Principles of Object Oriented Languages
Project 2011-2012

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General

This document describes the mandatory project for the course "Principles of Object Oriented Languages" for the academic year 2011-2012. As a project, you will have to implement a *simulation* of a piece of software for managing award ceremonies using Pharo. The deadline for this project is **January, 16th 2012** (first day of the exam period).

Minimum requirements

Within music industry, it is common practice to organize annual award ceremonies (for example, the "MTV awards"). Such an award ceremony consists of a number of categories for which people within the music industry can nominate and vote for their peers. The goal of the programming project for POOL is to provide an implementation of a piece of software that lets you model and simulate such an award ceremony.

Concretely we require you to implement the following requirements:

- An award ceremony consists of a number of award categories;

- For each award category, there are five nominees;

- Nominees are either individual artists or bands (that consist of a number of individual artists);

- There are three kinds of award categories:

  1. Individual awards (e.g., "Best male singer") for which one can only nominate individual artists;

  2. Awards for bands (e.g., "Best rock band") for which one can only nominate bands;

  3. Mixed awards (e.g., "Record of the year") that can be won by both individual artists as well as bands.

- Both individual artists as bands keep track of the awards that they won; in the case of a band, this is the union of the awards won by the band and the awards won by the individual band members.

- To encourage young artists/bands, for each kind of award category there also exists a "newcomer" variant. For example, "Best male newcomer singer". For these "newcomer" awards, artists/bands can only be nominated if they have not been active for more than three years.

- For each award category, there exists a jury that consists of five members;

- Jury members are individual artists;

- Jury members can be nominated for an award, but cannot be in the jury of the award for which they are nominated;

- One single jury member can only be in the jury of at most three award categories;

- Within one particular jury, each member is only allowed to vote for one of the nominees.

Your implementation should allow you to construct a simulation of one award ceremony, where all of the constraints and requirements above are enforced. For example, your implementation should guarantee that a band cannot be nominated for an individual award, that only newcomers can be nominated for "newcomer" awards, that there are exactly five nominees before voting can start, that juries are constructed according to the rules above, and so on.

Simulation

We do not require you to create a graphical user interface. It suffices to demonstrate that your implementation works by creating a script that simulates an award ceremony, and that outputs to the `Transcript`.

To give you an idea what we mean (disclaimer: the data below does *NOT* correspond to the musical tastes of Veronica or Andy):

```
Created artist Clement Peerens - active since 1985
Created artist Sylvain Aertbelien - active since 1988
Created band Clement Peerens Explosition - active since 1990
Added artist Clement Peerens to band Clement Peerens Explosition
Added artist Sylvain Aertbelien to band Clement Peerens Explosition
Created artist Selah Sue - active since 2006
Created artist Justin Bieber - active since 2009
Created award ceremony MTV music awards
Created individual award Best Male Singer of the Year
Created newcomer individual award Best Female Singer of the Year
...
Nominated Clement Peerens for Best Male Singer of the Year
Nominated Clement Peerens Explosition for Best Male Singer of the Year
   => ERROR: you cannot nominate a band for an individual award
Nominated Selah Sue for Best Female Newcomer Singer of the Year
   => ERROR: Artist Selah Sue is already active too long in order to be eligible for a newcomer award
Added Coldplay to the jury for Best Male Singer of the Year
   => ERROR: Bands cannot be jury members
Added Chris Martin to the jury for Best Male Singer of the Year
Chris Martin voted for Clement Peerens in the category Best Male Singer of the Year
Chris Martin voted for Justin Bieber in the category Best Male Singer of the Year
   => ERROR: Chris Martin already voted for this category
...
```

Important

- The goal of this project is to demonstrate that you understand the important concepts of good object-oriented style. While the project is not very large, it should offer you the possibility to demonstrate that you are able to apply concepts such as polymorphism, traits, late binding, inheritance, method overrides, double dispatch, template methods, delegation, and so on. It does not suffice to get a working version of your simulation: your grade will be decided *purely* on how clean and well-modularized your code is!
- Try to avoid "bad smells" such as type checks, classes with too many data, too many `if` tests, and so on.
- Clean code is more important than a lot of features. We prefer a restricted set of features with a clean implementation over lots of features, but written in poor OO style.
- The project is individual!
- Prepare a script where you show *all* of the functionality of your simulation. Include this in the ZIP file that you hand in.
- You must hand in your code and script by filing it out of your Smalltalk image and uploading it via Pointcarré. Do not upload your entire Smalltalk image!
- Read the requirements carefully so you don't miss any of the constraints that your system should respect.
- In case of questions: do not hesitate to contact us.
- Good luck!