EECS 3311

Lab Project 1 (Lab 3)

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TA: ????

# Part I: Introduction

## Explain what the software project about and what are its goals: 2 pts

No.  
Explain the challenges associated to the software project: 2 pts

No.  
Explain the concepts (e.g., OOD, OOD principles, design patterns) you will   
use to carry out the software project : 4pts

No.  
Explain how you are going to structure you report accordingly: 2pts.

No.

## Part II: Design of the solution (45 pts) Create a first UML class diagram of your system (use at least two design patterns), add the corresponding figure in the report and comment its elements: (25 pts)

### This corresponds to step 4 of the OO analysis and design workflow (mandatory)

### Feel free to complete steps 1, 2 and 3 as a preliminary step before completing step 4 (optional).

No.

Your class diagram should include the following classes:  
- Circle class: it represents a circle  
- Rectangle class: it represent a Rectangle  
- Square class: it represents a rectangle whose height and width are equal  
- Shape class: class that embodies the generic concept of Shape  
- SortingTechnique class: it allows sorting shapes based on their surfaces  
- ShapeFactory: it supports the instantiation of different Shapes   
- classes allowing to display the shapes on an interface   
- Other classes you may find relevant.

## Use OO design principles in your class diagram (10pts):

### Explain in your report how you have used them: name the corresponding classes, interfaces, and if possible most relevant methods

No.

## Propose a design alternative by creating a second UML class diagram (10pts):

### Does this second class diagram yields a better design than your first class diagram? Explain why.

No.

Part III: Implementation of the solution  
Describe the algorithm of the sorting technique you have used to sort the shapes: 10 pts  
No.

## Describe how you have implemented and compiled all the classes of your class diagram in Java (specify if you have implemented the first or the second class diagram): 15 pts

No.  
Specify the tools you have used during the implementation: version of Eclipse/IntelliJ or of another IDE use to write code and run it, version of JDK, etc.: 3 pts

No.  
Take a snapshot of the execution of the code (i.e., of the interface) and comment it in the report: 2 pts

No.  
Create a short video (2 to 3 mins) showing how to launch your application and run it: 5 pts

* The code should be able to run without triggering exceptions
* Turn your camera off when recording the video!

No.

Part IV: Conclusion (10 pts)   
What went well in the software project? 3 pts

No.  
What went wrong in the software project? 3 pts

No.  
What have you learned from the software project? 2 pts

No.  
What are your top three recommendations to ease the completion of the software project ? 2 pts

No.