SWT 12031: Practical for Object-oriented Program
Lab Sheet No: 08
Java Overloading and GUI

Time :- 09.30 – 12.30 pm **Submission Due: 2023-07-10**

Title: Method Overloading & GUI in Java .

Aim: Getting practice to use inheritance while writing java programs and work with java GUIs.

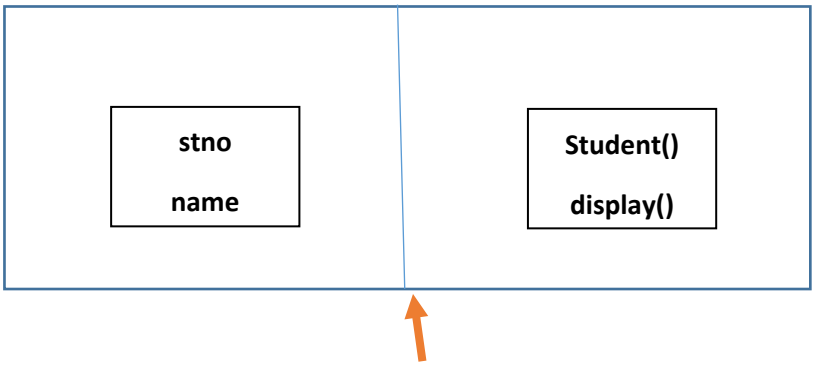
Tasks:

- GUI in Java.
- Method Overloading.

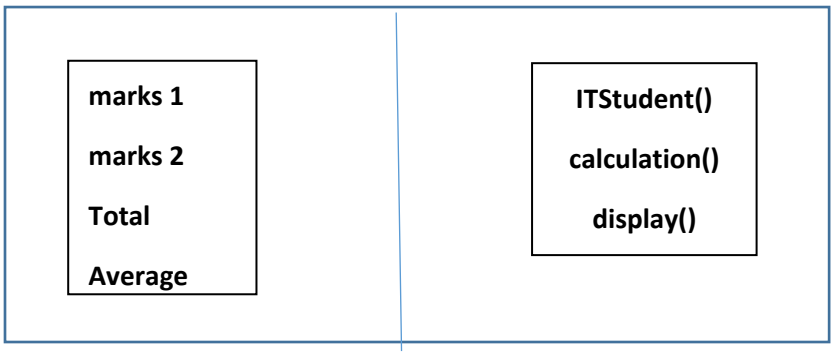
Exercise 01(Homework):

Write a java program to the scenario described below using inheritance. **class**

Student



class ITStudent



1. Create a class Student

• Within the class:

a. Initialize the attributes student number and name.

b. Initialize a user defined constructor to the object.

c. A display method.

2. Create a sub class ITStudent that extends the main classs Student

• Within the class:

a. Initialize the attributes to have two marks of the student, total and average.

b. Initialize the sub class constructor.

c. A calculation method to return the total and average marks of the student.

d. A display method.

3. Create another class TestStudent

   a. Within the class, create the object 'obj1'.

   b. Call the methods.

Exercise 02:

Write the java Code to get the following outputs by using java GUI.

1. Write a java program to design a window with title :- "AWT Counter"
   a. Under the Title Mention the Label Name :- "Counter"
   b. Add buttons to Count Up, Count Down and Reset.

2. Using inheritance, extend the class you created above to customize your window.
   a. Create a subclass of the JFrame (inheritance) :- AWTCounter3ButtonsAnonymousIC
   b. Create your own custom constructor for the JFrame.
   c. Create the separate object for each action(Count Up, Count Down and Reset).
   d. When the user clicks the each buttons (Count Up, Count Down and Reset) the actions must to do respectively Count Up, Count Down and Reset.

Exercise 03:

1. Write a program to find the maximum between two numbers.
    a. Define the main class for the program
    b. Define the main method
    c. Define the attributes of the class
    d. A method to findMax() that find the maximum between two integer numbers (int data type)

2. Modify the above program to find the maximum values for the following.
    a. A method to find the maximum between two floating point numbers (float data type)
    b. A method to find the maximum between the doubles (double data type)

Hint:

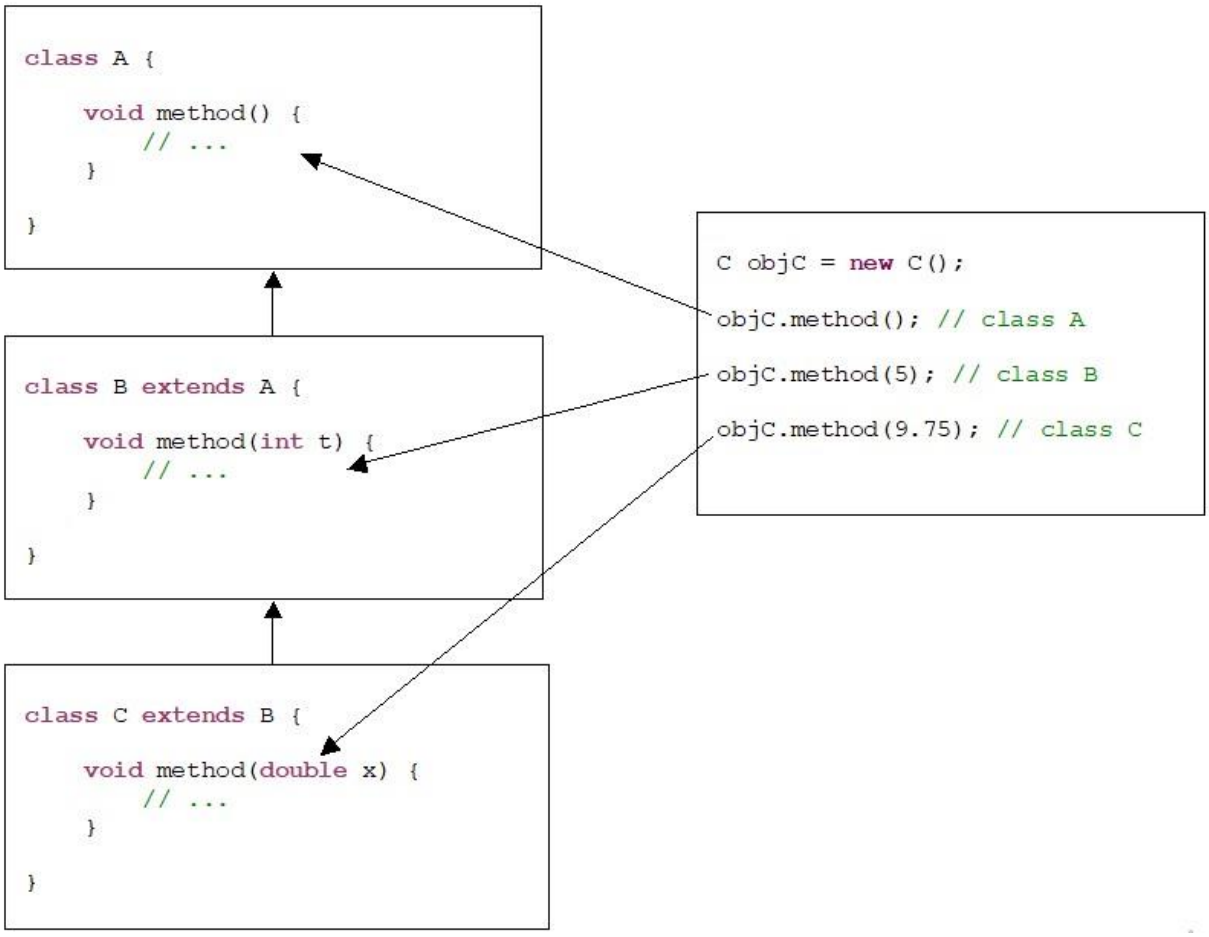
- *You may have to use the concept of Method Overloading in Java.*
- *Create another method with the same name but with different parameters.*

Exercise 04:

Write a java program to the scenario described below using method overloading and inheritance in java.

1. Implement method overloading with the name – **method ( )**
2. Declare three classes with names A, B and C that form a hierarchy where A is the super class, B is the sub class of A and C is the sub class of B.
3. In class A, a method named method () is implemented without parameters.
4. In class B, the method named method () is implemented with one parameter of type int.
5. In class C, the method named method () is implemented with one parameter of type double.

Hint: You may use the given illustration to develop your program.



Discussion

- Can a class extend itself? Explain.
- Java Method Overloading.
- Can a class extend more than one class? Explain.
- Can methods of sub class be accessed by the super class? Explain.
- JPanel.