Casumo - Java Programming Challenge

Objective

Assess object oriented analysis and modelling skills, Java coding skills, code structuring and API design. You shouldn't have to spend more than 4 hours on the task and if you submit a solution that is in any way incomplete, which parts you decided to focus on are relevant. Keeping the objective in mind, you are free to use whatever tools, libraries, frameworks at your disposal.

Please include a README in any format about decisions you made along the way, what you focused on, what you didn't focus on and why, as well as how to run and use the program.

The problem – Video rental store

For a video rental store we want to create a system for managing the rental administration. We want three primary functions.

- Have an inventory of films
- Calculate the price for rentals
- Keep track of the customers "bonus" points

Price

The price of rentals is based type of film rented and how many days the film is rented for. The customers say when renting for how many days they want to rent for and pay up front. If the film is returned late, then rent for the extra days is charged when returning.

The store has three types of films.

- New releases – Price is <premium price> times number of days rented.
- Regular films – Price is <basic price> for the fist 3 days and then <basic price> times the number of days over 3.
- Old film - Price is <basic price> for the fist 5 days and then <basic price> times the number of days over 5

<premium price> is 40 SEK
<basic price> is 30 SEK

The program should expose a rest-ish HTTP API. (hint; unless you have any personal preferences, http://www.dropwizard.io is a really simple way of getting that)

The API should (at least) expose operations for

- Renting one or several films and calculating the price.
- Returning films and calculating possible surcharges.

Examples of price calculations

Matrix 11 (New release) 1 days 40 SEK
Spider Man (Regular rental) 5 days 90 SEK
Spider Man 2 (Regular rental) 2 days 30 SEK
Out of Africa (Old film) 7 days 90 SEK
Total price: 250 SEK

When returning films late
Matrix 11 (New release) 2 extra days 80 SEK
Spider Man (Regular rental) 1 days 30 SEK
Total late charge: 110 SEK

Bonus points

Customers get bonus points when renting films. A new release gives 2 points and other films give one point per rental (regardless of the time rented).