

# CS335A: Compiler Design (Assignment 3: INTERMEDIATE CODE GENERATOR)

- Source Language: *Python*
- Target Language: *MIPS Assembly*
- Implementation Language: *Python*
- Authors: Abhilash Kumar, Arnab Ghosh and Saurav Kumar
- Tool Used : PLY (Python Lex and Yacc)

## Three Address Code Representation

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1. Representation: `regDest, regSrc1, regSrc2, op`

2. Operators:

- HALT
- JUMP\_RETURN
- PARAM
- SW
- LW
- =
- PRINT
- GOTO
- RETURN
- COND\_GOTO
- %
- /
- \*
- +
- -
- >
- <
- >=
- <=
- ==
- !=
- |
- ^
- &
- not
- and

- or
- <<
- >>

## Running Instruction

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1. Run the makefile `make`
2. To run the IR Generator, pass the path of filename as argument. `bin/irgen test/<filename>.py`
3. To clean the executables and other helper files, run make clean. `make clean`

## Directory Structure

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- bin:
  - converter.py [Python source file to convert the dump of parser into dot file: may be needed for debugging]
  - lex.py [Python source file from PLY for lexing]
  - lexer.py [Python source file to specify language lexemes]
  - irgen [Python dependent bytecode for parsing and semantic analysis]
  - parser.py [Python source file to specify grammar]
  - yacc.py [Python source file from PLY for parsing ]
  - symbolTable.py [Python source file with necessary functions related to symbol table]
  - tac.py [Python source file with necessary functions related to Three Address Code Representation]
- src:
  - converter.py [Python source file to convert the dump of parser into dot file: may be needed for debugging]
  - lex.py [Python source file from PLY for lexing]
  - lexer.py [Python source file to specify language lexemes]
  - irgen [Python dependent bytecode for parsing and semantic analysis]
  - parser.py [Python source file to specify grammar]
  - yacc.py [Python source file from PLY for parsing ]
  - symbolTable.py [Python source file with necessary functions related to symbol table]
  - tac.py [Python source file with necessary functions related to Three Address Code Representation]
- test:
  - 'filename'.py [Test files]
- .gitignore
- makefile [To move the source files to bin directory and compile bytecode for lexer and making it executable]
- readme.md