

9/10/2014

Strategy Pattern

Bug Squashing Seminar
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dkfz.

GERMAN
CANCER RESEARCH CENTER
IN THE HELMHOLTZ ASSOCIATION

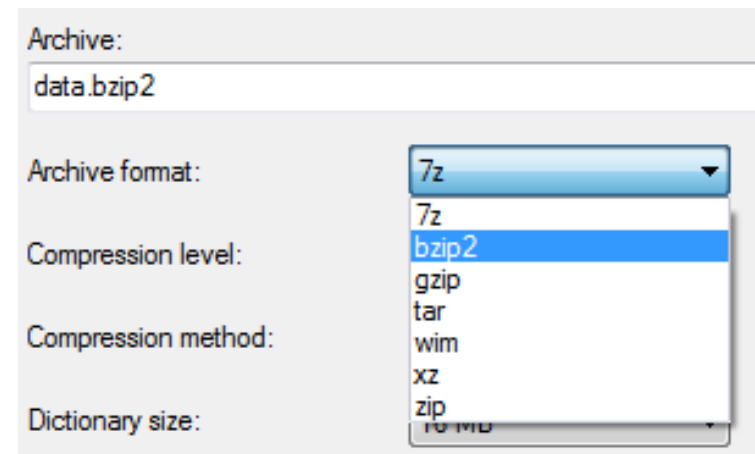


50 Years – Research for
A Life Without Cancer

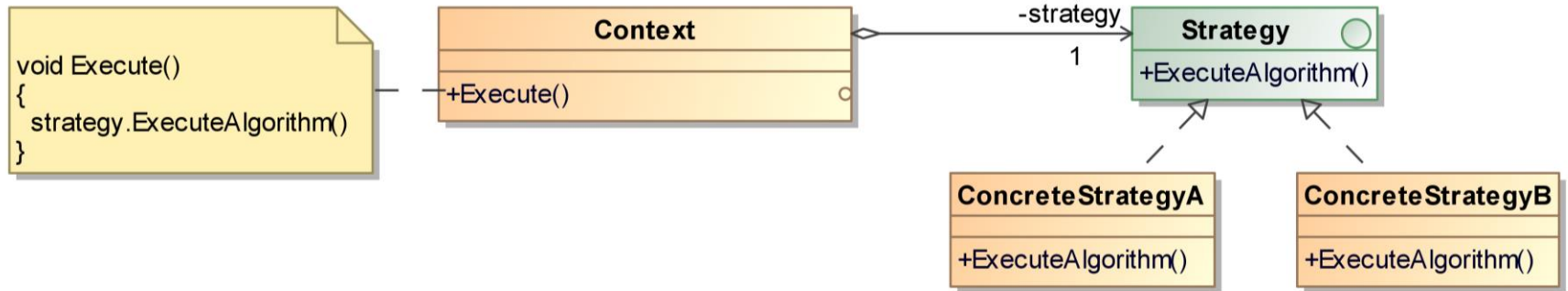
What's the strategy pattern?

- General: A pattern is a way to document an elegant solution to a problem in a given context
- Intent of strategy pattern
 - Define a family of algorithms
 - Encapsulate each algorithm
 - Make algorithms interchangeable

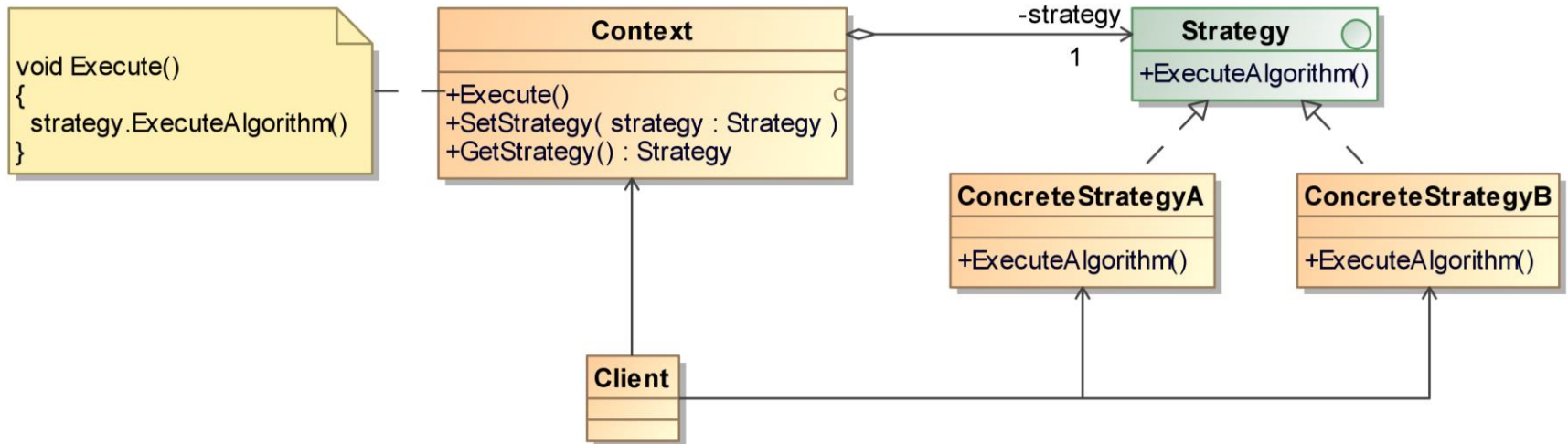
Screenshot:
Packer Tool 7-Zip



Structure (1)

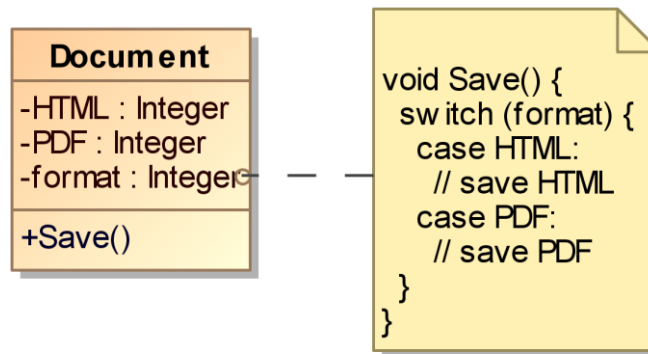


Structure (2)

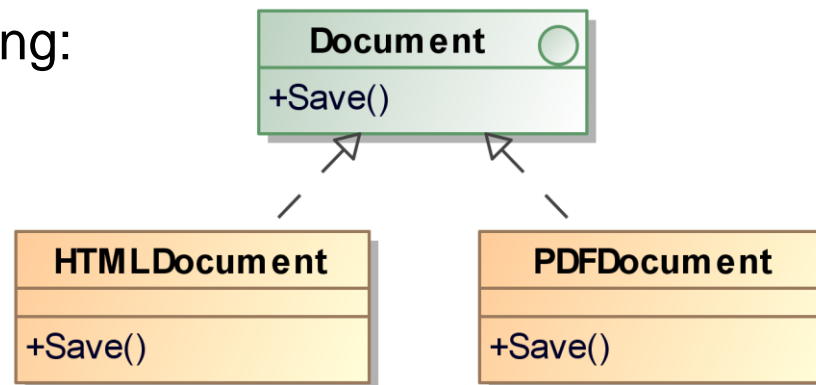


Applicability example

- Bad smell:
Conditional behavior depending on the type of an object



- Refactoring:

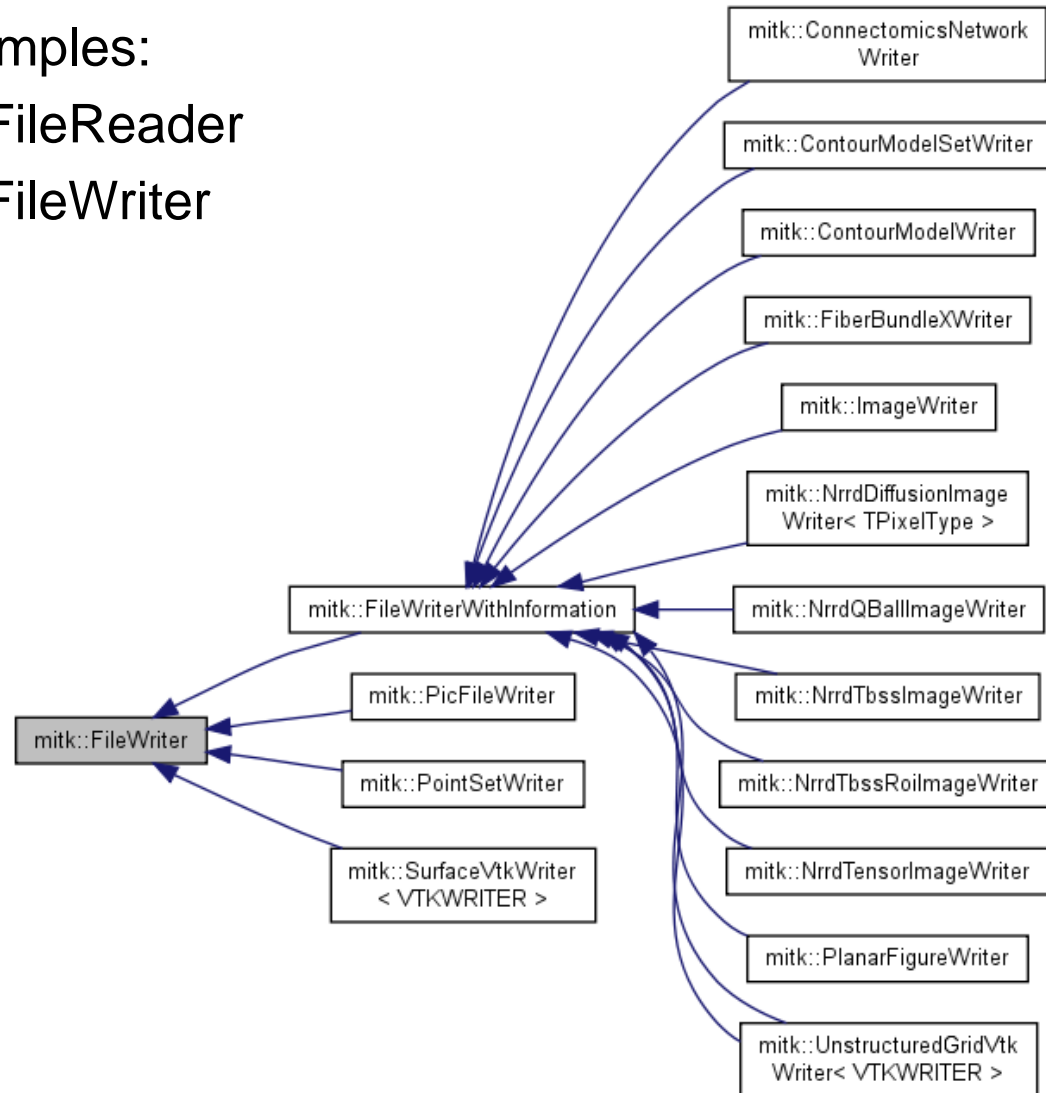


Summary

- Object behavioral pattern
- Design principles:
 - „Open/Close“, „One class one responsibility“
 - „Favor composition over inheritance“
- Pros
 - Obvious separation of context and strategy
 - Change/Add strategies without changing context
 - Increased reusability, separate tests possible
 - Selection of behavior at runtime
- Cons
 - Increased number of classes
 - Higher communication effort

Strategy pattern in MITK

- Examples:
 - FileReader
 - FileWriter



References

- Design Patterns. Elements of Reusable Object-Oriented Software, Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides
- <http://www.philippbauer.de/study/se/design-pattern/strategy.php>
- http://docs.mitk.org/nightly-qt4/classmitk_1_1FileWriter.html

A photograph of the German Cancer Research Center (DKFZ) building, a modern multi-story structure with a central glass tower and balconies. In the foreground, there is a paved courtyard with several water fountains and orange benches. The sky is blue with some clouds.

Thank you
for your attention!

Further information on www.dkfz.de

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