

# Translator Project Kick-off

CSCI-UA.0470-001, Fall 2015

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You are ready!

- Your Github repository and Piazza team has been created.
- You know how to use the toolchain.
- You understand what an Ast is and how to use Xtc to traverse one.
- By the end of the week you know how structure target C++ code.

Timeline

- 5 weeks to accomplish midterm features
- On average a phase-per-week (though thats not really how it will go)
- Midterm presentations in-class Wed, Oct. 28
- (Then onto second half; overloading & memory management)

Supported translator feature set (for midterm)

- inheritance
- method overriding & dynamic dispatch
- static data and methods

Midterm evaluation

- Translate Test000.java through Test020.java in src/test/inputs
- 5-6 slides detailing state of project, challenges and key learnings
- 10-minute presentation of the contents of your slides in class

Team approach

- Structured collaboration
  - Weekly team meetings
  - Weekly report
  - Piazza inter-group and intra-group discussions
  - In-class knowledge sharing
  - OOP-only office hours Thursday 5-6pm
- Leverage a phased approach to solve subproblems. Divide and conquer!
  - Phase 1: Generate Java Ast for primary source and its dependencies.
  - Phase 2: Build an ast that represents the data layout and vtable
  - Phase 3: Print C++ header file (output.h) with data layout and vtable for the source and its dependencies.
  - Phase 4: Mutate and decorate Java Ast from Phase 1 to translate to C++.
  - Phase 5: Print C++ implementation files (output.cpp, main.cpp) for primary sources and its dependencies.
  - Note: Do not attempt to transform/mutate an Ast and print target code in the same pass.  
If you are even able to pull it off, the code will be illegible and bug-ridden.

Weekly report

- By 11:55pm \*every\* Sunday night. The team will post to the \*team Piazza group\* the answers to these questions:
  - What did you accomplish this past week? Provide links to significant Git commits.
  - What are you going to accomplish this coming week?
  - What is blocking you? What are your main challenges?
  - What is the division of labor? Who is working on what?
- This will count for %5 of your translator grade.
- Every time it is missed %1 is deducted from team grade.

How to get started now

- You know enough to do Phase 1. Start immediately. Seriously.
- You know that you will have to visit the Ast in the source of the output of Phase 1.
- By Wednesday, you will know everything you need to know to do Phase 1 & 2.
- After Wednesday, you should work on the Ast schema for the inheritance hierarchy.