# Seminar Organization

## HUSemOrg: Implementation Design

(Hildebrandt, 22.08.07)

## Layers

Our implementation of the seminar organization is based on three layers: the database layer, the application layer and the graphics user interface layer. We used the programming language Java, because it guarantees the portability of our application.

### The database layer

All application data is hold in the relational database *husemorg*. The structure of the tables is shown the database design document, which should be included in the provided documents. We use the database management system MySQL for holding the application data and the Java Database Connectivity (JDBC) as driver to access the database which allows a seamless integration of the database layer into our application.

### The application layer

The application layer abstracts from the database layer and provides an interface, which grants easy access to the application data in the database, without the need to know any details about the database layer details.

This layer is also responsible for checking the correctness of the data entered by the user. And also ensures the correctness of the associations.

### The graphics user interface layer

This layer provides a pleasant graphical interface for the user, such that he or she can enter his or her data in a comfortable manner. It abstracts from the application layer such that the user of the application don't need to know any details of the application layer.

We use the Standard Widget Toolkit to implement the graphics user interface, because it is very fast, compared to swing or AWT, it offers a wide spectrum of functionality and is also portable which grants the portability of our application.

# The package structure

The applications source code is organized in 9 packages, the following figure gives an overview.
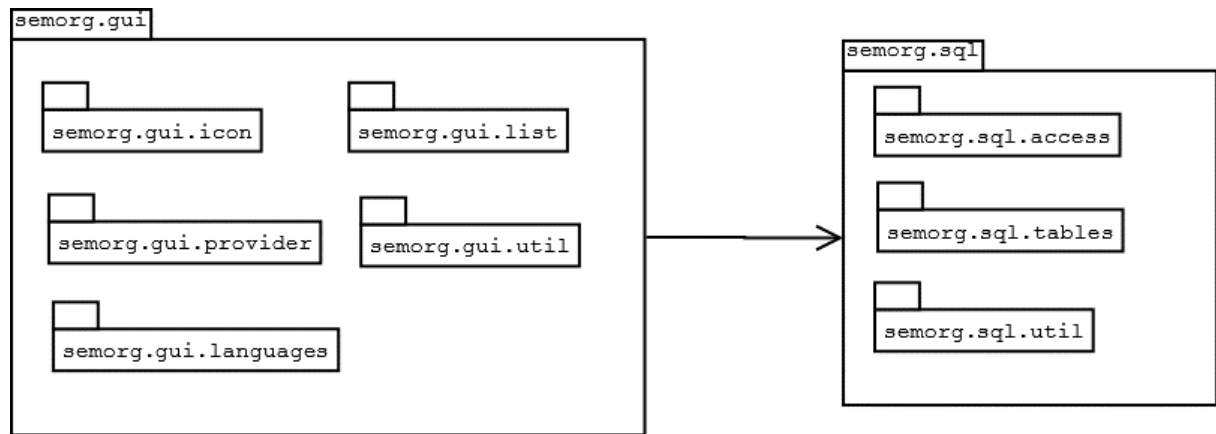


## The package semorg.gui

This package contains all classes which are used to generate the GUI of the application. The windows for editing data records are directly located in this package. It also includes five sub-packages as shown in the figure above.

## The packages semorg.gui.icon and semorg.gui.languages

These two resource packages only contain resources used by the application. The package *semorg.gui.icon* contains all graphics of the application whereas *semorg.gui.languages* contains all text resources shown in the GUI of the application.

## The packages semorg.gui.list and semorg.gui.provider

We use GUI tables to display the existing data records of the database tables. Thus there two problems to solve: firstly we need to draw the list windows and its components and secondly we've got to input the data records into the tables. The first problem is solved by the package *semorg.gui.list* and the second one by the package *semorg.gui.provider*, i.e. the first package defines the outer appearance of the list windows and some GUI specific functionality whereas the second package gets the data from the application layer and puts it into the GUI tables.

## The package semorg.gui.util

This package encapsulates all utility classes of the GUI layer, such as some complex parts of the editing windows, such as the controls, which enables the user to manage associations between several classes the calendar control which enables the user insert the date in very comfortable way.

# The package semorg.sql

The package *semorg.sql.access* provides the access to the database using the JDBC driver. Thus it is responsible for creating a connection to the database.

The package *semorg.sql.tables* provides an abstract access to the application data stored in the database. Therefore it hides the database specific details from the classes of the GUI layer. This package is responsible to verify the data entered by the user and the consistency of the associations between the database tables.

The package *semorg.sql.util* encapsulates some helper classes.