ZHENG Hongyi

13104036d

1. Grammar

PROG -> PROG\_BODY.

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

ID\_LIST -> id A | e

A -> , id A | e

STATEMENT\_LIST -> begin STATEMENT end

STATEMENT -> id=E; B

B -> id=E; B | STATEMENT\_LIST B | e

E -> (E) C | num C | id C

C -> +EC | -EC | \*EC | /EC | e

1. Test

**Sample program 1:**

var a, b, c;

begin

a=5;

b=6;

c=(a+b)/2.0;

end.

**Output 1:**

"Program" begins

"Program Body" begins

"Declaration" begins

"Declaration" ends

"Statement List" begins

"Statement" begins

"Expression" begins

"Expression" ends

"Expression" begins

"Expression" ends

"Expression" begins

"Expression" begins

"Expression" begins

"Expression" ends

"Expression" ends

"Expression" begins

"Expression" ends

"Expression" ends

"Statement" ends

"Statement List" ends

"Program Body" ends

"Program" ends

Program parsed successfully

**Sample program 2:**

var a;

begin a = 5

end .

**Output 2:**

"Program" begins

"Program Body" begins

"Declaration" begins

"Declaration" ends

"Statement List" begins

"Statement" begins

"Expression" begins

"Expression" ends

Syntax Error