SUBJECT: OOP

COMPLEX ENGINEERING ACTIVITY

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ABOUT CODE:

- In this CEA we are required to develop a C++ code for an airline's online booking system which should allow the customers to do new booking, view their existing booking or cancel it.
- In addition to that the code should also allow the airline managers to add or update information on available flights.

CLASSES USED:

Base class:

It is an abstract class with two pure virtual functions; Login and Signup. The other classes manager and customer are publicly inherited by this class.

Manager class:

This class is a sub class of the base class.

It performed functions like login, show booking and update booking.

Customer class:

The functions includes Signup, Login, New booking, Show booking, Cancel booking.

FEATURES:

- Talking about the features of the airline's online booking system it has 2 different levels of authentications; Manager and Customer.
- The customers need to sign up with a username and password. Through which they can login and the session starts with the display of the customer console where they can make new booking and view or cancel the existing bookings.
- On the other hand the managers do not require the sign up.
- They can sign in and log out only to access information about the scheduled flights in the system.

HEADERFILES USED:

- #include<iostream>: It is used as a stream of Input and Output using cinand cout.
- #include<sstream>: Which can be useful for employing stream-style manipulation on them example carrier functions.
- #include<stdlib.h>: Defines four variable types, several macros, and various functions for performing general functions for example size t: This is the unsigned integral type and is the result of the size of keyword.
- #include<conio.h> : Used to getch() and clrscr() etc
- #include<vector>: Used to implement template classes for example push_back() function.
- #include<windows.h> : Used to sleep which means a general decrease in the system sleep(1100); where 1100 is time in milliseconds
- #include<iomanip>: input, output manipulator for ex used to set width etc etc
- #include<fstream>: It is used to control the data to read from a file as an input and data to write into the file as an output. Basically used it to read and store data from excel files.

FUNCTIONS USED:

Short:

Using short can conserve memory if it is narrower than int, which can be important when using a large array. Your program will use more memory in a 32-bit int system compared to a 16-bit int system

Sleep()

The sleep () function causes the program or the process in which it is called, to suspend its execution temporarily for a period of time in seconds specified by the function parameter.

PUSH BACK

•Push back:

push_back() function is used to push elements into a vector from the back. The new value is inserted into the vector at the end, after the current last element and the container size is increased by 1

Erase

The list::erase() is a built-in function in C++ STL which is used to delete elements from a list container. This function can be used to remove a single element or a range of elements from the specified list container.

•Static:

When static keyword is used, variable or data members or functions can not be modified again. It is allocated for the lifetime of program

Friend function:

A friend function in C++ is defined as a **function that can access private, protected and public members of a class**. The friend function is declared using the friend keyword inside the body of the class.

•Else if

if-else statement controls conditional branching. Statements in the if-branch are executed only if the condition evaluates to a non-zero value (or true)

Do while

The do/while loop is a variant of the while loop. This loop will execute the code block once, before checking if the condition is true, then it will repeat the loop as long as the condition is true.

Goto function

The goto statement in C++ is an unconditional jump statement used for transferring the control of a program. It allows the program's execution flow to jump to a specified location within the function.

•Getline:

The C++ getline() is a standard library function that is used to read a string or a line from an input stream.

CLS:

As others have said: system() is the function that lets you pass a string to the target system's command line interpreter (aka shell) to run. On Windows, there's a shell command called "CLS" that clears the screen.

Getch

We use a getch() function in a C++ program to hold the output screen for some time until the user passes a key from the keyboard to exit the console screen

STL:

 The Standard Template Library (STL) is a set of C++ template classes to provide common programming data structures and functions such as lists, stacks, arrays, etc. It is a library of container classes, algorithms, and iterators. It is a generalized library and so, its components are parameterized.

Some basic function associated with map:

- Erase
- Clear(Removes all the elements from the map)
- Size(Returns the number of elements in the map)
- End
- Begin
- Push/back (function is used to push elements into a vector from the back. The new value is inserted into the vector at the end, after the current last element and the container size is increased by 1)
- Empty (Returns whether the list is empty(1) or not(0).)
- Insert(nsert() (function is an inbuilt function in C++ STL, which is defined in <set>
 header file. This function is used to insert elements in the set container)
- Remove (Removes all the elements from the list, which are equal to given element.
- list::swap(This function is used to swap the contents of one list with
- another list of same type and size.)

Conclusions:

- We learnt how to do problem analysis
- We learnt the design/development of solution.
- We learnt how to use different function and their use.
- We learnt how to make a good and authentic code.

Thank You

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