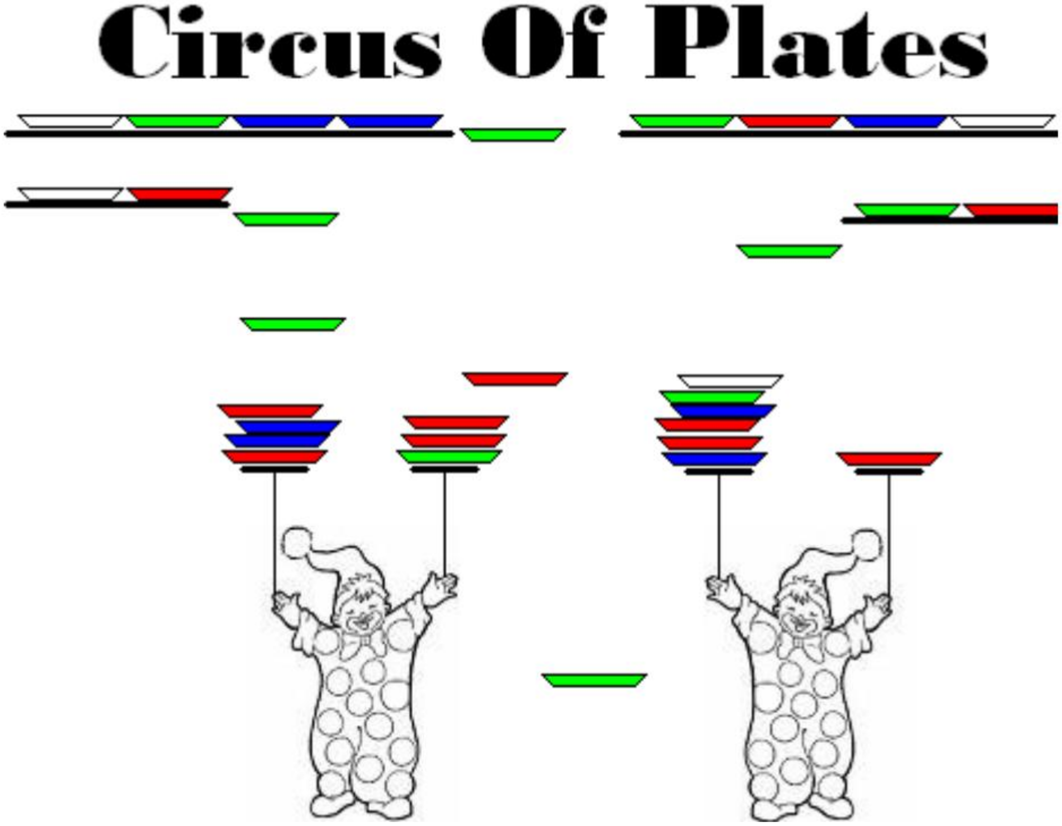
Alexandria University
Faculty of Engineering
Computer and Systems Engineering Dept.
Second Year
Fall 2013

CS221: Object Oriented Programming
Programming Assignment 4
Assigned: Thursday 05th Dec, 2013
Due (design): Monday 09th Dec, 2013
Due: Sat 14th Dec, 2013

Circus of Plates - Game

Circus of plates is a two player-game in which every player carries two stacks of plates, and there are several colored plates falling down and he tries to catch them, if he manages to collect three consecutive plates of the same color, then they are vanished and his score increases, the player who gets more score at less time wins. You are free to put rules to handle if the two players stand at the same place; also you can modify the rules of ending the game.



Tasks

- You should not support only plates; you should support other shapes (you should have a class Shape). The shapes classes should be dynamically loaded at the start of the execution from a specific folder. You should support at least two shapes. Note that each shape has its own dimensions which should be stored as static variables in each concrete shape.
- The user gets a point when he collects three consecutive shapes from the same color (even if they are different shapes).
- Support saving game.
- You should use (at least) the following design patterns in your design: Factory, Singleton, MVC, Object Pool, Iterator, Dynamic Linkage, Snapshot, State and Observer. This assignment mainly tackles the application of what you studied in the course of design patterns, so you are supposed to give time for the design.
- Using MVC means you should isolate the three main parts of the design. Model, View and Controller.

Report

The report should contain at least the following:

- Class diagram of your design.
- Describe your design thoroughly.
- Sequence diagram showing the typical scenarios of the game.
- Section for each pattern (the required and any other patterns you used) and how you used it in your design.
- Snapshots of your GUI.
- User guide explains how to play the game.
- Any design decisions that you have made should be listed clearly.

Notes

- Develop this assignment in Java.
- You should deliver your source code.
- You are allowed to use any graphics libraries supported by Java.
- This assignment mainly tackles the design issues. Heavy load will be on the good design in addition to the required patterns.

Design Delivery

You should deliver two versions of your design. Each version should contain:

- Class Diagram.
- How you intent to use the required patterns in your design.

1. First version should be delivered as a **hard copy Monday 09th December.**
2. The final design as a part of your report.

Grading Policies

- You should work in groups of two.
- The assignment should be delivered either online Saturday 14th at 01:00 AM.
- Submission during the lab will have penalty 90% till the end of lab.
- Late submission won't be accepted.
- For online submission: send mail with subject [OOP_2011_Assign_4] to alexu.f13.oop@gmail.com containing your name and attach your source code.
- Your source code should be put in .zip file and it should be named using this format "no1_no2_assignment_4.zip" where no1 and n2 are students' ids.
- Delivering a copy will be severely penalized for both parties, so delivering nothing is so much better than delivering a copy.