天津大学

2022 春季学期《编译原理》大作业测试报告

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一、给出的测试用例

SELECT t.c FROM t WHERE t.a > 0

Ⅰ.词法分析器输出


```
文件(F)  编辑(E)  格式(O)  查看(V)  帮助(H)
SELECT   <KW,1>
t <IDN,t>
.   <OP,16>
c <IDN,c>
FROM   <KW,2>
t <IDN,t>
WHERE   <KW,3>
t <IDN,t>
.   <OP,16>
a <IDN,a>
>   <OP,2>
0   <INT,0>
```

Ⅱ.语法分析器输出


```
C:\Users\gly\Desktop\sql--compiler-master\src\x64\Debug\compiler.exe
23      37    tableSourceListRec#WHERE        reduction
24      35    tableSources#WHERE       reduction
25      /     WHERE#WHERE      move
26      /     IDN#IDN move
27      47    uid#.   reduction
28      /     .#.     move
29      /     IDN#IDN move
30      47    uid#>   reduction
31      49    dottedId#>      reduction
32      48    fullColumnName#>        reduction
33      70    expressionAtom#>        reduction
34      /     >#>     move
35      79    comparisonOperator#INT  reduction
36      /     INT#INT move
37      77    decimalLiteral##        reduction
38      73    constant##      reduction
39      69    expressionAtom##        reduction
40      68    predicateRight##        reduction
41      66    predicate##     reduction
42      67    predicateRight##        reduction
43      66    predicate##     reduction
44      58    expressionRight##       reduction
45      55    expression##    reduction
46      125   whereExpression##       reduction
47      17    fromClause##    reduction
48      20    groupByClause## reduction
49      22    havingClause## reduction
50      24    orderByClause## reduction
51      16    selectClause## reduction
52      14    querySpecification##    reduction
53      7     unionStatements##       reduction
54      5     selectStatement##       reduction
55      1     dmlStatement## reduction
Acc
hddhh
```

二、其他的测试用例

1.覆盖原则：

(1).覆盖关键字

SELECT　FROMWHERE　AS *

INSERT　INTO　VALUES　VALUE　DEFAULT

UPDATE　SET

DELETE

JOIN　LEFT　RIGHTON

MIN　MAX　AVG　SUM

UNION　　ALL

GROUP BY　HAVING　DISTINCTORDER BY

TRUE FALSE　　UNKNOWN　IS　NULL

(2).覆盖运算符

=　>　<　>= <=

AND　&& OR‖　XOR　NOT　!

-

.

(3).覆盖界符

()　,

(4).覆盖标识符、整数、浮点数、字符串

标识符：为字母、数字和下划线（_）组成的不以数字开头的串

整数：　-1 0 1

浮点数：-1.0，0.0，1.0

字符串："ab"

（5）覆盖所给文法的表达情况

2. 测试结果

共测 30+ 用例，此处列举具有代表性的 2 例。

第一例：

```
INSERT  <KW,6>
INTO  <KW,7>
Websites  <IDN,Websites>
(  <SE,1>
name  <IDN,name>
,  <SE,3>
url  <IDN,url>
,  <SE,3>
alexa  <IDN,alexa>
,  <SE,3>
country  <IDN,country>
)  <SE,2>
VALUE  <KW,8>
(  <SE,1>
"baidu"  <STRING,"baidu">
,  <SE,3>
"https://www.baidu.com/"  <STRING,"https://www.baidu.com/">
,  <SE,3>
"4"  <STRING,"4">
,  <SE,3>
"CN"  <STRING,"CN">
)  <SE,2>
```

```
51      72        constant#,          reduction
52      69        expressionAtom#,          reduction
53      68        predicateRight#,          reduction
54      66        predicate#,          reduction
55      58        expressionRight#,          reduction
56      55        expression#,          reduction
57      120       expressionOrDefault#,     reduction
58      /         ,#,        move
59      /         STRING#STRING    move
60      90        stringLiteral#)  reduction
61      72        constant#)        reduction
62      69        expressionAtom#)          reduction
63      68        predicateRight#)          reduction
64      66        predicate#)          reduction
65      58        expressionRight#)          reduction
66      55        expression#)          reduction
67      120       expressionOrDefault#)     reduction
68      119       expressionOrDefaultListRec#)     reduction
69      118       expressionOrDefaultListRec#)     reduction
70      118       expressionOrDefaultListRec#)     reduction
71      118       expressionOrDefaultListRec#)     reduction
72      116       expressionsWithDefaults#)     reduction
73      /         )#)        move
74      115       expressionsWithDefaultsListRec##          reduction
75      111       insertStatementValue##  reduction
76      107       insertStatementRight##  reduction
77      105       insertStatement##        reduction
78      2         dmlStatement##  reduction
Acc
```

第二例:

```
SELECT   <KW,1>
list  <IDN,list>
FROM   <KW,2>
Table_A  <IDN,Table_A>
A  <IDN,A>
RIGHT   <KW,16>
JOIN   <KW,14>
Table_B  <IDN,Table_B>
B  <IDN,B>
ON   <KW,17>
A  <IDN,A>
.    <OP,16>
Key  <IDN,Key>
=    <OP,1>
B  <IDN,B>
.    <OP,16>
Key  <IDN,Key>
```

```
28      32      elementNameAlias#ON      reduction
29      41      tableSourceItem#ON       reduction
30      /       ON#ON   move
31      /       IDN#IDN move
32      47      uid#.   reduction
33      /       .#.     move
34      /       IDN#IDN move
35      47      uid#=   reduction
36      49      dottedId#=      reduction
37      48      fullColumnName#=         reduction
38      70      expressionAtom#=         reduction
39      /       =#=     move
40      78      comparisonOperator#IDN  reduction
41      /       IDN#IDN move
42      47      uid#.   reduction
43      /       .#.     move
44      /       IDN#IDN move
45      47      uid##   reduction
46      49      dottedId##      reduction
47      48      fullColumnName##        reduction
48      70      expressionAtom##        reduction
49      68      predicateRight##        reduction
50      66      predicate##     reduction
51      67      predicateRight##        reduction
52      66      predicate##     reduction
53      58      expressionRight##       reduction
54      55      expression##    reduction
55      100     joinPart##      reduction
56      40      joinParts##     reduction
57      39      joinParts##     reduction
58      38      tableSource##   reduction
59      37      tableSourceListRec##    reduction
60      35      tableSources##  reduction
61      126     whereExpression##       reduction
62      17      fromClause##    reduction
63      20      groupByClause## reduction
64      22      havingClause##  reduction
65      24      orderByClause## reduction
66      16      selectClause##  reduction
67      14      querySpecification##    reduction
68      7       unionStatements##       reduction
69      5       selectStatement##       reduction
70      1       dmlStatement##  reduction
Acc
```

3. 发现

（1）文法不支持 WHERE 语句中有括号。形如:

SELECT *

FROM Class_A

WHERE price = 150.21 XOR price > 0.0 AND FALSE AND (a - b !=

5)

（2）运算符 - 没有地方运用。

（3）文法产生式中无 NULL。