CS335   Milestone I
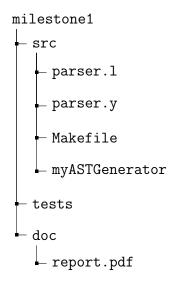
Compiler Design

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1 Directory Structure

Following is the directory structure of our project.

```
milestone1
├── src
│   ├── parser.l
│   ├── parser.y
│   ├── Makefile
│   └── myASTGenerator
├── tests
└── doc
    └── report.pdf
```

2 Execution Step

Following are the steps for execution. Assume that the current location is the milestone1
directory.

```
cd src
make
.\myASTGenerator −input=./../tests/input.java −output=output.dot −verbo
```

3 Functions Included

3.1 Basic Functionality

- Primitive data types (e.g., int, long, float, double, and boolean)

- Multidimensional arrays.Only support C-style declarations.

- Basic operators:

  - Arithmetic operators: +, -, *, /, %, ++, −
  - Preincrement, predecrement, postincrement, and postdecrement
  - Relational operators: ==, !=, $<, >$, $\leq, \geq$
  - Bitwise operators: $\&, |, \wedge, \tilde{\ }, <<, >>, >>>$
  - Logical operators: $\&\&, ||, !$
  - Assignment operators: =, +=, -=, *=, /=, &=
  - Ternary operator

- Control flow vila if-else, for, and while

- Methods and method calls, including both static and non-static methods

- Support for recursion

- Support the library function println() for printing

- Support for classes and objects. For class definitions, support all modifiers.

3.2 Bonus Functionality

- Included constructs like do-while and *switch*

- Included support for *import*, package statement

- Included support for nested class

- Support for Interfaces

- Type casting

- Static polymorphism via method overloading

- Dynamic polymorphism via method overriding

- Generics

- Constructors

- Casting into primitives

- Arrays of multidimensions

- Object Creation

3.3 Limitations:

- field declarations are not allowed in classes and interfaces. only methods, constructed, etc

- local variables cant have modifiers.

- no support for lambda, annotations, class literal

- only cast to primitive is allowed

- explicit constructor invocation not supported

- no static block allowed

- class interface all are supposed to have same type

All things besides limitations are allowed and supposed to work. Few extra-ordinary expressions may produce conflicts