HUAZHONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Qiqi Reference 设计文档

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1 BibTEX 词法分析

BibTEX 有两种格式，一种是利用 `{}` 做为分隔符，而另一种是利用 `""` 作为分隔符。两种都是正确的 BibTEX 代码。

以下代码是 JabRef 软件产生的 BibTEX 代码。

```
@Article{Herath201454,
  Title    = {{IT} security auditing: A performance evaluation decision model},
  Author   = {Hemantha S.B. Herath and Tejaswini C. Herath},
  Journal  = {Decision Support Systems}
}
```

以下代码是 sciencedirect 下载的 BibTEX 代码。

```
@article{Herath201454,
  Title    = "{IT} security auditing: A performance evaluation decision model",
  Author   = "Hemantha S.B. Herath and Tejaswini C. Herath",
  Journal  = "Decision Support Systems"
}
```

前一种利用 `{}` 作为分隔符的没有什么问题，但是后一种利用 `""` 作为分隔符的就存在问题，比如如下代码。

```
@article{Herath201454,
  Title    = "{IT} security auditing: A "performance" evaluation decision model",
  Author   = "Hemantha S.B. Herath and Tejaswini C. Herath",
  Journal  = "Decision Support Systems"
}
```

因为引号的嵌套会引起歧义，一种理解是嵌套，即 Title 是 {IT} security auditing: A "performance" evaluation decision model。另一种理解就是 Title 是 {IT} security auditing: A。如何解释才能使双引号不产生歧义？

判断引号后面紧跟的非空格符号，如果是逗号，则停止读入。这显然也是不行的，因为有可能出现这种情况。

```
@article{Herath201454,
  Title    = "{IT} security auditing: A "performance", evaluation decision model",
  Author   = "Hemantha S.B. Herath and Tejaswini C. Herath",
  Journal  = "Decision Support Systems"
}
```

再多判断一个回车符也是不行的，因为有可能有以下这种情况。

```
1  @article{Herath201454,
2    Title    = "{IT} security auditing: A "performance", evaluation decision model",
3    Author   = "Hemantha S.B. Herath and Tejaswini C. Herath",
4    Journal  = "Decision Support Systems",
5    Abstract = "Bla bla bla bla:"bla bla bla",
6              bla bla bla"
7  }
```

2 类

2.1 Class DataBase

DataBase 类是用来保存 BibTEX 文件的类。

2.1.1 成员变量

2.1.2 成员方法

2.1.2.1 Public Sub New()

2.1.2.2 Public Sub New(ByVal FileFullName As String)

2.1.2.3 Public Function LoadDataBase()As Boolean

2.1.2.4 Private Function ExistWholeLiterature(ByRef BibTeXBuffer As String)As Boolean

```
1   Private Function ExistWholeLiterature(ByRef BibTeXBuffer As String) As Boolean
2       ' If there is no char "@" in the buffer
3       If Not BibTeXBuffer.Contains("@") Then
4           ' There is no a whole literature, return False
5           Return False
6       End If
7
8
9
10      ' Remove all chars before the first char "@"
11      BibTeXBuffer = BibTeXBuffer.Remove(0, BibTeXBuffer.IndexOf("@"))
12
```

```
13      ' BracketCounter is used to count the number of brackets
14      Dim BracketCounter As Integer = 0
15      ' MeetFirstLeftBracket is used to record if there a char "{"
16      Dim MeetFirstLeftBracket As Boolean = False
17
18      ' For each c in BibTeXBuffer
19      For Each c As Char In BibTeXBuffer
20          ' Count the number of the brackets
21          If c = "{" Then
22              BracketCounter += 1
23              MeetFirstLeftBracket = True
24          ElseIf c = "}" Then
25              BracketCounter -= 1
26          End If
27
28          ' If there exist at least one char "{" and the numbers of "{" and "}" is equal
29          If BracketCounter = 0 And MeetFirstLeftBracket Then
30              ' There exists a literature, return True
31              Return True
32          End If
33      Next
34
35      ' There is no literature, return False
36      Return False
37  End Function
```