

SQLite 注释文档

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1 SQLite 学习链接

- [RSQLite Tutorial](#)
- [SQLite in R](#)
- [A Gentle Introduction to SQL Using SQLite](#)

2 R 代码

2.1 下载并加载 RSQLite 包, 设置路径

```
#若未下载该包,则使用后面的命令install.packages("RSQLite",dependencies=T)
library(RSQLite)
setwd("d:/bioinfor_practice/1107/")
```

2.2 键盘输入数据库数据

```
db = dbConnect(SQLite(), dbname="baseball.db")
dbSendQuery(conn = db,"CREATE TABLE BASEBALL
                    (Team_ID INTEGER,Team_Name TEXT,League TEXT,Payroll REAL,Wins INTEGER)")

## <SQLiteResult>
##  SQL  CREATE TABLE BASEBALL
##      (Team_ID INTEGER,Team_Name TEXT,League TEXT,Payroll REAL,Wins INTEGER)
##  ROWS Fetched: 0 [complete]
##      Changed: 0

dbSendQuery(conn = db,"INSERT INTO BASEBALL
                    VALUES (1, 'Twins', 'American League', '54641175','1020')")

## Warning: Closing open result set, pending rows

## <SQLiteResult>
##  SQL  INSERT INTO BASEBALL
##      VALUES (1, 'Twins', 'American League', '54641175','1020')
##  ROWS Fetched: 0 [complete]
##      Changed: 1

dbSendQuery(conn = db,"INSERT INTO BASEBALL
                    VALUES (2, 'Giants', 'American League', '82288960','1033')")

## Warning: Closing open result set, pending rows

## <SQLiteResult>
##  SQL  INSERT INTO BASEBALL
```

```
##          VALUES (2, 'Giants', 'American League', '82288960','1033')
##  ROWS Fetched: 0 [complete]
##          Changed: 1
```

2.3 读取存有数据看数据的.csv 文件

```
#若文件未下载,则使用后面的命令url_path<-"https://raw.githubusercontent.com/ysquared2/RS
#file<-"d:/bioinfor_practice/1107/bball.csv"
#download.file(url_path,file)
bball = read.csv("bball.csv")
db2= dbConnect(SQLite(), dbname="bball.db")
dbWriteTable(conn = db2, name = "BBALL", bball,
              overwrite=T,row.names=FALSE)
```

2.4 查看数据库的基本信息

```
dbListTables(db)
```

```
## Warning: Closing open result set, pending rows
```

```
## [1] "BASEBALL"
```

```
dbListFields(db, "BASEBALL")
```

```
## [1] "Team_ID" "Team_Name" "League" "Payroll" "Wins"
```

```
head(dbReadTable(db, "BASEBALL"))
```

```
##   Team_ID Team_Name      League Payroll Wins
## 1      1     Twins American League 54641175 1020
## 2      2     Giants American League 82288960 1033
```

```
dbListTables(db2)
```

```
## [1] "BBALL"
```

```
dbListFields(db2, "BBALL")
```

```
## [1] "League" "Division" "Team" "Payroll" "RSW" "RSL"
## [7] "RSWP" "PSW" "PSL" "PSWP"
```

```
head(dbReadTable(db2, "BBALL"))
```

```
## League Division Team Payroll RSW RSL RSWP PSW PSL PSWP
## 1 NL East Marlins 37630735 955 987 0.492 11 6 0.647
## 2 NL Central Pirates 42725187 816 1124 0.421 0 0 0.000
## 3 AL East Rays 44626279 859 1082 0.443 10 11 0.476
## 4 NL East Nationals 47886266 848 1095 0.436 0 0 0.000
## 5 AL Central Royals 49816557 803 1140 0.413 0 0 0.000
## 6 AL West Athletics 53392335 1058 884 0.545 11 16 0.407
```

2.5 dbGetQuery() 函数: 按要求 查询数据库信息

#下面两个查询结果相同

```
dbGetQuery(db2, "select * from BBALL WHERE LEAGUE='AL'")[1:3,]
```

```
## League Division Team Payroll RSW RSL RSWP PSW PSL PSWP
## 1 AL East Rays 44626279 859 1082 0.443 10 11 0.476
## 2 AL Central Royals 49816557 803 1140 0.413 0 0 0.000
## 3 AL West Athletics 53392335 1058 884 0.545 11 16 0.407
```

```
dbGetQuery(db2, "select * from BBALL WHERE LEAGUE='AL' LIMIT 3")
```

```
## League Division Team Payroll RSW RSL RSWP PSW PSL PSWP
## 1 AL East Rays 44626279 859 1082 0.443 10 11 0.476
## 2 AL Central Royals 49816557 803 1140 0.413 0 0 0.000
## 3 AL West Athletics 53392335 1058 884 0.545 11 16 0.407
```

#使用了逻辑关系词`AND,OR,NOT`, 判断符号`>,>=,=,<=<`,具体行名

```
dbGetQuery(db2, "select Team,Payroll,RSWP from BBALL WHERE LEAGUE='AL' AND RSWP>0.5")
```

```
##      Team    Payroll  RSWP
## 1 Athletics 53392335 0.545
## 2     Twins 54641175 0.525
## 3  Indians 67017220 0.505
## 4 Blue Jays 69897229 0.501
## 5 White Sox 76245629 0.525
## 6  Mariners 86805804 0.503
## 7   Angels 91856756 0.540
## 8   Red Sox 122952275 0.568
## 9   Yankees 174493964 0.597
```

#使用了`IN(BETWEEN,NOT IN)`与`LIKE`

```
dbGetQuery(db2, "select Team,Payroll,PSW from BBALL WHERE Team LIKE 'M%' AND PSW IN (6,
```

```
##      Team    Payroll PSW
## 1 Marlins 37630735  11
```

#使用`GROUP`与`ORDER`

#`GROUP`:按照某一列中相同项进行合并;`ORDER`:按照某一行进行排序;

#`AVG()`:求均值;`COUNT()`:计数;`MIN()`:最小值;`MAX()`:最大值;`SUM()`:求和;

```
dbGetQuery(db2, "select Division,AVG(RSW) AS 'average_RSW' from BBALL GROUP BY Division
```

```
##      Division average_RSW
## 1   Central      943.4545
## 2     East      984.0000
## 3     West      991.6667
```

```
dbGetQuery(db2, "select * from BBALL ORDER BY RSW")
```

```
##      League Division      Team    Payroll  RSW  RSL  RSWP PSW PSL  PSWP
## 1      AL   Central   Royals 49816557 803 1140 0.413  0  0 0.000
```

| | | | | | | | | | | |
|-------|----|---------|-----------|-----------|------|------|-------|----|----|-------|
| ## 2 | NL | Central | Pirates | 42725187 | 816 | 1124 | 0.421 | 0 | 0 | 0.000 |
| ## 3 | AL | East | Orioles | 74561126 | 842 | 1100 | 0.434 | 0 | 0 | 0.000 |
| ## 4 | NL | East | Nationals | 47886266 | 848 | 1095 | 0.436 | 0 | 0 | 0.000 |
| ## 5 | AL | East | Rays | 44626279 | 859 | 1082 | 0.443 | 10 | 11 | 0.476 |
| ## 6 | AL | Central | Tigers | 82093735 | 879 | 1064 | 0.452 | 8 | 5 | 0.615 |
| ## 7 | NL | Central | Brewers | 58434278 | 892 | 1050 | 0.459 | 1 | 3 | 0.250 |
| ## 8 | NL | West | Rockies | 65904890 | 924 | 1021 | 0.475 | 8 | 7 | 0.533 |
| ## 9 | NL | West | Padres | 55895437 | 933 | 1012 | 0.480 | 1 | 6 | 0.143 |
| ## 10 | NL | Central | Reds | 58856196 | 938 | 1007 | 0.482 | 0 | 3 | 0.000 |
| ## 11 | NL | Central | Cubs | 96340928 | 949 | 993 | 0.489 | 6 | 12 | 0.333 |
| ## 12 | NL | East | Marlins | 37630735 | 955 | 987 | 0.492 | 11 | 6 | 0.647 |
| ## 13 | AL | West | Rangers | 79969827 | 961 | 983 | 0.494 | 8 | 11 | 0.421 |
| ## 14 | NL | West | D-Backs | 76256203 | 970 | 974 | 0.499 | 15 | 16 | 0.484 |
| ## 15 | AL | East | Blue Jays | 69897229 | 974 | 969 | 0.501 | 0 | 0 | 0.000 |
| ## 16 | AL | West | Mariners | 86805804 | 977 | 967 | 0.503 | 9 | 10 | 0.474 |
| ## 17 | AL | Central | Indians | 67017220 | 982 | 962 | 0.505 | 10 | 11 | 0.476 |
| ## 18 | NL | East | Mets | 109724991 | 991 | 952 | 0.510 | 19 | 15 | 0.559 |
| ## 19 | NL | Central | Astros | 81639036 | 1005 | 938 | 0.517 | 14 | 19 | 0.424 |
| ## 20 | NL | West | Dodgers | 106759507 | 1019 | 925 | 0.524 | 9 | 14 | 0.391 |
| ## 21 | AL | Central | Twins | 54641175 | 1020 | 923 | 0.525 | 5 | 22 | 0.185 |
| ## 22 | AL | Central | White Sox | 76245629 | 1020 | 924 | 0.525 | 12 | 7 | 0.632 |
| ## 23 | NL | East | Phillies | 88495136 | 1024 | 919 | 0.527 | 25 | 16 | 0.610 |
| ## 24 | NL | West | Giants | 82288960 | 1033 | 908 | 0.532 | 23 | 17 | 0.575 |
| ## 25 | AL | West | Angels | 91856756 | 1050 | 894 | 0.540 | 21 | 24 | 0.467 |
| ## 26 | AL | West | Athletics | 53392335 | 1058 | 884 | 0.545 | 11 | 16 | 0.407 |
| ## 27 | NL | Central | Cardinals | 88025605 | 1074 | 868 | 0.553 | 33 | 31 | 0.516 |
| ## 28 | NL | East | Braves | 90945750 | 1086 | 856 | 0.559 | 19 | 29 | 0.396 |
| ## 29 | AL | East | Red Sox | 122952275 | 1103 | 840 | 0.568 | 38 | 29 | 0.567 |
| ## 30 | AL | East | Yankees | 174493964 | 1158 | 781 | 0.597 | 68 | 46 | 0.596 |

2.6 自定义 dbInquire() 函数

```
#database:数据库文件;requirement:具体要求;namecol:提取的具体列;
#limit='all':获得所有结果;limit=3:获取前3个结果
dbInquire<-function(database,requirement,namecol,limit){
  a<-dbListTables(database)
  b<-paste(namecol,collapse = ",")

  if(limit=="all"){query<-paste("select",b,"from",a,"WHERE",requirement,collapse = " ")
    else{query<-paste("select",b,"from",a,"WHERE",requirement,"LIMIT",limit,collapse = " ")
    result<-dbGetQuery(database,query)
    return(result)
  }
}
a<-db2
c<-c("Team","Payroll","RSWP")
b<-"LEAGUE='AL' AND RSWP>0.5"
d<-3
dbInquire(a,b,c,d)
```

```
##           Team  Payroll  RSWP
## 1 Athletics 53392335 0.545
## 2     Twins 54641175 0.525
## 3   Indians 67017220 0.505
```

```
dbInquire(a,b,c,'all')
```

```
##           Team  Payroll  RSWP
## 1 Athletics 53392335 0.545
## 2     Twins 54641175 0.525
## 3   Indians 67017220 0.505
## 4 Blue Jays 69897229 0.501
## 5 White Sox 76245629 0.525
## 6  Mariners 86805804 0.503
## 7    Angels 91856756 0.540
```

```
## 8   Red Sox 122952275 0.568  
## 9   Yankees 174493964 0.597
```

2.7 dbExecute() 函数: 删除或 插入数据库信息

```
#删除 DELETE 所有 LEAGUE= 'AL' 所在行  
dbExecute(db2, "DELETE from BBALL WHERE LEAGUE='AL'")
```

```
## [1] 14
```

```
#插入 INSERT 一项数据  
dbExecute(db2, "INSERT INTO BBALL VALUES ('NL','East','Mars',45782939,1000,1030,0.501,
```

```
## [1] 1
```

2.8 dbDisconnect() 函数: 关闭数据库

```
dbDisconnect(db)  
dbDisconnect(db2)
```