

# Object-Oriented Programming

## Semester 2025-I

### Workshop No. 2 — Object-Oriented Implementation

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Building on *Workshop #1* (Object-Oriented Design), this session focuses on translating your **conceptual design** into a technical implementation plan. You will refine your understanding of class structures, relationships, and the key OOP pillars (**inheritance**, **polymorphism**, **encapsulation**) to move closer to a working prototype of your *simple transactional application*.

#### Workshop Scope and Objectives:

- **Refinement of Conceptual Design:** Update your original requirements and user stories based on any feedback or new insights obtained since Workshop #1.
- **Technical Design with UML:** Produce and refine *UML class diagrams* that detail inheritance hierarchies, key associations, and class responsibilities.
- **OOP Principles in Action:** Demonstrate how inheritance, polymorphism, and encapsulation are applied to solve realistic scenarios in your transactional application.

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Any comment or concern regarding this workshop can be sent to Carlos A. Sierra at: *cavir-guezs@udistrital.edu.co*.

## Methodology and Deliverables:

### 1. Conceptual Design Updates:

- Revisit *Workshop #1* deliverables (requirements, CRC cards, user stories) and add any missing or revised elements.
- Document changes or decisions that emerged from further planning or discussions.

### 2. Technical Design (UML Diagrams):

- Create or update *class diagrams*, showing inheritance hierarchies, class members (attributes, methods), and relationships.
- Highlight how classes implement or override methods to fulfill user requirements and integrate the OOP principles.
- Add *sequence diagrams* or *activity diagrams* to illustrate interactions between classes and the flow of data.

### 3. Implementation Plan for OOP Concepts:

- Summarize how your code will realize **encapsulation** (access modifiers, getters, setters), **inheritance** (base and derived classes), and **polymorphism** (overriding, overloading, or interfaces).
- Outline a preliminary directory structure or package organization that supports your design.

### 4. Work in Progress Code:

- Include initial code snippets illustrating class definitions, placeholder methods, or abstract classes.
- Clearly state how these snippets relate to your UML diagrams and design rationale.

### 5. Delivery Format:

- Archive your updated documentation (revised conceptual design, UML diagrams, any code snippets) into a single PDF.
- Place all materials in a folder named **Workshop-2** in your project repository, referencing them in a `README.md`.

**Deadline: Friday, May 2nd, 2025, 16:00.** Submissions after this time may be penalized.

## Notes:

- Keep your documents in **English**.
- Cite any relevant tutorials, articles, or external libraries that shaped your design.

- Your refined design and UML models here lay the groundwork for actual coding in future assignments. Aim for clarity and scalability.

*In this workshop, you turn theoretical plans into a technical blueprint. Focus on integrating OOP concepts rigorously, ensuring your transactional application remains robust, maintainable, and aligned with best practices.*