High Level Documentation

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High Level Documentation

Describes relevant information about the code structure of JabRef in a very precise and succinct way. Closer-to-code documentation is available at Code HowTos.

We are currently transitioning from a spaghetti to a more structured architecture with the `model` in the center, and the `logic` as an intermediate layer towards the `gui` which is the outer shell. There are additional utility packages for `preferences` and the `cli`. The dependencies are only directed towards the center. We have JUnit tests to detect violations of the most crucial dependencies (between `logic`, `model`, and `gui`), and the build will fail automatically in these cases.

The `model` represents the most important data structures (`BibDatases`, `BibEntries`, `Events`, and related aspects) and has only a little bit of logic attached. The `logic` is responsible for reading/writing/importing/exporting and manipulating the `model`, and it is structured often as an API the `gui` can call and use. Only the `gui` knows the user and his preferences, and can interact with him to help him solve tasks. For each layer, we form packages according to their responsibility, i.e., vertical structuring. The `model` should have no dependencies to other classes of JabRef and the `logic` should only depend on `model` classes. The `cli` package bundles classes that are responsible for JabRef's command line interface. The `preferences` represents all information is customizable by a user for her personal needs.

We use an event bus to publish events from the `model` to the other layers. This allows us to keep the architecture, but still react upon changes within the core in the outer layers.

Package Structure

Permitted dependencies in our architecture are:

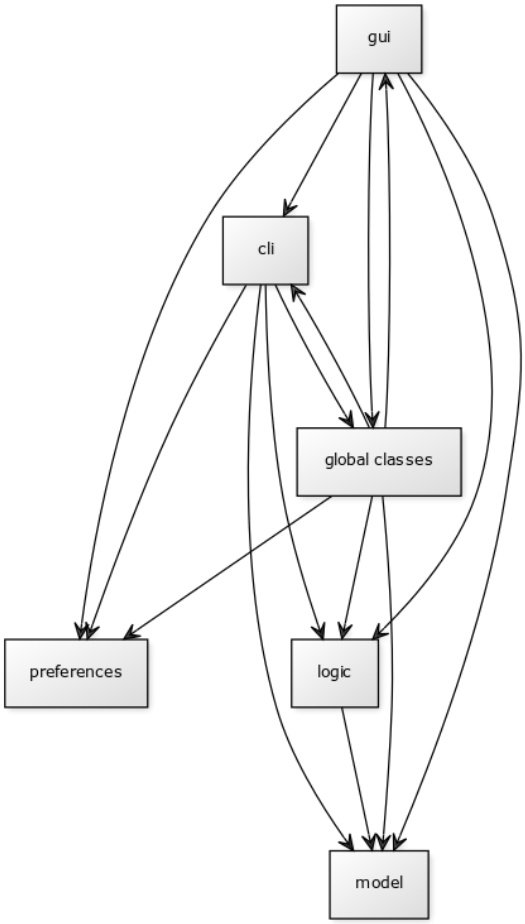
```
gui --> logic --> model
gui ------------> model
gui ------------> preferences
gui ------------> cli
gui ------------> global classes

logic ------------> model

global classes ------------> everywhere

cli ------------> model
cli ------------> logic
cli ------------> global classes
cli ------------> preferences
```

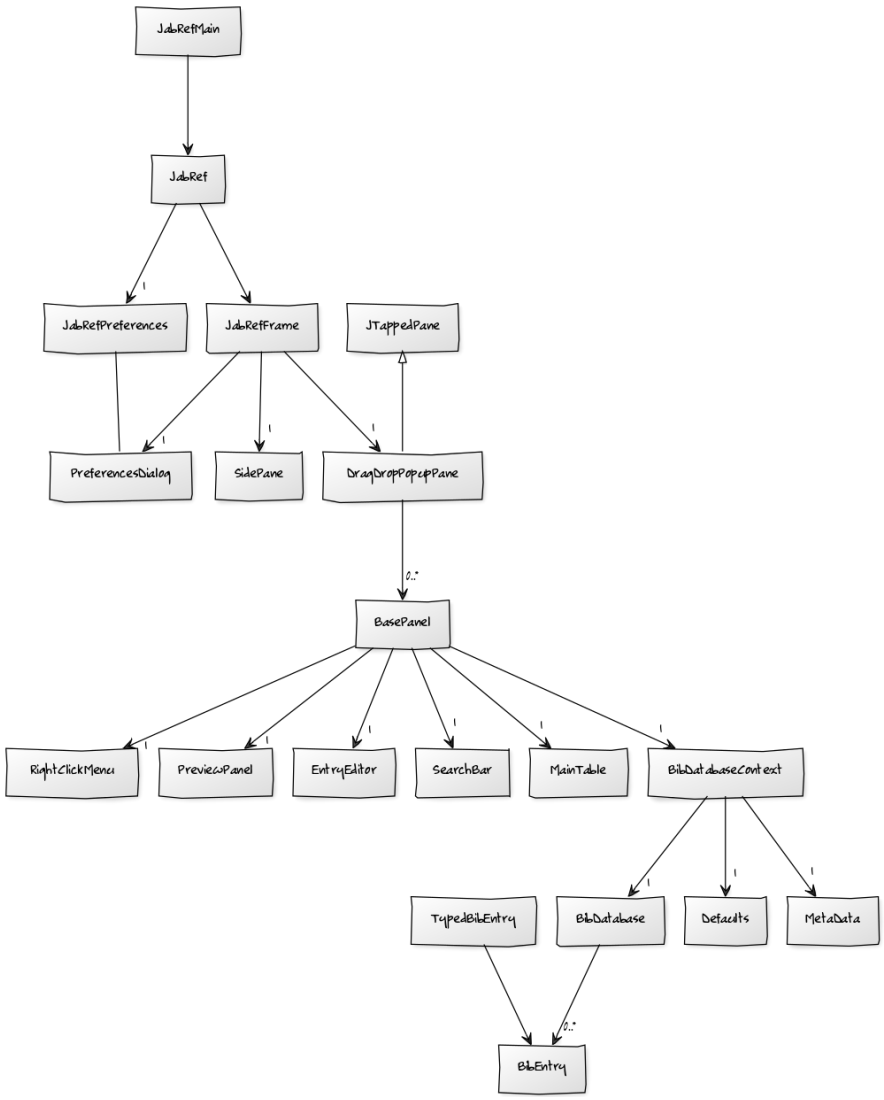
All packages and classes which are currently not part of these packages (we are still in the process of structuring) are considered as gui classes from a dependency stand of view.



Visualization as a package diagram: http://yuml.me/edit/b1215eef

Most Important Classes and their Relation

Both GUI and CLI are started via the `JabRefMain` which will in turn call `JabRef` which then decides whether the GUI (`JabRefFrame`) or the CLI (`JabRefCLI` and a lot of code in `JabRef`) will be started. The `JabRefFrame` represents the Window which contains a `SidePane` on the left used for the fetchers/groups and a `DragDropPopupPane` extending a `JTabbedPane` on the right. Each tab is a `BasePanel` which has a `SearchBar` at the top, a `MainTable` at the center and a `PreviewPanel` or an `EntryEditor` at the bottom. Any right click in the `MainTable` is handled by the `RightClickMenu` . Each `BasePanel` holds a `BibDatabaseContext` consisting of a `BibDatabase` and the `MetaData` , which are the only relevant data of the currently shown database. A `BibDatabase` has a list of `BibEntries` . Each `BibEntry` has a key, a bibtex key and a key/value store for the fields with their values. Interpreted data (such as the type or the file field) is stored in the `TypedBibentry` type. The user can change the `JabRefPreferences` through the `PreferencesDialog` which uses a `JTabbedPane` to structure the preferences.



Visualization as a class diagram: http://yuml.me/edit/20975ef4