

第三章 补充习题 3-3

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编程要求： 给定关系 R1(A1,B1), R2(A2,B2),R3(A3,B3)，请编写代码，实现 IN 谓词多层非相关嵌套语句的非嵌套化。

使用说明：

#1 对话框打印出 “please input SQL language:” 语句后，用户可以键入相应的 SQL 嵌套语句。注：所有语句请在一行中输入。

```
please input SQL language:
select A1 from R1 where A1 > 10 and B1 in ( select B2 from R2 where A2 < 100 and B2 in ( select B3 from R3 where A3 % 9
<> 7 ))
select A1 from R1 ,R2 ,R3 where R1.B1 = R2.B2 and R2.B2 = R3.B3 and A1 > 10 and A2 < 100 and A3 % 9 <> 7 ;
```

#2 支持原生词 (select\from\where\and\in) 的大写和小写。

```
please input SQL language:
SELECT A1 FROM R1 where A1 > 10 and B1 in ( select B2 FROM R2 where A2 < 100 );
select A1 from R1 ,R2 where R1.B1 = R2.B2 and A1 > 10 and A2 < 100 ;
```

#3 支持简单的括号匹配检查，即左右括号数是否相等。若不相等，会输出 “brackets match error”。

```
please input SQL language:
SELECT A1 FROM R1 where A1 > 10 and B1 in ( select B2 FROM R2 where A2 < 100 ));
brackets match error.
```

#4 不支持 in 前有多个属性，即 where 和 in 中间只应有一个属性；但允许从主查询表中查找多个值。

```
please input SQL language:
SELECT A1,A4 FROM R1 where A1 > 10 and B1 in ( select B2 FROM R2 where A2 < 100 );
select A1,A4 from R1 ,R2 where R1.B1 = R2.B2 and A1 > 10 and A2 < 100 ;
```

#5 用户键入 “#” 退出程序。

```
please input SQL language:
#
EXIT
```