

SOM Lab Exercise III

October 1, 2019

Introduction

In this lab exercise, you will revisit your proposed design for the ticket machine from the previous lab exercise. The aim of this lab is to reflect on your original design, and learn from any mistakes you may have made.

Exercise

In the previous lab exercise, you designed the core functionality of a trainticket machine. Start by downloading the code available from GitHub.

This contains a simple C# Windows Form Application, implementing the core functionality of the train ticket system described in the previous exercise. The main computations happen in the `UI.cs` file – almost all redesign issues should be restricted to this file. You will, of course, also need to add new classes that you designed yourself.

Read through the current implementation of the ticket system. Do not worry too much about the GUI or the existing classes for handling coin or PIN payments – instead focus on the description of tickets and their price calculation.

1. Create a UML class diagram for the current solution.
2. Describe the relative merits of the current solution. What works well? What could be improved? We are only interested in the design of the train tickets (as in your previous exercise), you do *not* need to discuss the (fake) coin machine, card reader, or pricing table classes.
- 2a. What kind of changes or new requirements would be easy to add? What new features would be difficult to add?
- 2b. Which bad code smells can you identify? Evaluate the cohesion and coupling of the current solution.
3. Redesign the UML class diagram from question 1, with the knowledge you have gathered up till now.

4. Discuss how this your new design differs from your original design (lab 2). What errors can you spot in your original design? **Be honest:** we will not deduct marks for mistakes you made in the previous exercise. Instead, we are looking for a comprehensive assessment of the shortcomings in your previous design, and how you revised it during the redesign. The more thorough the comparison between your original design and the redesign, the better we will mark your work.

Submission

Answer the questions above, following the question numbers explicitly. Hand in a .pdf using BB, and mention both student names and numbers.

Taal

De opdracht mag zowel in het Engels als Nederlands worden gemaakt.