



50) Summary

Design Patterns And Frameworks

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Summary of the Course

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- ▶ Design patterns play an important role
 - In applications, within frameworks
 - At the border of frameworks (as framework hook patterns)
 - Between layers of layered frameworks (as mini-connectors)
- ▶ Essentially, role modelling explains design patterns and lays the basis for
 - Framework instantiation
 - Framework composition
 - Coupling of framework layers
 - Optimization of applications depends on the *degree* of role merging
- ▶ Future application families are build from layered frameworks
- ▶ OO Design Patterns and frameworks work with the object-oriented component model
 - Other component models exist; much of the variability and extensibility discussion of this course can be conveyed to these component models (see course CBSE in summer)

The 1 Mio Line Barrier

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- ▶ In this course, you have learned mechanisms to master code between 50kLOC and 1Mio kLOC
 - Framework hook patterns
 - Composing frameworks builds up large applications
 - Layered frameworks
 - With 6 layers, 100kLOC each, you end up with 600kLOC
- ▶ A single human can only understand applications less than 1Mio LOC
 - However, Windows has more than 24 MioLOC!
- ▶ More can only be understood if architectural description languages and metacomposition are employed
 - Component-based software engineering (CBSE), summer.



Good Luck.

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