

050132 Advanced Software Architecture (UE), Winter Semester 2014/15
Task 1

Task 1: Modelling (and preparation for the MDD tasks)

Task-ID: MOD

General Remarks

- The **deadline** for this work is the 9.11.2014 which can also be found in Moodle (<https://moodle.univie.ac.at/course/view.php?id=34717>). The deadline is firm! No deadline extensions are given.
- You will have to present your solution during the presentation in class: 11.11.2014 (Group 3), 12.11.2014 (Group 2), 14.11.2014 (Group 1) – so be prepared (laptop, your presentation, running example, ...)
- You can get up to 10 points, which have to be defended during presentation.
- This is an **individual work**. Consequently, group work is not allowed in this assignment.
- If you have problems, do not hesitate to contact the tutor (ase.tutor@swa.univie.ac.at) or us (ase@swa.univie.ac.at) via e-mail.

Submission Guidelines

- The guidelines proposed on https://swa.univie.ac.at/General_guidelines must **always** be satisfied.
- If guidelines are ignored,
 - an assessment of the tasks **cannot be guaranteed** because they are processed electronically.
 - one (1) point will be deducted from the assessment of the task for each unsatisfied guideline.
- Artifacts to upload into Moodle are (see guidelines for more information):
One (1) ZIP archive containing:
 - Diagram of your model (PDF)
 - Eclipse project (folder),
including source code of your model implementation and your runnable application, organized in the defined packages
 - Document about your assumptions (PDF)

Task Definition:

Right at the Start

Please, read the guidelines at https://swa.univie.ac.at/General_guidelines, especially the part about naming conventions for your uploads! If you do not follow these guidelines, we will not be able to grade your work, because we will not be able to find your files any more (yes, it is that simple ...).

Create a model representing a Netflix-like subscription-based media provider, which is described below. The description contains information of different quality. Think twice before you model it or before you decide to

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drop it. If you are uncertain document your thoughts. Draw a diagram which represents the model. You can draw either simple “boxes and lines” using a pen and a piece of paper, UML Class Diagrams, or something similar. Subsequent to the diagrams, implement the part of your model that represents the Streaming Library (2) and Subscription Management (3) in Java and create a simple application using your model. Strictly separate your model from your application. If you have to make your own assumptions, document them in a separate file. We suggest not using any tools not mentioned by us, since working with them and understanding these tools are mostly very time consuming and confusing instead of being helpful.

The Domain and Model Description

Netflix is an internet-based service that provides digital media against a monthly subscription fee. The service is available in the Americas and certain countries in Europe.

1. **Content Distribution:** The service is provided via on-demand online streaming, but users in the United States also have the option of renting a DVD or Blu-ray disk, sent by mail. The libraries of the two services have different content.
2. **Streaming Library:** The available media comprises movies, television series and music, licensed from a number of distributors, as well as a number of in-house products.
3. **Subscription Management:** Subscriber accounts pay a monthly fee after a free trial period. Each account can be associated with up to five profiles.
4. **Social Content:** Each account and profile can be shared by different individual users, who can create additional content such as favourite media queues, friend lists, reviews and recommendations within each profile. Each account is enabled for use in specific devices.
5. **Streaming Service:** The streaming service is available for a wide range of devices and platforms and offers a broad variety of available encodings and bitrates. The offered quality must be able to adapt itself to the subscriber's broadband connection.

Implementation Description

- a) Implement your model for the streaming library (2) and subscription management (3) using Java [4]. Use the Eclipse IDE [3] (including modeling tools) so you get used to it for future assignments.
- b) Write a small application to create some sample data. The application must be implemented using Java Swing or JavaFX [1], and therefore has to strictly follow the model view controller pattern. Do not change your model fitting your application! At least, you have to provide a way to display, create, update and delete the relevant model elements. For instance, provide a Java Swing table [2] (if you use Swing) that shows the list of films that can be streamed at the moment, where each cell can be edited and new lines can be added. Make sure that changes in the GUI also update your model! Persistent storage of your data is not necessary, however make sure that you initialize your application with data on start-up.

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Organize your source files in the following packages, where *MY-MNR* is your matriculation number with leading character (e.g., a0123456):

- model implementation: `at.ac.univie.swa.ase2014.MY-MNR.task1.model`
- application: `at.ac.univie.swa.ase2014.MY-MNR.task1.application`

Checklist

Before uploading your solution, ensure the following checkpoints can be marked positive:

- I followed the guidelines and conventions from https://swa.univie.ac.at/General_guidelines
- I drew a diagram representing my model
- I implemented the prescribed part of the model using Java
- I implemented a simple application using my model
- I organized my source code using the defined packages

References

- [1] Java Swing / JavaFX, <http://docs.oracle.com/javase/8/javase-clienttechnologies.htm>
- [2] Java Tutorials - How to Use Tables, <http://docs.oracle.com/javase/tutorial/uiswing/components/table.html>
- [3] Eclipse Modeling Tools, <http://www.eclipse.org/downloads/packages/release/Luna/SR1>
- [4] Java Development Kit, <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>