CET1042B: Object Oriented Programming with C++ and Java

SCHOOL OF COMPUTER ENGINEERING AND TECHNOLOGY

S. Y. B. TECH. COMPUTER SCIENCE AND ENGINEERING

(CYBERSECURITY AND FORENSICS)

CET1042B: Object Oriented Programming with C++ and Java

Teaching Scheme
Theory: 2 Hrs. / Week

Credits: 02 + 02 = 04
Practical: 4 Hrs./Week

Course Objectives

1) **Knowledge:** (i) Learn object oriented paradigm and its fundamentals.
2) **Skills:** (i) Understand Inheritance, Polymorphism and dynamic binding using OOP.
   (ii) Study the concepts of Exception Handling and file handling using C++ and Java.
3) **Attitude:** (i) Learn to apply advanced concepts to solve real world problems.

Course Outcomes

1) Apply the basic concepts of Object Oriented Programming to design an application.
2) Make use of Inheritance and Polymorphism to develop real world applications.
3) Apply the concepts of exceptions and file handling to store and retrieve the data.
4) Develop efficient application solutions using advanced concepts.

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Assignment 5

Demonstrating the use of STL in C++

Laboratory Assignment No: 5

Problem Statement

A shop maintains the inventory of items. It stores information of items like Item_Code, Item_Name, Quantity and Cost of it in a list of STL. Whenever Customer wants to buy an item, sales person inputs the Item_Code and/or Item_Name and the system searches in a file and displays whether it is available or not otherwise an appropriate message is displayed. If it is, then the system displays the item details and request for the quantity of items required. If the requested quantity of items are available, the total cost of items is displayed; otherwise the message is displayed as required items not in stock. After purchasing an item, system updates the list.

Design a system using a class called Items with suitable data members and member functions. Implement menu driven C++ program for the inventory system using STL list.

Laboratory Assignment No: 5

Problem Statement

Data Members:

Item_Code
Item_Name
Quantity
Cost

Member Function:

Create STL list and store Record of Items
Search an Item in the file by Item_Code or Item_Name(Searching)
Arrange the Items by Item_Code or Item_Name(Sorting)
Update the file(Insert and delete)

Points related to Problem Statement

Syntax to create class and its object
Syntax for list container
Syntax for iterators

Algorithm

1. START.
2. Create the object of Item class.
3. Store the items information into the list using object of item class.
4. Insert the item information (Item_Code, Item_Name, Quantity and Cost) in a list using push_front() and push_back() function..
5. Delete the item information (Item_Code, Item_Name, Quantity and Cost) in a list using pop_front() and pop_back() function..
6. Input Item_Code or Item_Name from user to search Record.
7. If Matching found then display the complete records of Item (Item_Code, Item_Name, Quantity and Cost).
8. Else Display Message that Record not found.
9. Input Item_Code or Item_Name from user to sort Record.
10. Display the sorted list of items.
11. STOP

Practice Assignments

1. Program to insert and delete Item_Code to list in STL
2. Program to insert and delete Item_Code, Item_Name, Quantity and Cost to list in STL
3. Program to sort the item information by Item_Code
4. Program to search the item information by Item_Code

Take-away

1) Creation of object from class is necessary
2) Passing class name while writing template syntax for list is necessary
3) Pass object of class to the inbuild functions

Frequently Asked Questions

1. What are class templates? How are they created? What is the need for class templates? Create a template for bubble sort functions.
2. Explain with example, how Function Templates are implemented?
3. Explain with example how can a class template be created.
4. What is Standard Template Library? How is it different from the C++ Standard Library?
5. Explain Generic functions and Generic class.

Program Source Code

Implemented program source code for reference

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Thank You!