

OOP EXAM – REPORT

Class and Object:

A class is a blueprint for creating objects (specific instances of the class). Objects represent real-world entities in the code.

I have multiple classes such as DatabaseConnector, Main, Nominee, Person, Student, and VotingSystem.

Object: Each time you use new DatabaseConnector(), new Nominee(student), new Student(id, name, studyProgram), etc., you are creating an object (an instance of the class).

Inheritance:

Inheritance allows a class (child or derived class) to inherit properties and behavior from another class (parent or base class).

The Student and Nominee classes extend the Person class. This means that both these classes inherit the properties and methods of the Person class. For instance, both Student and Nominee have id and name properties, which they inherit from Person.

Encapsulation:

Encapsulation is the bundling of data (attributes) and methods that operate on the data into a single unit, ensuring that the object's internal representation is hidden from outside.

Most of the classes encapsulate specific behavior and data. For instance, the DatabaseConnector class encapsulates the behavior related to database operations. I have made use of private modifiers, such as private List<Student> students and private List<Nominee> nominees in the VotingSystem class, to hide the internal state and protect it from unwanted external modification.

Polymorphism:

Polymorphism allows objects of different classes to be treated as objects of a common super class.

The fact that both Student and Nominee are subclasses of Person implies that you as a user can use polymorphism in scenarios where you need to treat both as a generic Person.

Composition:

Composition allows a class to contain objects of different classes as members, thereby allowing a combined functionality.

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The VotingSystem class demonstrates composition as it contains lists of Student and Nominee objects, i.e., private List<Student> students and private List<Nominee> nominees.