



# Object- Oriented Programming

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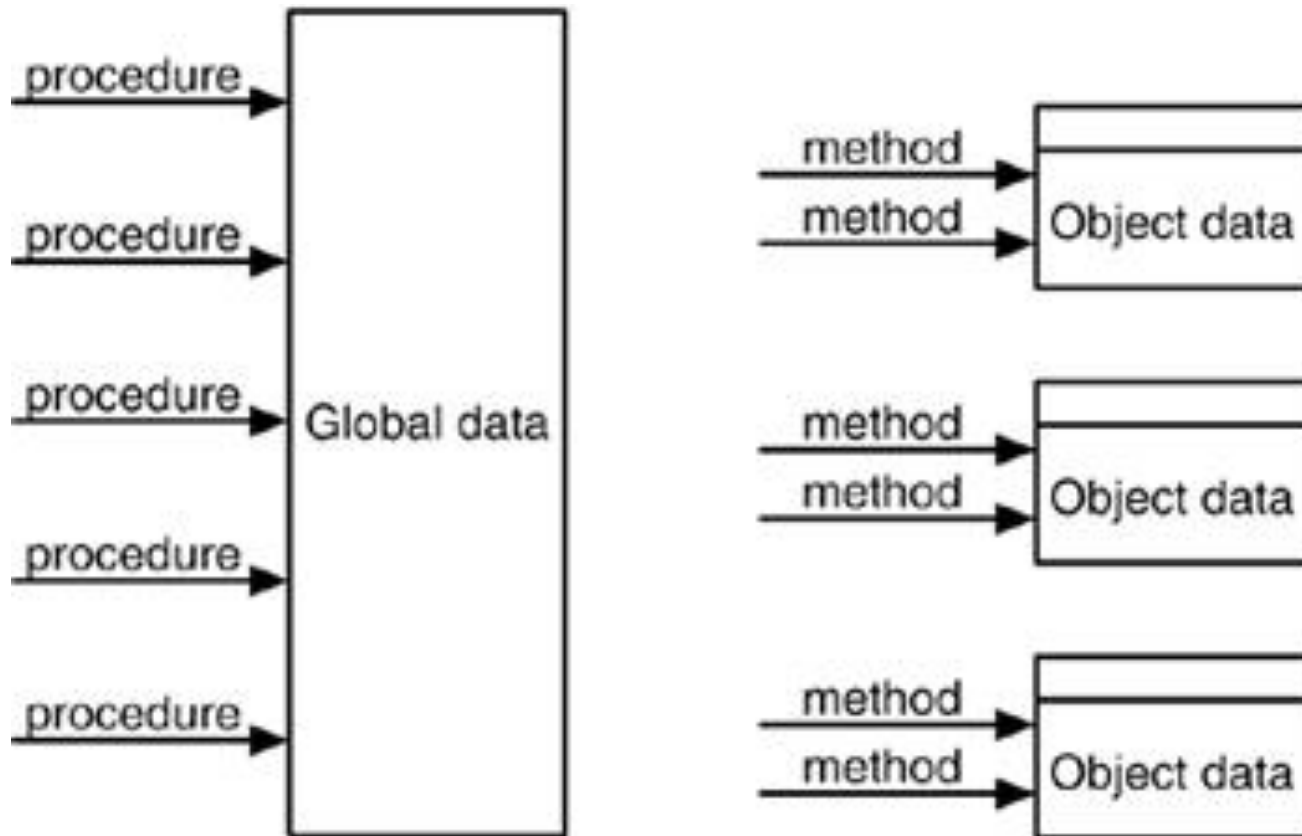
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# Evaluation test

- We need to manage
  - Teachers: First name, last name, email, title
  - Students: First name, last name, email, major
- Print name card

|   |  |
|---|--|
| <b>Title Full name</b><br><b>Lecturer</b> | <b>Full name</b><br><b>Major Student</b> |
| <b>Email</b>                              | <b>Email</b>                             |

# Procedural vs. OO programming



# Object Class vs. Object

## **Object Class**

- Template for creating objects
- Don't have states

## **Object**

- Have is own state (set of objects attributes)
- Operations

# Feature of OOP

- Inheritance
  - Extend existing class
- Data Encapsulation

Hide data access from outside
- Data Abstraction

Hide implementation from outside
- Polymorphism (Overriding)

Many methods have same name with different parameter(s)

# JAVA - Access modifiers and access level

| Modifier           | Class | Package | Subclass | World |
|--------------------|-------|---------|----------|-------|
| public             | Y     | Y       | Y        | Y     |
| protected          | Y     | Y       | Y        | N     |
| <i>no modifier</i> | Y     | Y       | N        | N     |
| private            | Y     | N       | N        | N     |