Cost: 1000 Tem Quantity: 100. Item Quantity: 100. Test Care 2 Passed. Condusion. Hence we have successfully studied the concept of STL and how it makes data structures easier.