How We Discuss GoF DPs (Gang of Four Design Patterns)

The Pattern of Talking about GoF DPs

From now on, when we discuss DPs, they are GoF DPs.
We discuss DPs in five sections:

1. Introduction to the DP

Initially, we discuss a real-world analogy or the reason why we should consider this DP.

- The Problem
- The Solution (this DP)
- The Design (UML)

2. Example

We choose an example and discuss how to solve it using this DP step by step.

- The Players & the relationship among the Players
- Separation and discussion of abstraction and concretion
- Discussion of abstraction and concretion

3. Code

We discuss why this pattern is used in Python to solve problems.

- Main method (driver)
- Detailed code

4. Discussion

We discuss anything about this pattern, for example:

- Related Patterns
- Benefits of using this DP
- When to use this pattern

5. UML

We discuss the design/structure of this DP using UML to finalize the discussion.

Hints when reading UML diagrams

1. Always think about the overall story.
2. Always think about the problem this design tries to solve (and actually is solving).
3. Always think about why the relationship is chosen (mainly in the concretion).

Students are expected to

1. Understand the problem domain.
2. Understand how this DP can solve the problem.
3. Understand the separation of abstraction & concretion.
4. Understand the players (in abstraction & concretion)
5. Understand the relationship between the players (in abstraction & concretion)
6. Understand the UML to describe this DP

In the real world

1. Students will use these GoF DP a lot
2. Students will solve problems by identifying the problem domain and using the related DP.
3. Students will combine multiple DPs to solve specific problems.
4. Students will find that real-world problem domains have their own DP sets.
5. Students will find that most companies have their DP sets.
6. Students will ultimately come up with their DP sets.

This is how we become professional problem solvers by managing complexity.