

# *2021 OOP/*

## *0602 Practice*

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### **Notices :**

- 1. Please notice the deadline !!!**
- 2. If you late for the deadline, you still need to hand in this homework, or you will get an F at the end of this semester !!!**

### **The deadline of this homework :**

Deadline : **2021/06/08 (Tue) 23:59:00**

Please upload **4** files (the example for filename : A1073316\_Figure.java) to certain place of Google Classroom. (the details of files you need to hand in is on page 4)

If you don't hand in your homework on time, you will get -1 for your total grade per day until you complete the work and hand it in.

Before you hand in your homework, please check your filename and the content of file is correct or not. If there is any problem about files, you will get zero for this homework.

## Question for this Homework :

For this homework, please follow the content below, and complete the “Figure.java”, “Triangle.java” and “Rectangle.java”.

Consider a graphics system that has classes for various figures—say, rectangles, boxes, triangles, circles, and so on. For example, a rectangle might have data members’ height, width, and center point, while a box and circle might have only a center point and an edge length or radius, respectively. In a well-designed system, these would be derived from a common class, Figure. You are to implement such a system.

The class *Figure* is the base class. You should add only *Rectangle* and *Triangle* classes derived from Figure. Each class has stubs for methods *erase* and *draw*.

Each of these methods outputs a message telling the name of the class and what method has been called. Because these are just stubs, they do nothing more than output this message. The method *center* calls the *erase* and *draw* methods to erase and redraw the figure at the center.

Because you have only stubs for *erase* and *draw*, *center* will not do any “centering” but will call the methods *erase* and *draw*, which will allow you to see which versions of *draw* and *center* it calls.

Also, add an output message in the method *center* that announces that *center* is being called. The methods should take no arguments.

These classes need to contain their constructor (no arguments), and also output the message.

Hint : The format of output message. Please use ***System.out.println(“message”);*** to output the message same as the picture on page 3.

# 1. Content of Homework

Please complete “Figure.java”, “Triangle.java”, “Rectangle.java” according to the above content.

Hint : there are some parts you need to do.

- a. Class Figure
- b. Class Triangle
- c. Class Rectangle

When you finish the requests above, you can compile “FigureDemo.java” and execute it by “java FigureDemo” command.

```
a1073316@2021_DBMS_practice:~/OOPI$ java FigureDemo
Creating a figure with no parameters.
Call to Figure's draw method.
Call to Figure's erase method.
Calling Figure's center method.
Call to Figure's erase method.
Call to Figure's draw method.
Creating a figure with no parameters.
Creating Triangle Class with no parameters.
Calling Triangle's draw method.
Calling Triangle's erase method.
Calling Figure's center method.
Calling Triangle's erase method.
Calling Triangle's draw method.
Creating a figure with no parameters.
Creating Rectangle Class with no parameters.
Calling Rectangle's draw method.
Calling Rectangle's erase method.
Calling Figure's center method.
Calling Rectangle's erase method.
Calling Rectangle's draw method.
a1073316@2021_DBMS_practice:~/OOPI$
```

picture 1 The example of output

## **2. Files you need to hand in**

There are two files you need to hand in :

- **StudentID(Upper)\_FigureDemo.java**
- **StudentID(Upper)\_Figure.java**
- **StudentID(Upper)\_Triangle.java**
- **StudentID(Upper)\_Rectangle.java**

**Any plagiarism is not allowed, if you against this rule, it will affect your grade.**

**If you have any question, please consult the assistants or the teacher for help.**

**Please be mature and gentle in the emails.**