Week 07
STL and Classes

Department of Software Engineering-FIT-VNU-HCMUS

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Notes

Create a single solution/folder to store your source code in a week.

Then, create a project/sub-folder to store your source code of each assignment.

The source code in an assignment should have at least 3 files:

- A header file (.h): class definition, function prototypes/definition.
- A source file (.cpp): function implementation for a class.
- Another source file (.cpp): named YourID_Ex01.cpp, main function. Replace 01 by id of an assignment.

Make sure your source code was built correctly.

Name of your submission: **StudentID_YY.zip**. YY: number of assignments you have done. YY: 00 – 99.

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Content

In this lab, we will review the following topics:

1. Apply STL and Class's implementation.

3
Assignments

A: YY: 01

> **+ Class diagram: in png format, full of Assignment 1;**

> **+ Source code in C++: half of Assignment 1**

H: YY: 02

Draw a class diagram and implement in C++ for each of the following assignments.

Class diagram: https://en.wikipedia.org/wiki/Class_diagram

Use class string and class vector.

3.1. Assignment 1 – Company

Company ABC asks you to build an employee management system.

The system should store the following info for each employee: employ id, full name, hire date, address.

There are 2 types of employees in the company: Office employee and worker.

- Salary of an office employee in a month = number of his/her working days * pay rate per day (300.000 VND/day)
- Salary of a worker in a month = number of items he/she produced in the month * rate pay per item (20.000VND/item)

In this week exercise, you are asked to create appropriate classes: OfficeEmployee, Worker, Company….

Then you must define and implement the following methods for each classes.

1. Input the information of an employee
2. Print the information of an employee to console.
3. Compute the salary in a month of an employee
4. Define at least 5 constructors for each of 3 classes.

Write main function:

+ Using (Calling) all above requirements.

+ Inputting and printing the list of employees including the salary in a month of each employee.

3.2. Assignment 2 – Bank Account

A bank account (**BankAccount** class) with the following attributes and methods: Attributes:

1. Account number
2. Name of owner
3. Social ID of owner
4. Balance (money in the account)

Methods:

1. Input from keyboard.
2. Print out to console.
3. Deposit an amount of money.
4. Withdraw an amount of money. After withdrawing, the balance should be equal or greater than 50.000 VND.
5. Check the current balance.

Then, define another class, named, **SavingBankAccount** with appropriate attributes and . The attributes and methods of new classes are below.

Attributes:

1. Account number
2. Name of owner
3. Social ID of owner
4. Balance (money in the account)
5. Annual interest rates, for example: 6% in a year (360 days)
6. Period, for example, 1, 2, 3, 6 or 12 months.
7. Number of saving months until now, for examples, 3 months.

Methods:

1. Input from keyboard.
2. Print out to console.
3. Deposite an amount of money. Do not allow the customer to deposit if the number of saving months < period. In fact, the bank teller will ask the customer to create a new saving account to store new amount of money.
4. Withdraw an amount of money. Do not allow the customer to withdraw if the number of saving months < period.
5. Withdraw immediately. Then the saving account is considered as free-period one, and the interest rate is only 2%.
6. Check the current balance. Remember to add the current amount of interest to the balance. Use balance, interest rate, period and number of saving months to compute the interest.
7. Check the interest at this time.

Write main function:

+ Using (Calling) all above requirements

+ Inputting and printing the list of bank accounts (two types).