System programming

Assignment 4

Name: GENG XU Student ID: 12132031d

Including:

This report

Readme : how to run the program

Parser.c : source code

a.out: compiled code

test sample: sample1 sample2

1. Revised SL grammar

The original grammar is not suitable for writing a program. I have revised it by eliminating left recursion and left factoring:

PROG -> PROG\_BODY .

PROG\_BODY -> var ID\_LIST; STATEMENT\_LIST

ID\_LIST -> id ID\_SUB\_LIST

ID\_SUB\_LIST -> ,id ID\_SUB\_LIST | e

STATEMENT\_LIST -> begin STATEMENT end

STATEMENT -> id=E; SUB\_STATEMENT

SUB\_STATEMENT -> id=E; SUB\_STATEMENT | STATEMENT\_LIST SUB\_STATEMENT | e

E -> (E) SUB\_E | num SUB\_E | id SUB\_E

SUB\_E -> +E SUB\_E | -E SUB\_E | \*E SUB\_E| /E SUB\_E | e

Remark: e represents empty string

2. program test using sample

As shown in the picture below

Sample 1: parse successful

Sample 2: syntax error



