第二次作业

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4.3 解：约定字符串下标从1开始，后面题目亦作如此约定。

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) = 'I AM A WORKER'.

Concat(SubString(s, 6, 2), Concat(t, SubString(s, 7, 8)))

= 'A GOOD STUDENT'

4.4. 解：s = Concat(a, Concat(SubString(f, 2, 7), Concat(b, SubString(a, 3, 2))))

= 'THIS SAMPLE IS'

t = 'A GOOD'

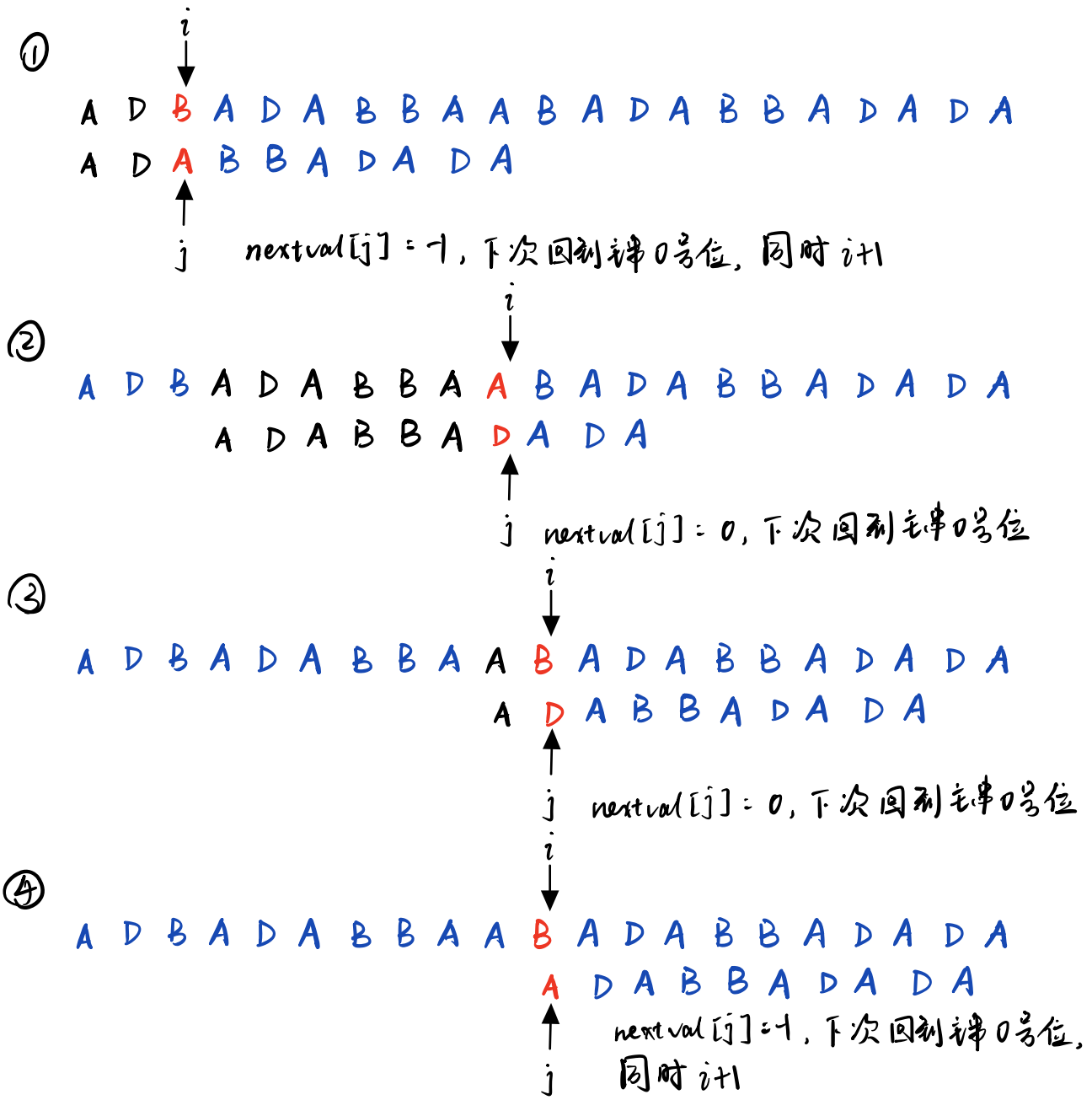
v = 'THIS SAMPLE IS A GOOD ONE'

StrLength(s) = 14，Index(v, g) = 3，Index(u, g) = 0

4.8 解：模式串的next val函数值如下表：

下标	0	1	2	3	4	5	6	7	8	9
串	A	D	A	B	B	A	D	A	D	A
next	-1	0	0	1	0	0	1	2	3	2
nextval	-1	0	-1	1	0	-1	0	-1	3	-1

KMP 算法匹配过程：



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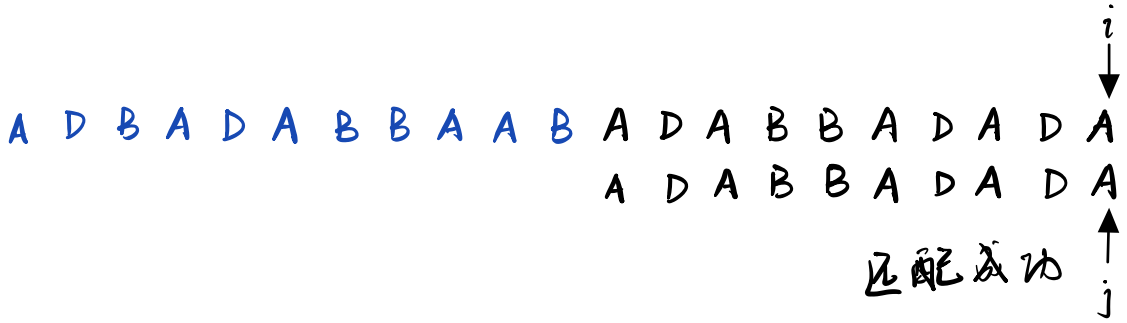


5.1 解：(1) $6\times6\times8=288$ 字节

(2) $LOC(5,7)=LOC(0,0)+\sum_{i=1}^{2}c_ij_i$

$=1000+(5\times8+7)\times6$

$=1282$

(3) 按行存储时，$LOC(1,4)=1000+(1\times8+4)\times6=1072$

(4) 按列存储时，$LOC(4,7)=1000+(7\times6+4)\times6=1276$

5-8 解：将原矩阵分块为如下形式：

$$\begin{bmatrix} A_{12} & & & \\ & A_{34} & & \\ & & \ddots & \\ & & & A_{2m-1,2m} \end{bmatrix}$$

设 $a_{ij}\in A_{q-1,q}=\begin{pmatrix} a_{q-1,q-1} & a_{q-1,q} \\ a_{q,q-1} & a_{qq} \end{pmatrix}$

则 $A_{q-1,q}$ 之前共有 $\frac{q}{2}\cdot4=2q$ 个非零元

因为在数组B[4m]中，$a_{q-1,q-1}$下标为$2q$，$a_{q-1,q}$下标为$2q+1$，$a_{q,q-1}$下标为$2q+2$，a_{qq}下标为$2q+3$

归纳得，$k=\begin{cases} i+j+2, & i\text{为奇数} \\ i+j+3, & i\text{为偶数} \end{cases}$，

或合并得，$k=i+j+2+(i+1)\%2$

5.11 解：(1) GetHead[GetTail[GetTail[L_1]]]

(2) GetHead[GetHead[GetTail[L_2]]]

(3) GetHead[GetHead[GetTail[GetTail[GetHead[L_3]]]]]

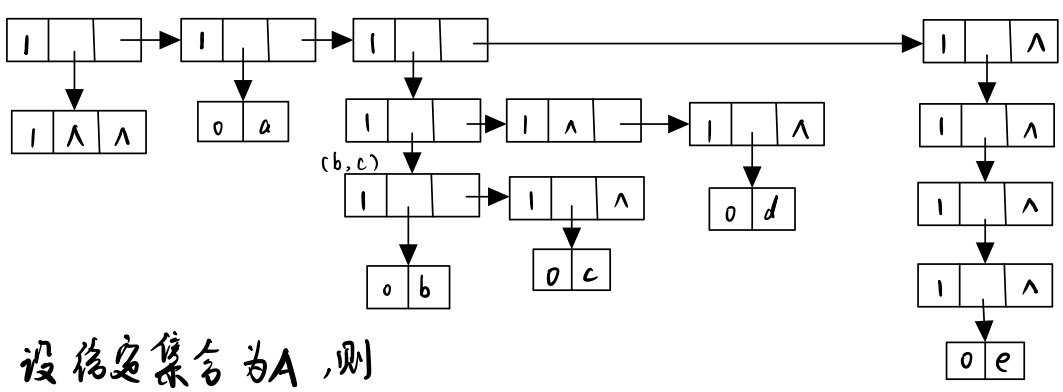
(4) GetHead[GetHead[GetHead[GetTail[GetTail[L_4]]]]]

(5) GetHead[GetHead[GetTail[GetTail[L_5]]]]

(6) GetHead[GetTail[GetHead[L_6]]]

(7) GetHead[GetHead[GetTail[GetHead[GetTail[L_7]]]]]

5.12 解：



5.15. 解：设给定集合为A，则

$$P(A)=\begin{cases} \{\phi\}, & |A|=0 \\ P(A\setminus\{a\})\cup f(P(A\setminus\{a\}),a), & |A|\neq 0 \end{cases}$$

其中映射 $f:(S,e)\longmapsto S':=\{x \mid x=x_0\cup\{a\}, \forall x_0\in S\}$