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BORG CALENDAR _ M4(Individual)

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Observer (listener) pattern

Introduction

In this document I tried to avoid explaining clear things which is explained in comments of selected code. The observer pattern in this project is used to update multiple Panel view in case of preferences changes. I just briefly explain 3 key points (Publisher, Listener (subscriber), notify) of observer pattern which is implemented in Borg Calendar. After introduction you will see in sequence: publisher, notify, Subscriber, Sequence diagram and Partial class diagram section. For extract class "Aid UML diagram" is used. Following is reference to observer: http://www.vogella.com/articles/DesignPatternObserver/article.html, http://java.dzone.com/articles/design-patterns-uncovered.

Publisher

In "net.sf.borg.common.profs " class, Listener class is implemented which is responsible to keep list of listeners and Notify listeners of a preferences change (following notifyListeners method).the point is that prefsChanged method is going to be override in all subscriber that we will explain in subscriber section.
Remark: prefsChanged method is going to be override to do proper action for each of listener member in case of preference changes.

```
/**
	 * Interface for classes that want to be notified of preference changes
	 */
	public interface Listener {

		/**called when preferences changed.
		 */
		public abstract void prefsChanged();
	}

	/** list of listeners */
	static private ArrayList<Listener> listeners = new ArrayList<Listener>();

	/**
	 * add a listener
	 *
	 * @param listener the listener
	 */
	static public void addListener(Listener listener) {
		listeners.add(listener);
	}

	/**
	 * Notify listeners of a pref change.
	 */
	static public void notifyListeners() {
		for (int i = 0; i < listeners.size(); i++) {
			Listener v = listeners.get(i);
			v.prefsChanged();
		}	}
```

Notify

"**Prefs.*notifyListeners*();**" is used in two following class to apply proper action to Observer members:

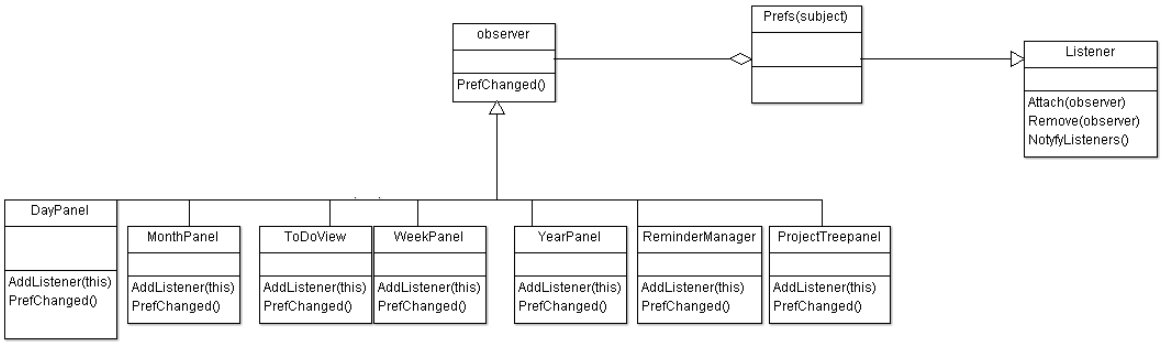
net.sf.borg.model.Theme

```
/**
	 * sync with the db. called if the options table is changed by something
other than the UI (such as import)
	 */
	public static void sync()
	{

		// notify listeners that Prefs may have changed
		Prefs.notifyListeners();
	}
```

1. net.sf.borg.ui.options.OptionsView

```
	private void applyChanges() {
		...
		Prefs.notifyListeners();

		...
		}
```

Subscriber



Following class with "Prefs.*addListener*(this);"add themselves to Listener list:

- net.sf.borg.ui.calendar.DayPanel
- net.sf.borg.ui.calendar. MonthPanel
- net.sf.borg.ui.calendar. TodoView
- net.sf.borg.ui.calendar. WeekPanel
- net.sf.borg.ui.calendar. YearPanel
- net.sf.borg.ui.popup. ReminderManager
- net.sf.borg.ui.task. ProjectTreePanel
- net.sf.borg.ui. SunTrayIconProxy

Remark: in all of upcoming class, "prefsChanged" method is override to do proper action in case of prefrences change.

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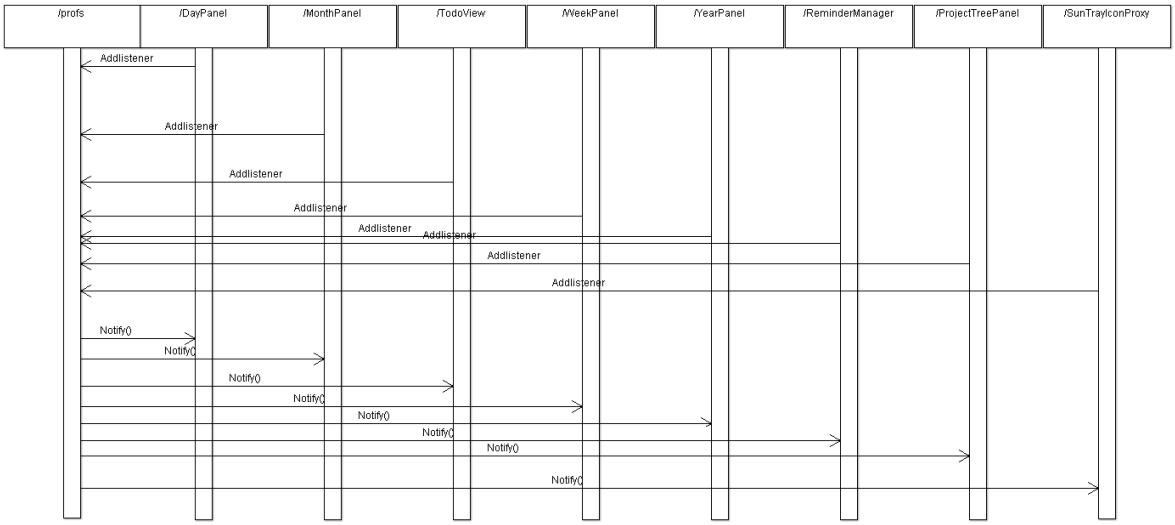
Sequence diagram



Partial Class diagram