**Design Patterns**

**First *design pattern*: Adapter Pattern**

*/\*\*  
 \* Adapter class for the latex2unicode lib. This is an alternative to our LatexToUnicode class  
 \*/*public class LatexToUnicodeAdapter {

…

This adapter design pattern can be found in **jabref > model > strings > LatexToUnicodeAdapter.**

This class acts as an adapter class, which converts LaTeX into Unicode characters, in order for those strings to be compatible with other classes.

**Second *design pattern*: Facade Pattern**

*/\*\*  
 \* Facade to unify the access to the citation style engine. Use these methods if you need rendered BibTeX item(s) in a  
 \* given journal style. This class uses {****@link*** *CSLAdapter} to create output.  
 \*/*public class CitationStyleGenerator {

…

This facade design pattern can be found in **jabref > logic > citationstyle > CitationStyleGenerator.**

This class acts as a wrapper class that unifies the whole “citation style engine”-related classes.

**Third *design pattern*: Factory Pattern**

*/\*\*  
 \* Helper class to create and style controls according to an {****@link*** *Action}.  
 \*/*public class ActionFactory {

…

This factory design pattern can be found in **jabref > gui > actions > ActionFactory.**

This class’s purpose is to hide the creation of instances of a given type (in this case, menus, items, icons, etc) behind an interface.

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