University of Technology, Jamaica
School of Computing and Information Technology

OOP Principles Tutorial Five - Overriding and Overloading

Objective:
The objectives of this tutorial are to allow students to be able to:

- overload methods in a class
- override methods in a inheritance hierarchy

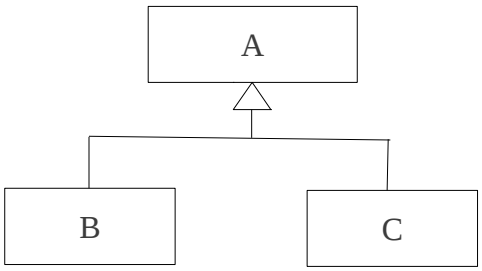
Exercise One

Consider the following classes and relationship depicted in the UML diagrams below. A is the base class and the other classes are derived classes of A. Each class has a primary constructor. 1

A
- w : double - x : int
+ A(double, int) + SetValue(double, int) : void + Show( ) : void

B
- y : int - z : string
+ B(double, int, int, string)

C
- E : float - F : float
+ C(double, int, float, float)



a) Write code to implement classes A and B only, using an object-oriented programming language of your choice (Java or C++). The Show() method should display the value of the attributes it the class. The SetValue() method is a mutator that sets both the w and x attributes to the values passed into it as arguments.

b) Overload the SetValue() method in class A, so that it accepts only a double value as an argument as sets w to this value.

c) Overload the SetValue() method in class A, so that it accepts only an int value as an argument as sets x to this value.

d) In class B, override the Show() method inherited from the parent class A. The overridden Show() method should display the value of the attributes in the B class, including inherited attributes.

b) Write a driver file contain main() and create objects of classes A and B. Invoke all the methods of both classes (including the overriden and overloaded ones).

Exercise Two - Homework

a) Implement class C.

b) In class C, override the Show() method inherited from the parent class A. The overridden Show() method should display the value of the attributes in the C class, including inherited attributes.

c) Write a method called GetValue() in the C class, which takes no parameters and returns the value of the inherited double attribute.

d) Overload the GetValue() method in the C class, which takes no parameters and returns the value of the inherited int attribute.

e) Create an object of the class C in main() in the Driver file, and invoke its methods using the object created.