

# Clean Architecture: Patterns, Practices, and Principles

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## INTRODUCTION

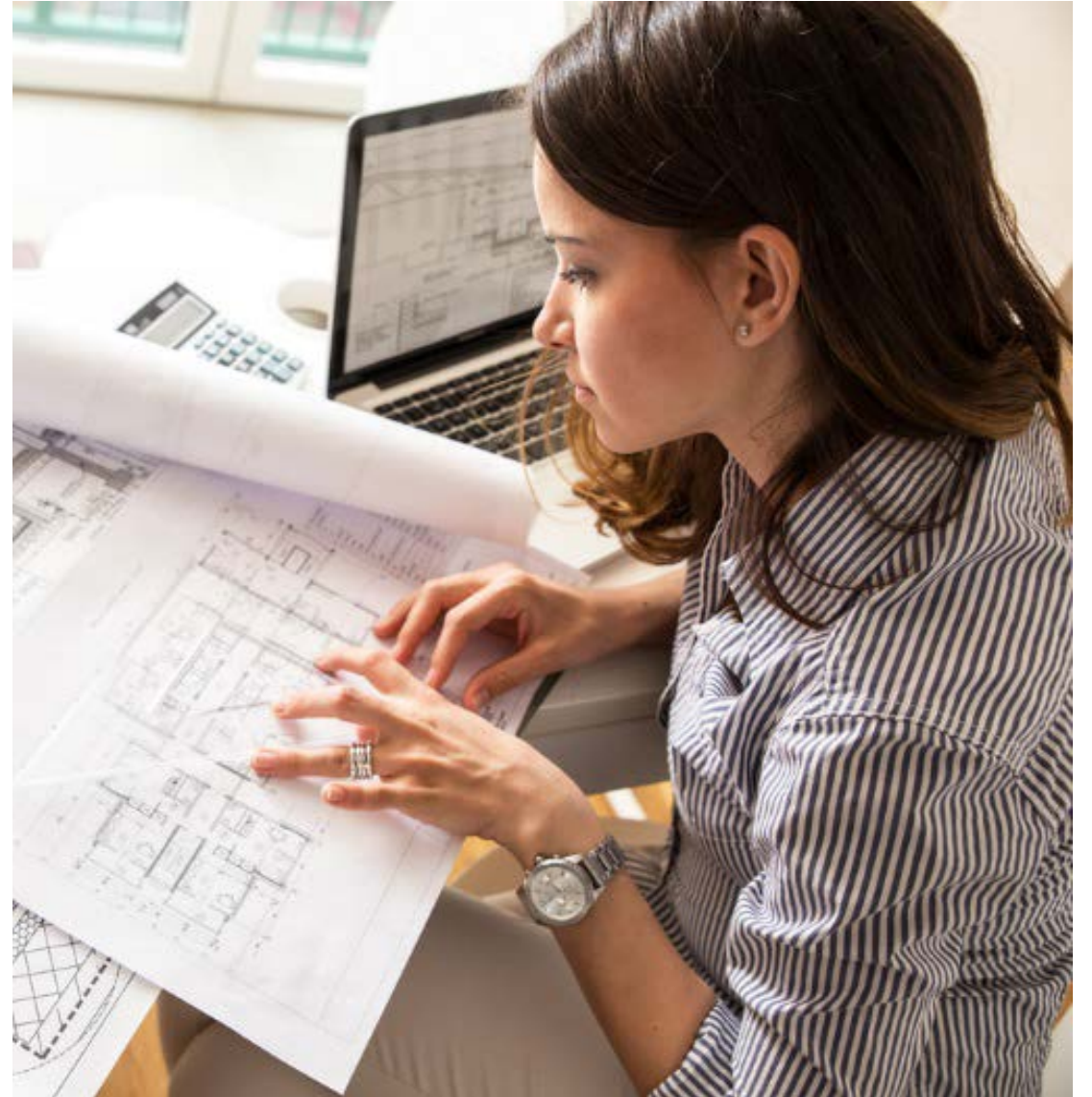


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# Course Overview



Clean Architecture

Domain-centric Architecture

Application Layer

Commands and Queries

Functional Organization

Microservices

Testable Architecture

Evolving the Architecture





# Purpose

**Philosophy of  
architectural  
essentialism**

**Set of patterns,  
practices, and  
principles**

**Alternative to  
traditional  
architecture**



# Focus

**Enterprise  
applications**

**Agile  
architecture**

**Top 7 ideas**



# Audience

**Developers**

**Architects**



# Prerequisites

**Basic  
programming  
experience**

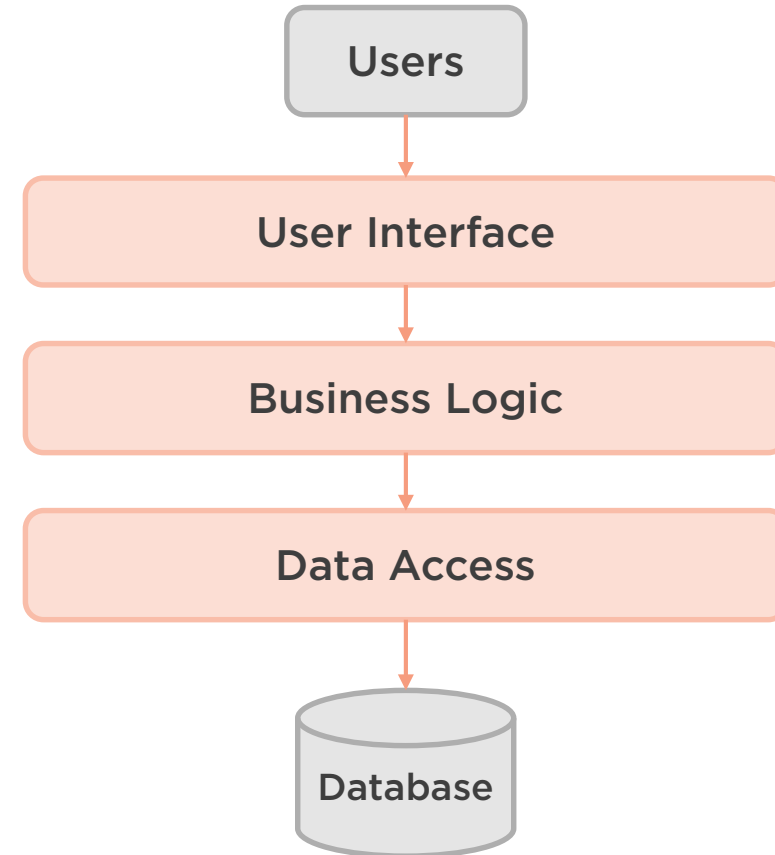
**Basic  
architecture  
experience**



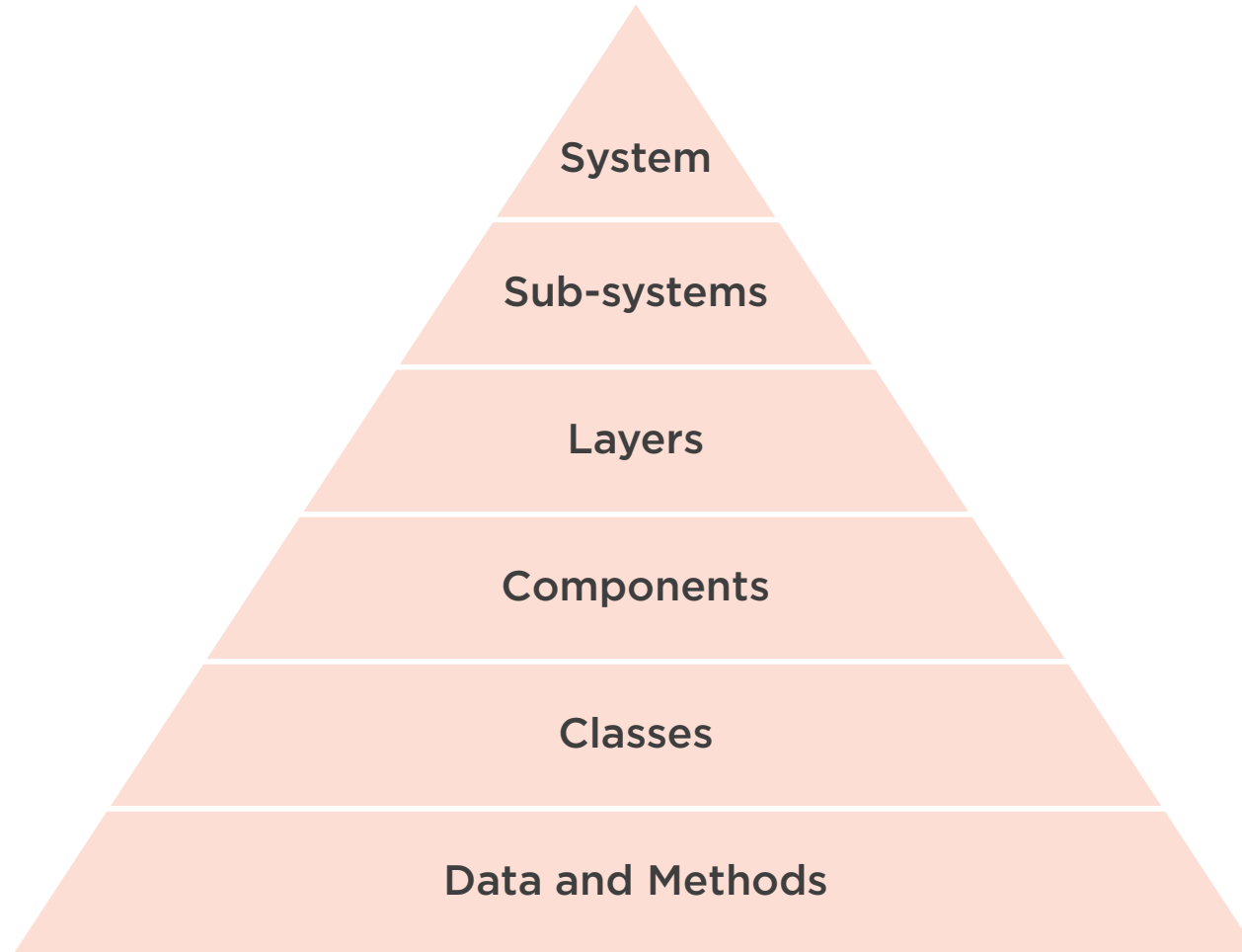


# What Is Software Architecture?

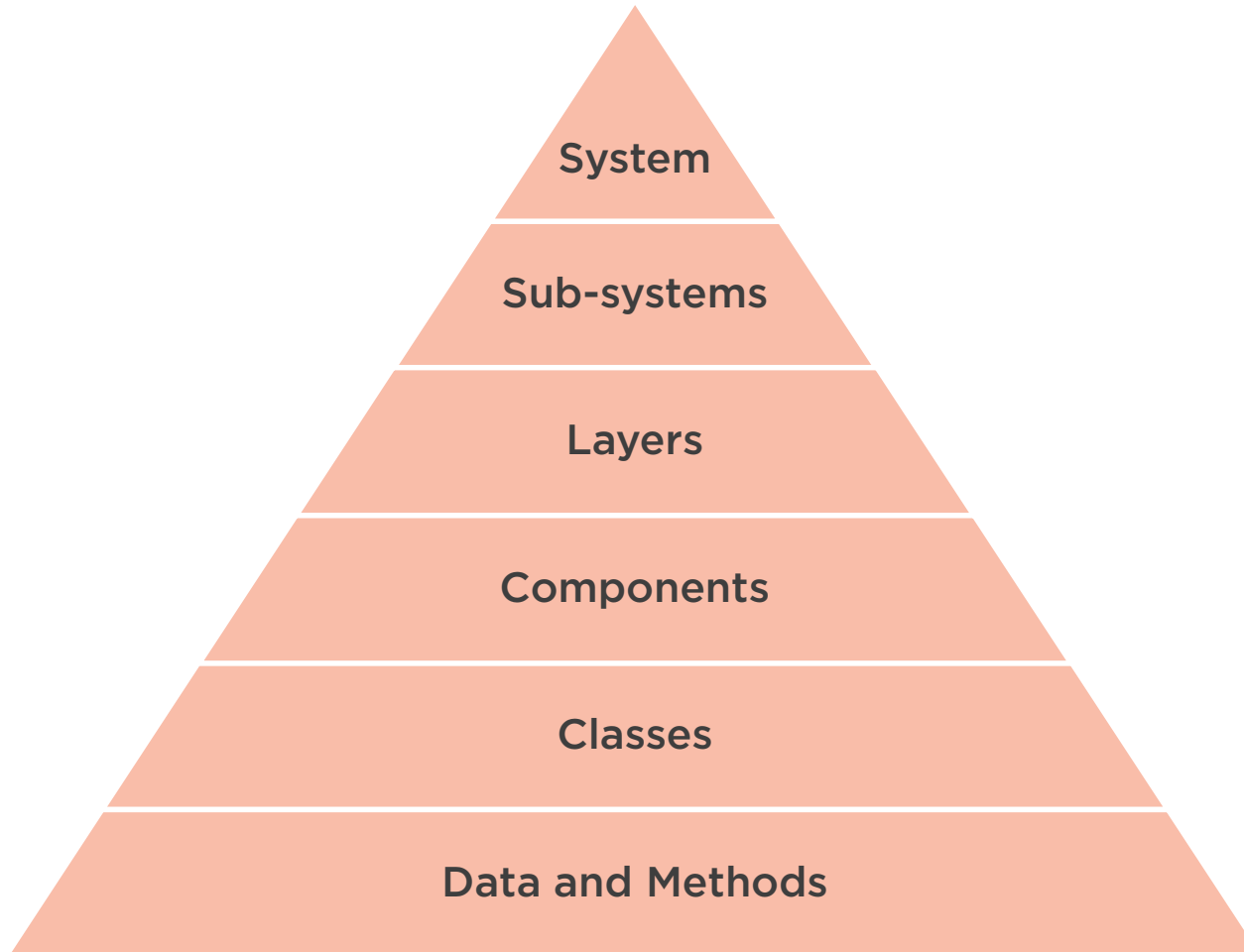
High-level  
Structure  
Layers  
Components  
Relationships



# Levels of Architectural Abstraction



# Levels of Architectural Abstraction







# Messy vs. Clean Architecture



# What Is Bad Architecture?

Complex

Incoherent

Ridged

Brittle

Untestable

Unmaintainable



# What Is Good Architecture?

**Simple**

**Understandable**

**Flexible**

**Emergent**

**Testable**

**Maintainable**





# What Is Clean Architecture?

Architecture that is designed for  
the inhabitants of the architecture...  
not for the architect... or the machine





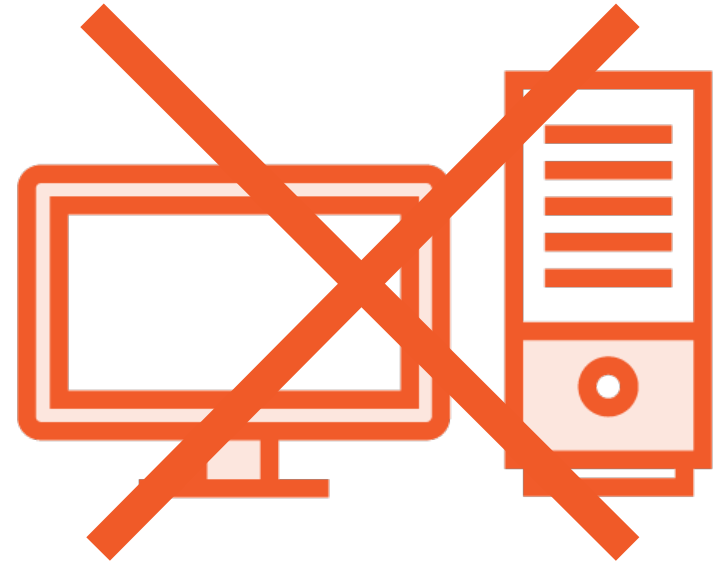
# What Is Clean Architecture?



Inhabitants



Architect



Machine

# What Is Clean Architecture?

Architecture that is designed for  
the inhabitants of the architecture...  
not for the architect... or the machine



# Why Invest in Clean Architecture?

**Cost/benefit**

**Minimize cost**

**Maximize value**

**Maximize ROI**



# Why Invest in Clean Architecture?

**Focus on the essential**  
**Build only what is necessary**  
**Optimize for maintainability**





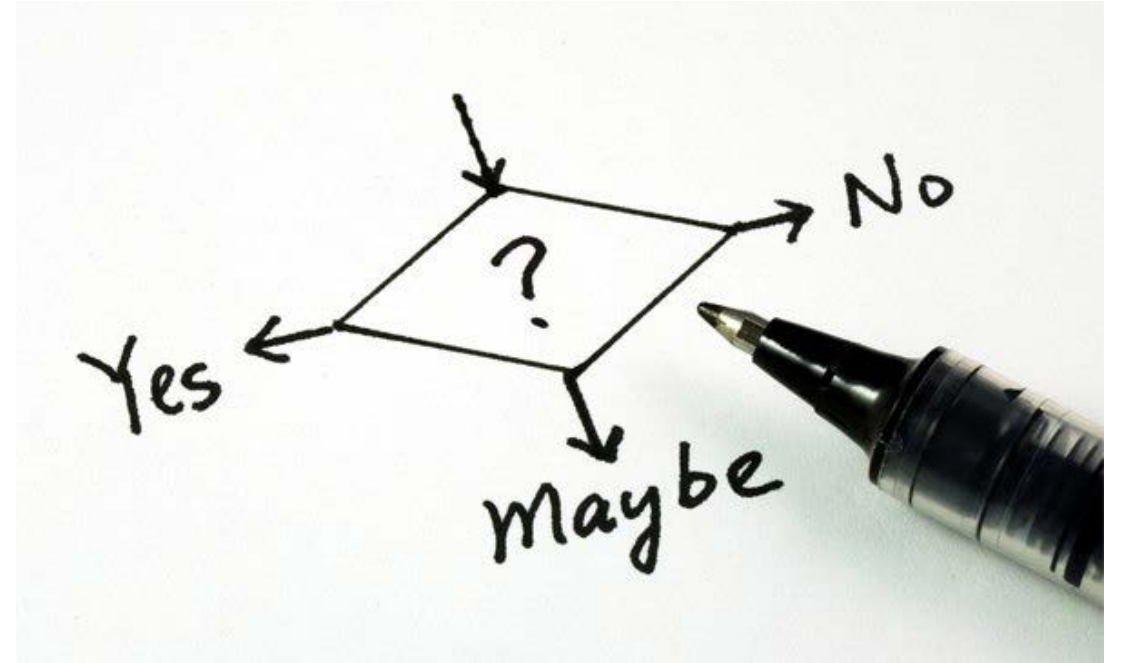
# Decisions, Decisions, Decisions...

Context is king

All decisions are a tradeoff

Align with business goals

Use your best judgement



# Setup



# Demo the Application



# Technologies

Visual Studio 2015

C# .NET 4.5

ASP.NET MVC 5

SQL Server 2014

Entity Framework 6

StructureMap 3.1

NUnit 2.5

Moq 4.2

AutoMoq 1.6

SpecFlow 2.1



Show the Solution



# Show the Database





# Open-source Demo Code

<http://www.pluralsight.com/library/courses/clean-architecture-patterns-practices-principles/exercise-file>

<https://github.com/matthewwrenze/clean-architecture-demo>



# Summary



**Course Overview**

**Clean Architecture**

**Demo**

