Introduction to compiler projects

Introduction to cs215

- Weight:
  - – Project1 : 30% (maximum to 5 bonus points)
  - – Project2: 70% (maximum to 10 bonus points)
    - 40 points for test cases (http://www.cs.sjtu.edu.cn/~jiangli/teaching/CS308/projects/testcases.zip)
    - 20 points for report (must be written in English!)
    - 10 points for optimization , error handling , etc.

Bonus points

- Project1, 5 points:
  - Error handling
- Project2, 10points:
  - Code optimization:
    - Dead code elimination, algebraic identities
  - Error handling
  - Report writing
- Write comments in your code and point out your highlights in report to let TA know your contribution!

One mistake in project1

- For grammar of stmt:
  - STMT →…

    RETURN EXP SEMI |

    IF LP EXP RP STMT ESTMT |

    FOR LP EXP SEMI EXP SEMI EXP RP STMT…
  - EXP → …

    | ϵ
- Expression in return statement and if statement cannot be omitted
- But the three expressions in for statement can be omitted

One mistake in project1(con’t)

- **Change grammar as follows:**
  - STMT →…

    RETURN EXP SEMI |

    IF LP EXP RP STMT ESTMT |

    FOR LP FEXP SEMI FEXP SEMI FEXP RP STMT…
  - FEXP → EXP

    | ϵ
  - EXP cannot be derived to ϵ !

Revise your grammar

- Change your grammar for more convenience use!
- In the grammar laws of EXP:
  - separate binary operator by different precedence and associativity.
  - add other terminals and non-terminals
  - …

Problems in project1

- Don’t include lex.yy.c in your *.y:
  - Using yylval & return value by *.l to deliver tokens and information.
  - Include y.tab.c in your *.l
  - Using “extern int yylineno” to get line number of token in *.y
  - Write main function in*.y
  - You can set up a header file “common.h” for the same struct used in *.l and *.y
- Any more questions:
  - Google, Baidu, bing …
  - Email to TA
  - Come to 3-125, the second seat of second row to ask TA Chen Lerong on 6:30pm-9:30pm,Tuesday & Wednesday
- Recommend tutorial:
  - http://www.ibm.com/developerworks/cn/linux/sdk/lex/
  - http://dinosaur.compilertools.net/

Advice for project2

- Start your work as early as possible
- Using command “clang -emit-llvm-s” to see how LLVM generate LLVM IR
- Write your report early even you didn’t finish your project very well
- Read llvm reference carefully

NO PLAGIARISM!