THE UNIVERSITY OF AZAD JAMMU & KASHMIR, MUZAFFARABAD

COURSE TITLE	**OOP**
COURSE CODE	**CS-1204**
TITLE	**ASSIGNMENT # 1**
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STUDENT ROLL NUMBER	**2024-SE-31**
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SUBMISSION DATE	**MAY 13, 2025**

DEPARTMENT OF SOFTWARE ENGINEERING

Object Oriented Programming

Assignment # 1

Objective

This assignment aims to enhance our understanding of UML class diagrams, which are fundamental in software design. By learning to create these diagrams, we will develop the ability to structure and represent system components effectively.

UML Diagrams

UML (Unified Modeling Language) diagrams are a powerful way to visualize the structure and behavior of a system. They help developers and engineers design, analyze, and communicate complex software architectures effectively.

Tool Used & Challenges Faced

For this assignment, I utilized **Visual Paradigm**, a professional UML modeling tool, to design and visualize class diagrams. Here are some challenges I faced during the process:

- Selecting the Right Tool
- Diagram Accuracy and Structure
- Time Management

Single Inheritance

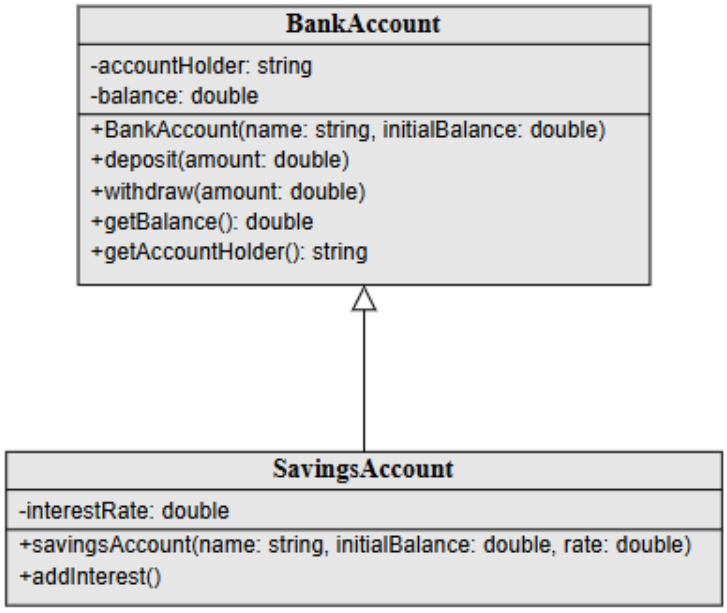

Figure 1: Showing the UML diagram of single Inheritance

Multiple Inheritance

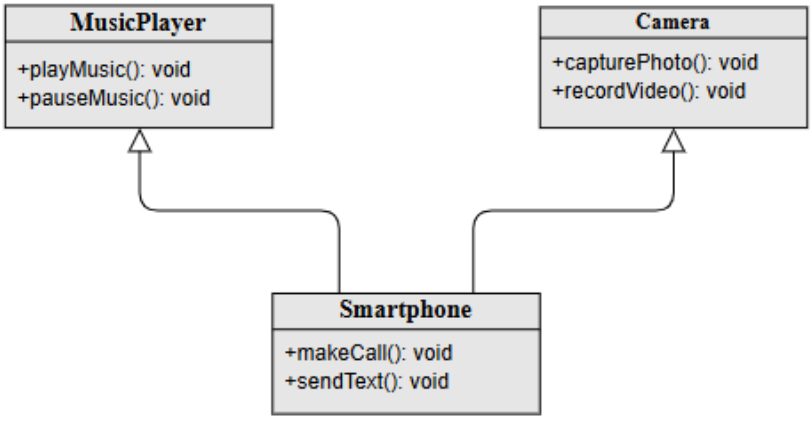

Figure 2: Showing the UML diagram of Multiple Inheritance.

Multi-Level Inheritance

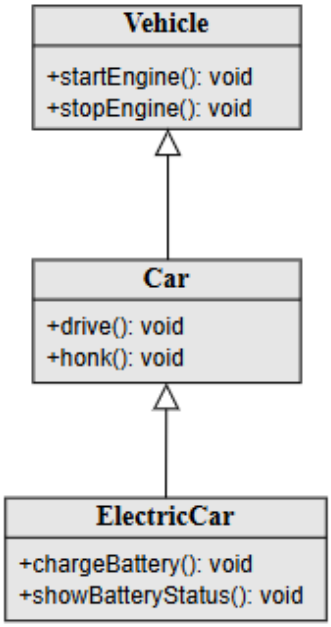

Figure 3: Showing the UML diagram of Multi-Level Inheritance.

Hierarchical Inheritance

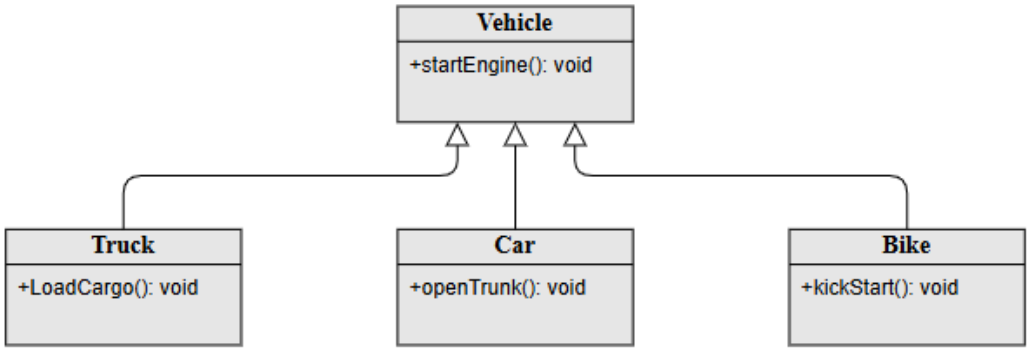

Figure 4: Showing the UML diagram of Hierarchical Inheritance.

Diamond Problem

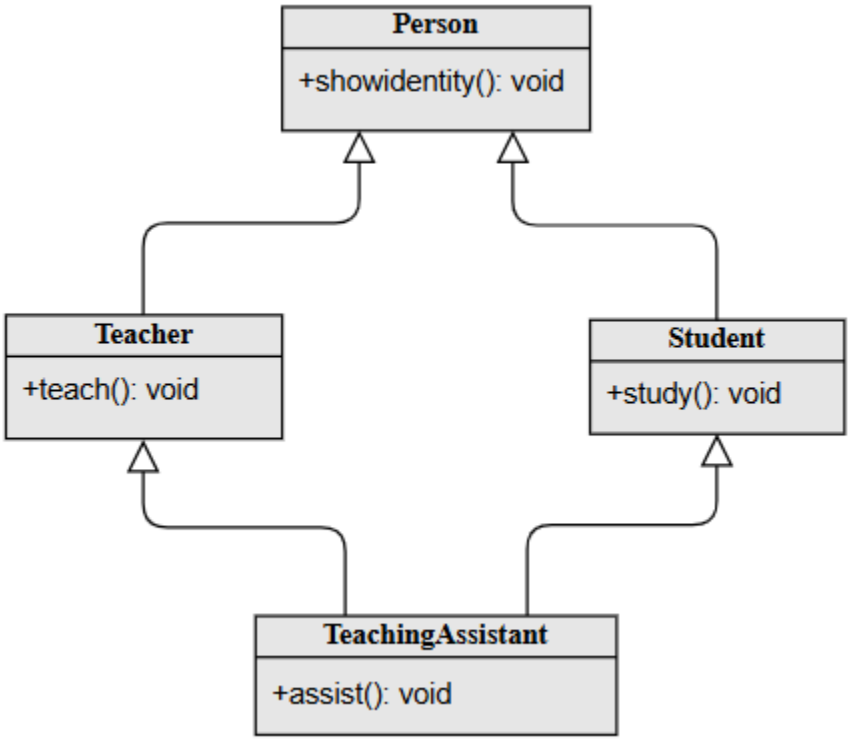

Figure 5: Showing the UML diagram of the diamond problem.

- Note that TeachingAssistant inherits two separate copies of Person.

Solution: Virtual Inheritance

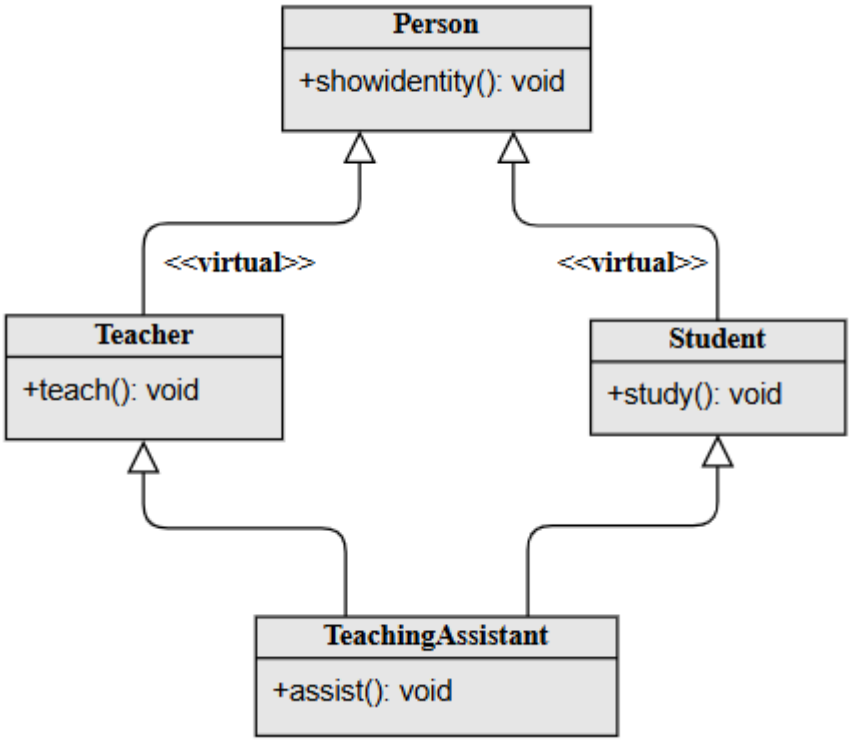

Figure 6: Showing the UML diagram of Virtual Inheritance

Composition

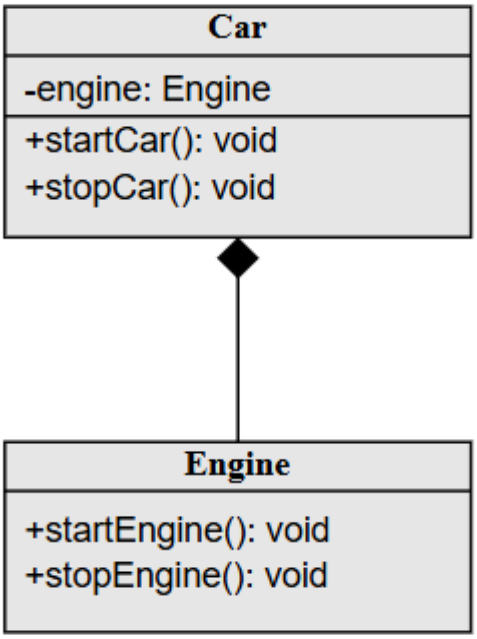

Figure 7: Showing the UML diagram of Composition.

Aggregation

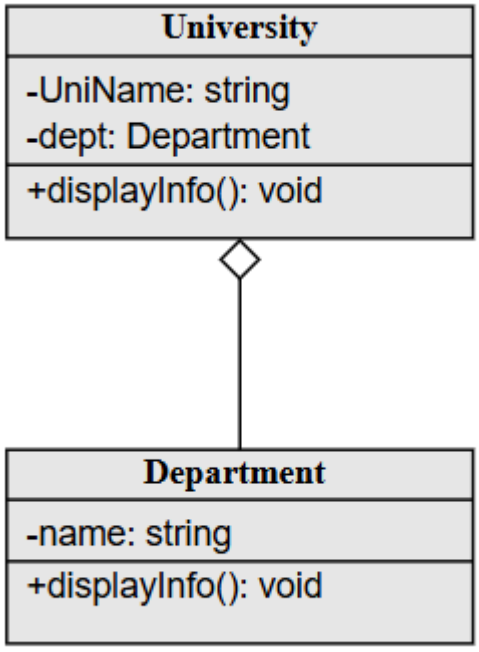

Figure 8: Showing the UML diagram of Aggregation.