Java Pedagogical Libraries for Code Analysis

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Problem

- Manual grading for code submissions is time-consuming and not scalable for large classes
- Current automated feedback systems detect surface-level syntax errors or match outputs using unit tests
- Compiler errors, by themselves, are unhelpful for beginners

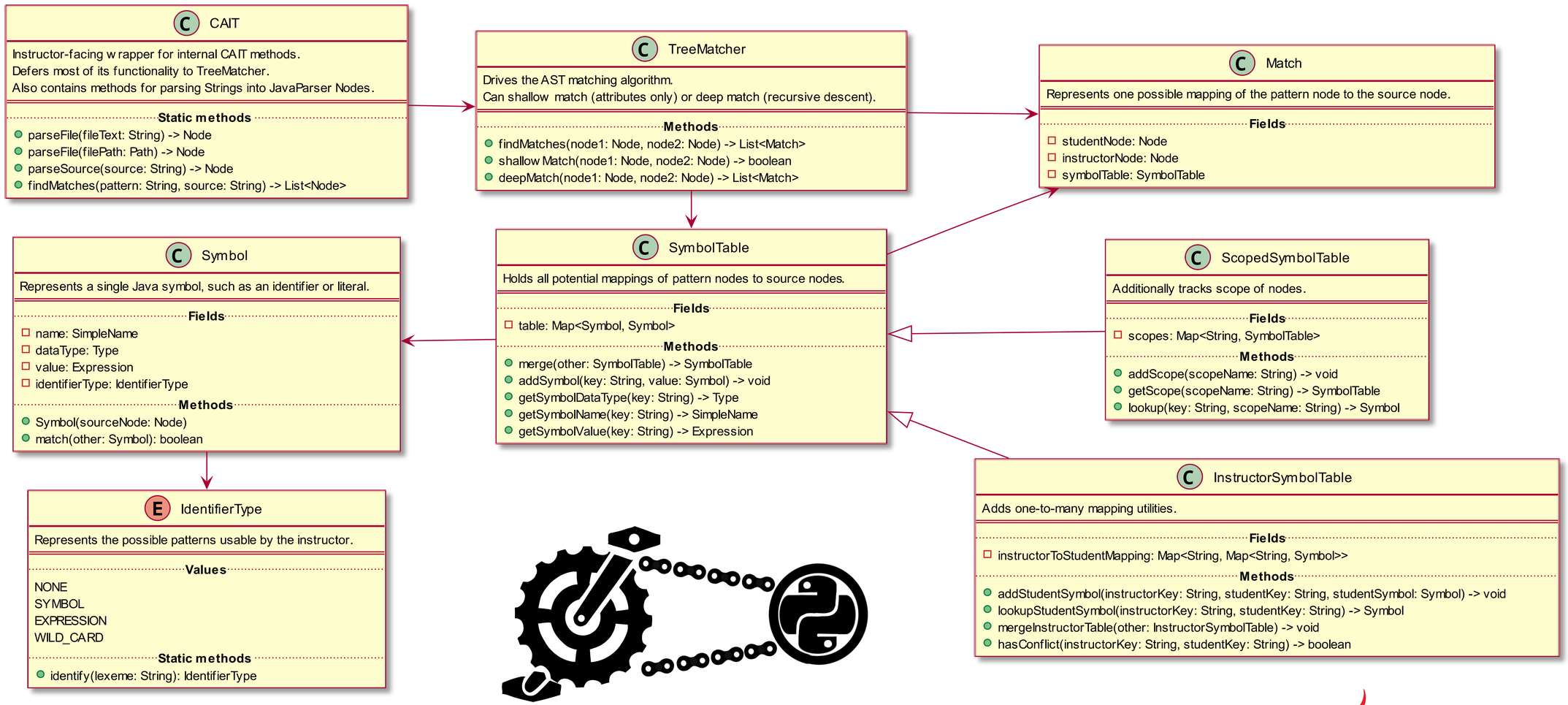
Background

- **Pedal** (Pedagogical Library) by Luke Gusukuma and Austin Bart, an instructor-centric framework for automated code feedback
- Written in **Python**, works on Python files
- Many introductory courses instead use **Java**, motivated by object-oriented foundations

Solution

- Create **JPedal**, the Java version of Pedal
- Implement the **CAIT (Capturing AST-Included Trees) module**, allowing the instructor to declaratively check for certain patterns in student code
- Lay the groundwork for the remaining modules
- Builds with Gradle and IntelliJ

CAIT (Capturing AST-Included Trees)



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