

C++ Software Design

Design Principles and Patterns in Modern C++

Klaus Iglberger
July, 13th-14th, 2023

C++ Software Design @ O'Reilly

1. Introduction

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Introduction of the Trainer

C++ Trainer since 2016

Author of the bl🔥ze C++ math library

Author of “C++ Software Design”

(Co-)Organizer of the Munich C++ user group

Regular presenter at C++ conferences

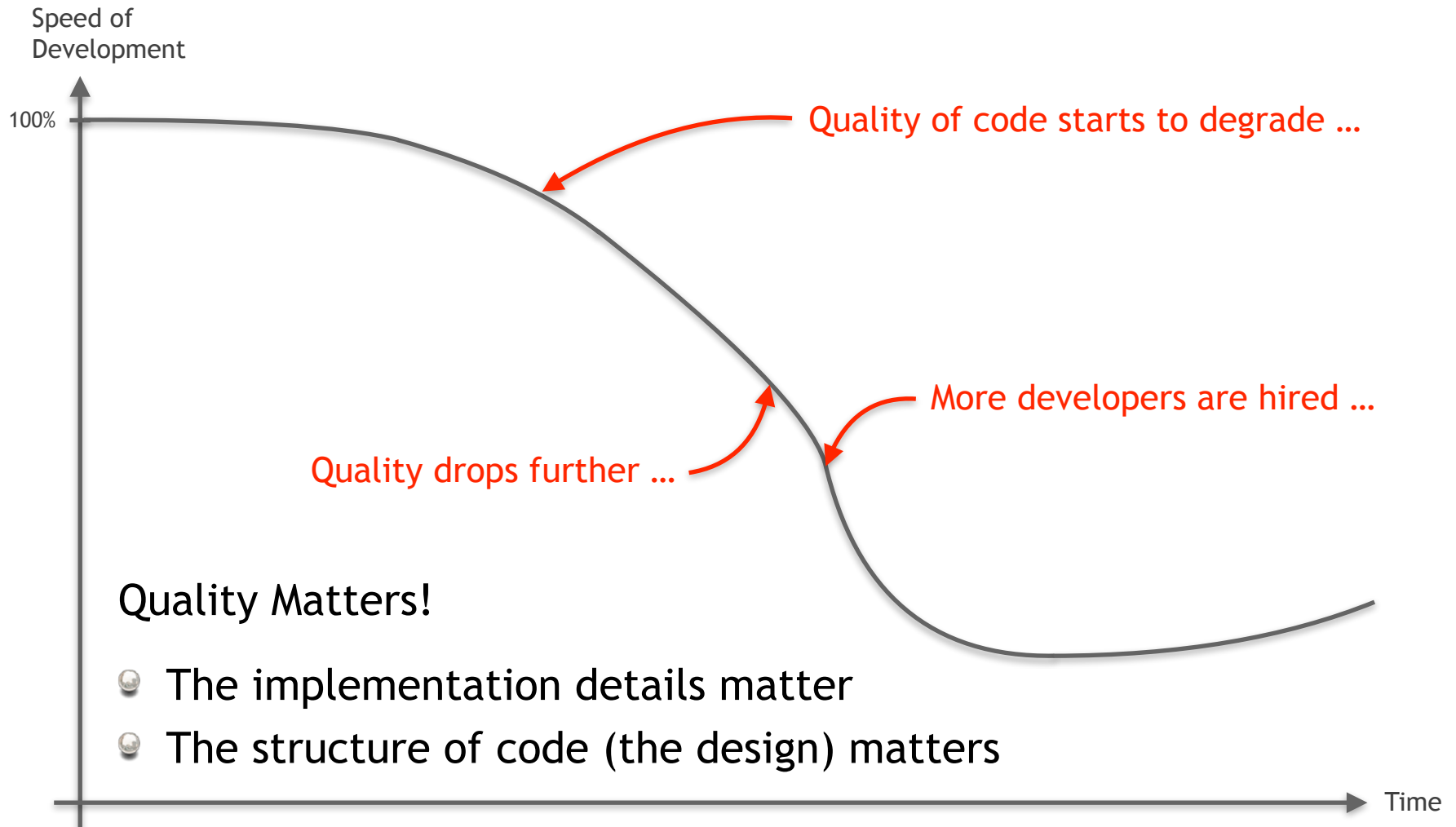


Klaus Iglberger

Motivation

“There is no point in developing software unless you care about doing it well.” (Andrew Hunt, David Thomas, The Pragmatic Programmer)

Motivation



Scope of this Training

In this training I will address ...

- ... software design principles and patterns;
- ... design patterns in a multi-paradigm programming language;
- ... classical and modern design patterns;
- ... the philosophy of “Modern C++”.

Scope of this Training

In this training I will NOT address ...

- ... all possible (classical and modern) design pattern;
- ... all variations of design patterns;
- ... all implementation details of modern design patterns.

Content of this Training

1. Introduction
2. C++ Software Design
3. Summary/Literature

Schedule

Thursday, July, 13th, 2023 (EDT time zone)

<i>10:00am - 10:10am</i>	<i>Introduction</i>
<i>10:10am - 11:00am</i>	<i>Understanding Software Design and Patterns</i>
<i>11:00am - 11:10am</i>	<i>Break</i>
<i>11:10am - 12:00pm</i>	<i>The Visitor Design Pattern</i>
<i>12:00pm - 12:10pm</i>	<i>Break</i>
<i>12:10pm - 1:00pm</i>	<i>The Visitor/Strategy Design Patterns</i>
<i>1:00pm - 1:10pm</i>	<i>Break</i>
<i>1:10pm - 2:00pm</i>	<i>The Strategy Design Pattern</i>

Schedule

Friday, July, 14th, 2023 (EDT time zone)

<i>10:00am - 10:10am</i>	<i>Recap</i>
<i>10:10am - 11:00am</i>	<i>The Prototype and Adapter Design Patterns</i>
<i>11:00am - 11:10am</i>	<i>Break</i>
<i>11:10am - 12:00pm</i>	<i>The Bridge Design Pattern</i>
<i>12:00pm - 12:10pm</i>	<i>Break</i>
<i>12:10pm - 1:00pm</i>	<i>The External Polymorphism Design Pattern</i>
<i>1:00pm - 1:10pm</i>	<i>Break</i>
<i>1:10pm - 2:00pm</i>	<i>The Type Erasure Design Pattern</i>

Miscellaneous

I assume you have some experience with C++. If something remains unclear or somewhat vague, **please ask!**

Miscellaneous

Also remember: **You are in control!**

Guidelines

(Core) Guideline: ...

The green boxes represent ...

- ... the most important take-aways;
- ... common idioms and best practice;
- ... markers in the slides.

Programming Tasks

Task (Subchapter/Name): ...

The yellow boxes represent ...

- ... hands-on programming tasks;
- ... links to the provided source code examples.

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