ACADEMIND

This Module Will Not Teach You OOP!

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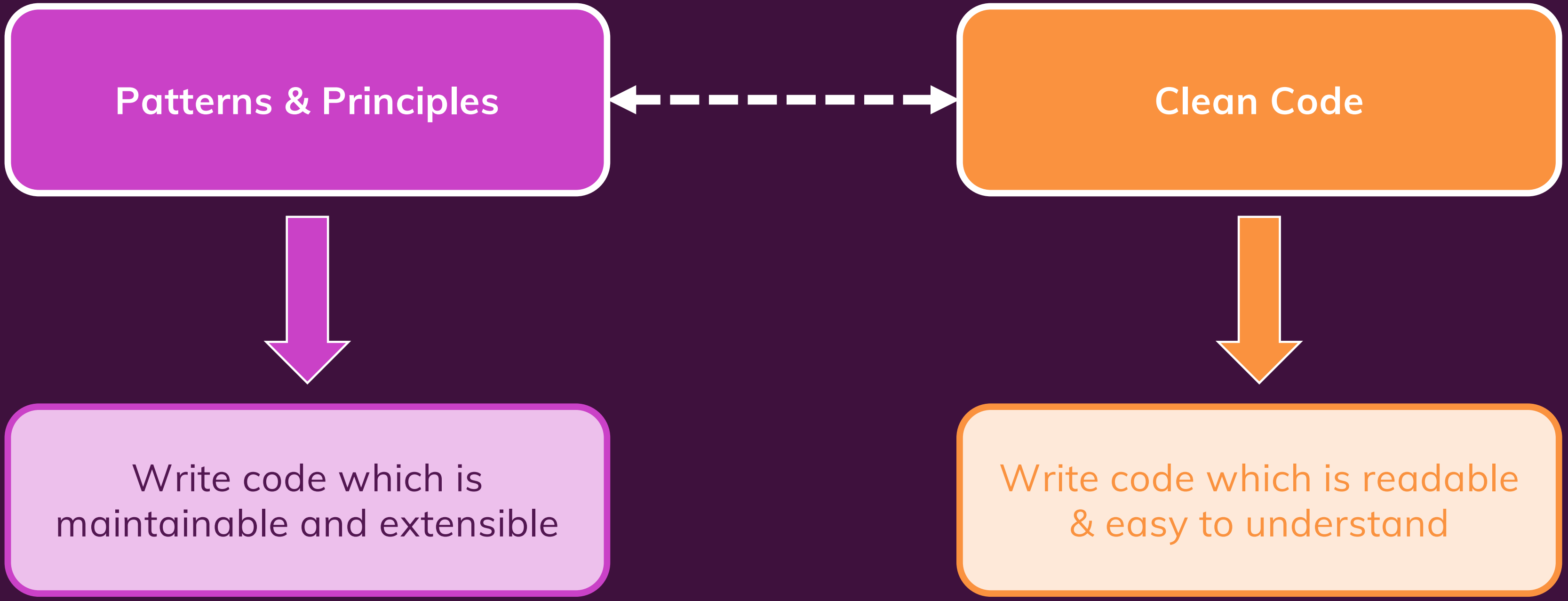
We Won’t Dive Into All OOP Patterns & Practices

Clean Code and Patterns & Principles


Patterns & Principles
Clean Code
Write code which is maintainable and extensible
Write code which is readable & easy to understand

The Difference Between Objects & Data Structures

Object	Data Container / Data Structure
Private internals / properties, public API (methods)	Public internals / properties, (almost) no API (methods)
Contain your business logic (in OOP)	Store and transport data
Abstractions over concretions	Concretions only

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Polymorphism

The ability of an object to take on many forms.

Classes Should Be Small

You typically should prefer many small classes over a few large classes

Classes should have a single responsibility
Single-Responsibility Principle (SRP)

A Product class is responsible for product "issues" (e.g. change the product name)

Cohesion

How much are your class methods using the class properties?

Maximum Cohesion	↔	No Cohesion
All methods each use all properties	Highly cohesive classes	All methods don't use any class properties
A highly cohesive object		Data structure / container with utility methods

Law Of Demeter

```
this.customer.lastPurchase.date;
```

Principle of Least Knowledge: Don’t depend on the internals of “strangers” (other objects which you don’t directly know)

Code in a method may only access direct internals (properties and methods) of:

- the object it belongs to
- objects that are stored in properties of that object
- objects which are received as method parameters
- objects which are created in the method

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Tell, Don’t Ask!

The SOLID Principles

S	Single Responsibility Principle
O	Open-Closed Principle
L	Liskov Substitution Principle
I	Interface Segregation Principle
D	Dependency Inversion Principle

The Single-Responsibility Principle

Classes should have a single responsibility – a class shouldn’t change for more than one reason.

SRP & Clean Code

Restricting classes to one core responsibility leads to smaller classes

↓

Smaller classes tend to be easier to read

The Open-Closed Principle (OCP)

A class should be open for extension but closed for modification.

OCP & Clean Code

Extensibility ensures small class (instead of growing classes) and can help prevent code duplication (DRY)

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Smaller classes and DRY code increase readability and maintainability

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The Liskov Substitution Principle (LP)

Objects should be replaceable with instances of their subclasses without altering the behavior.

The Interface Segregation Principle (ISP)

Many client-specific interfaces are better than one general purpose interface.

The Dependency Inversion Principle (DIP)

You should depend upon abstractions, not concretions.