MSO Lab Exercise III - Part Two

January 8, 2014

Part 2 – Implementation

In the second part of this lab exercise, you will be asked to execute the refactoring plan you have proposed and implement your design.

The source code of the ShapeVisualization project is now available from the MSO website.

Question 1. There are several straightforward solutions to this problem:

- you could extend the existing Shapes with a new method to produce SVG;
- you could copy-paste the existing visualization code into a new class and adapt it to produce SVG;
- or you could add switch statements to the existing Shape classes to switch between drawing on screen or generating SVG files.

Discuss why the design you proposed is better than each of these straightforward solutions.

Question 2. Implement the refactoring plan that you proposed, extending the current code with the new feature (SVG generation). Try to follow the proposed plan as closely as possible. Whenever you need to diverge from the proposed refactoring plan, feel free to do so. *Be sure to carefully motivate why you chose to abandon the plan.* Carefully document any mistakes you made in your original design or refactoring plan.

Question 3. Reflect on the new code. What have you archieved? How can you add new visualization methods? How can you add new Shapes?

What if the Star needs to be drawn differently – how many different pieces of code would you need to change? Check this by changing the `numPoints` variable in the Star class to 3 and drawing a Star on screen and generating an SVG file.

Question 4 (Bonus)**.** Implement a different visualization, such as generating LaTeX diagrams using TikZ. You find a lot of material about LaTeX online:

- LaTeX Wikibook.

- The TikZ manual

Question 5 (Bonus)**.** Also extend the XML format with colour information. How can you handle this is the different Visualization methods that you have implemented?

Submission

Submit a single .zip containing your original design, answers to these questions, and the code containing your solution. Submit using the submit system no later than Friday, 17 Jan, 2014 23:59 (Amsterdam time).

A Report format – Part 2

MSO Lab Exercise III: Design and refactoring

Student names:
Student number:

1 Design – comparison

Describe your proposed design is better than the straightforward solutions proposed.

2 Implementation

Describe how you implemented your refactoring plan. Carefully document any changes you needed to make to the original design.

3 Reflection

Reflect on the final design. How is the new code better than the initial version?