Coding Standards

University of Pretoria

Coding standards are laid down to achieve quality code that is...

- Robust
- Less error prone
- Easier to understand
- Maintainable

Classification

- Style
  - Deal with layout issues.
- Clarity
  - Enhance the readability and understandability of code.
- Flexibility
  - Methods to build adaptable and portable code.
- Reliability
  - Guidelines aimed at robust and error-free code.
- Effectiveness
  - Finding elegant and efficient solutions.

Style

- Naming Conventions
  - Use ALL_CAPS for constants
  - Use camelCase for all other identifiers
- Layout Rules
  - Use blank lines and indentation to enhance readability
  - Be consistent with the use of opening and closing braces

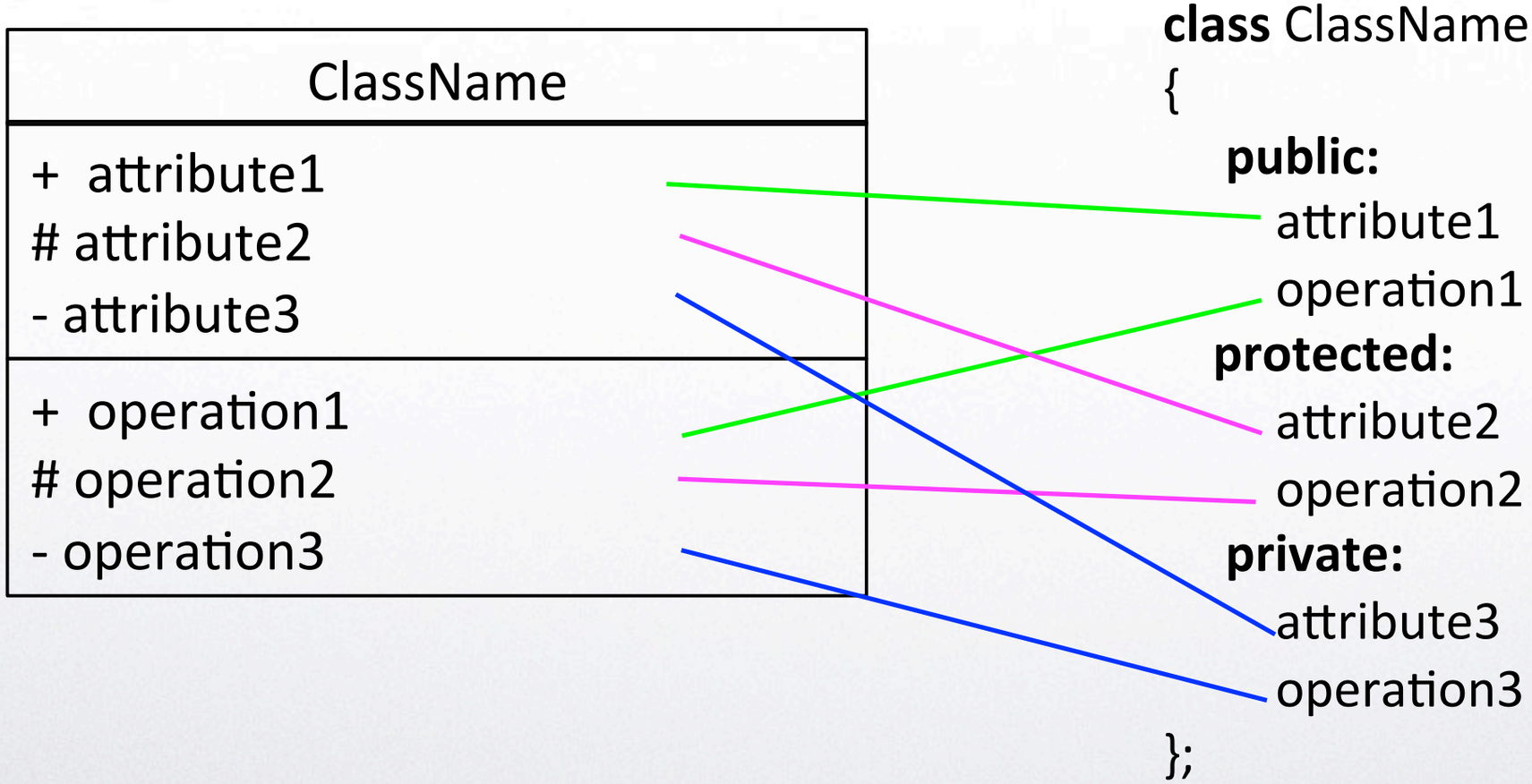
Clarity

- Order of presentation
  - Very important in UML and code of larger programs

- Selection of Identifier Names
  - Use dictionary words that are descriptive of its purpose
  - Use nouns for variable names and verbs for function names

Clarity

- Order of presentation



Clarity

- Commenting practices
  - Each program must start with a comment containing the name(s) and student numbers of the author(s), the date of last edit as well as the purpose of the program.
  - Add comments to enhance understanding
  - Avoid redundancy and duplication of what is already clear in the code.

Flexibility

- Avoid the use of magic numbers
  - A magic number is a numeric constant embedded in code.
  - Rather introduce a named constant.
- Apply OO principles and use design patterns appropriately
  - Will be dealt with later and in later modules.

Reliability

- Be conscious of the scope of every variable you declare.
- Take compiler warnings seriously
- Know when and how to use the different control structures
- Know when and how to use reference parameters and pointers

Effectiveness

- Be conscious of the size of every variable you declare.
- Avoid unnecessary code duplication by making use of functions and loop structures.
- Be conscious of the cost of operations and the order in which they are executed.