

数据结构 作业3

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第4章：

4.3

设s = 'I AM A STUDENT', t = 'GOOD', q = 'WORKER'。

求：StrLength(s) , StrLength(t) , SubString(s, 8, 7) , SubString(t, 2, 1) , Index(s, 'A') , Index(s, t) , Replace(s, 'STUDENT', q) , Concat(SubString(s, 6, 2), Concat(t, SubString(s, 7, 8)))

```
StrLength(s)==14
StrLength(t)==4
SubString(s, 8, 7)=="STUDENT"
SubString(t, 2, 1)=="O"
Index(s, 'A')==3
Index(s, t)==0
Replace(s, 'STUDENT', q), s=='I AM A WORKER'
Concat(SubString(s, 6, 2), Concat(t, SubString(s, 7, 8))),
-->Concat("A ", Concat("GOOD", "STUDENT"))
-->"A GOOD STUDENT"
```

4.4

已知下列字符串

```
a = 'THIS', f = 'A SAMPLE', c = 'GOOD', d = 'NE', b = ' '.
s = Concat(a, Concat(SubString(f, 2, 7), Concat(b, SubString(a, 3,
2))))),
s --> Concat("THIS", Concat(" SMAPLE", Concat(" ", "IS"))),
s --> "THIS SMAPLE IS"
t = Replace(f, "SAMPLE", c),
t --> "A GOOD",
u = Concat(SubString(c, 3, 1), d),
u -->"ONE",
g = 'IS',
v = Concat(s, Concat(b, Concat(t, Concat(b, u))))),
v = Concat("THIS SMAPLE IS", Concat(" ", Concat("A GOOD", " ONE"))),
v --> "THIS SAMPLE IS A GOOD ONE"
```

试问：s, t, v, StrLength(s) , Index(v, g) , Index(u, g) 各是什么？

```
s --> "THIS SMAPLE IS"
t --> "A GOOD",
v --> "THIS SAMPLE IS A GOOD ONE"
StrLength(s)-->14
Index(v, g)-->13
Index(u, g)-->0
```

4.8

已知主串s = ‘ADBADABBAABADABBADADA’,

模式串pat = ‘ADABBADADA’,

写出模式串的nextval函数值，并由此画出KMP算法匹配的全过程。

使用优化过的KMP算法

nextval: 以1为字符串首元素, 0为空位置, 记录字符串长度

原串	A	D	A	B	B	A	D	A	D	A
原串位置	1	2	3	4	5	6	7	8	9	10
nextval	0	1	0	2	0	0	2	4	0	3

匹配过程:

```
‘ADBADABBAABADABBADADA’
‘ADABBADADA’

‘ADBADABBAABADABBADADA’
‘ADABBADADA’

‘ADBADABBAABADABBADADA’
‘ADABBADADA’

‘ADBADABBAABADABBADADA’
‘ADABBADADA’

‘ADBADABBAABADABBADADA’
‘ADABBADADA’
```