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Object Oriented Programming C++2 - Lab

Lab #3: Separating class Interface from its Implementation

Objectives:

- ✓ Separating class Interface from its Implementation for reusability.
- ✓ Defining default constructors and constructors with arguments.

Student Learning Outcomes:

You will:

- ✓ Be able to write a full documented and separated interface C++ program that deal with classes.
- ✓ Be able to write a suitable constructor for any given class.

Background:

You have learned the basic concept of class and object [data members, member function, constructors]. You have also learned how to separate class (specification) interface from its implementation.

LIST OF Exercises:-

Exercise #1: Write a class that represents a book. Make sure that your program separate (specification) interface from implementation of this class.

Data that is associated with Book class:

- Title.
- Author.
- Publisher (ISBN - International Standard Book Number).

Functions that can be performed on Book class:

- SetAll function: set all data member values.
- Get functions to retrieve ISBN and author name value for a given book.
- Member function to print a summary of information for a given book.
- Default Constructor to initialize object data members.
- Constructor with arguments to initialize object data members for any value.

Write a program that test Book class as follow:

- Define a main function with an object (named b1).
- Try to change the values stored on b1 using the SetAll function.
- Print a summary of information for this object.

Exercise #2: Write a C++ program that uses a class that maintains a collection of employees. Make sure that your program separate interface (specification) from implementation of the Employee class.

Data that is associated with an Employee class:

- Employee ID.
- Age (between 25-50).
- Salary per month.

Functions that can be performed on Employee class:

- Constructor: (constructor with arguments).
- AnnualSalary: Compute annual Salary.
- SetAge: function that set and validates the value of employee age.
- SetSalary: function that set and validates the value of employee Salary.
- Print function that displays all data members of the class.

Write a program that test Employee class as follow:

- Create an object of type Employee using argument constructor.
- Modify the value of salary for this object to be 1000$.
- Compute the annual salary fort this object,
- Display the values of this object.