

Software Architectures

Assignment 1 : Design Patterns

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1 Exercise 1 : Find Instances of Design Patterns

1.1 Singleton

The `org.gjt.sp.jedit.buffer.KillRing` class is an instance of the singleton pattern.

1.1.1 Purpose

Creational pattern.

1.1.2 Participants

The `KillRing` class is the singleton class.

1.1.3 Class diagram

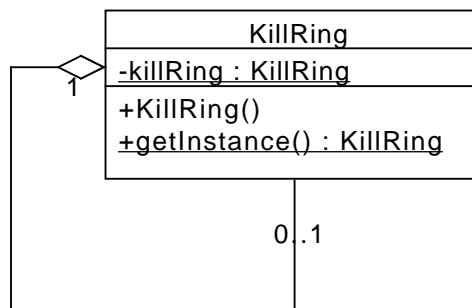


Figure 1: `KillRing` class diagram

1.1.4 Concrete situation description

In this situation, the singleton pattern is used to keep track of deleted text in a single place in the application.

The constructor is here public. However, the common usage of the singleton pattern uses a private constructor in order to only have one instance of this class living in the system. The constructor is here made public because the plugins may want to create their own `KillRing`.

1.2 Abstract Factory

The `org.gjt.sp.jedit.gui.statusbar.StatusWidgetFactory` is an example of the abstract factory pattern.

1.2.1 Purpose

Creational pattern.

1.2.2 Participants

The participants are the classes : `org.gjt.sp.jedit.gui.statusbar.StatusWidgetFactory`, `org.gjt.sp.jedit.gui.statusbar.BufferSetWidgetFactory`, `org.gjt.sp.jedit.gui.statusbar.BufferSetWidget`, `org.gjt.sp.jedit.gui.statusbar.Widget` and `org.gjt.sp.jedit.gui.StatusBar`.

- **StatusWidgetFactory** : Abstract Factory
- **BufferSetWidgetFactory** : Concrete Factory
- **BufferSetWidget** : Concrete Product
- **Widget** : Abstract Product
- **StatusBar** : Client

1.2.3 Class diagram

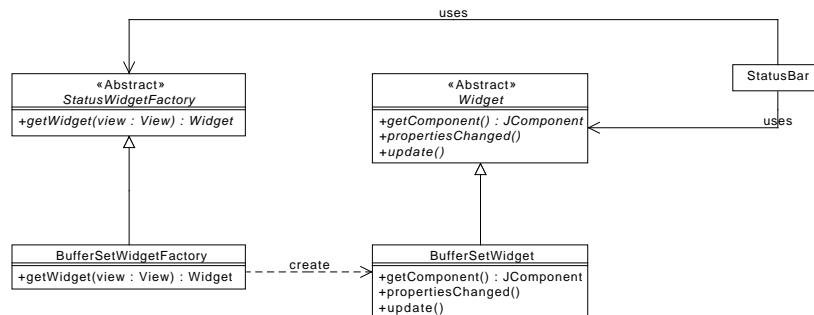


Figure 2: StatusWidgetFactory class diagram

- 1.2.4 Concrete situation description
- 1.3 Observer
 - 1.3.1 Purpose
 - 1.3.2 Participants
 - 1.3.3 Class diagram
 - 1.3.4 Concrete situation description
- 1.4 Adapter
 - 1.4.1 Purpose
 - 1.4.2 Participants
 - 1.4.3 Class diagram
 - 1.4.4 Concrete situation description
- 1.5 Visitor
 - 1.5.1 Purpose
 - 1.5.2 Participants
 - 1.5.3 Class diagram
 - 1.5.4 Concrete situation description