P67 习题10:

$$C_f = [\,I \quad C_{f12}\,] \qquad B_K = [\,B_1 \quad B_2\,]$$

其中 $B_1 = \underset{e_1\quad e_2\quad e_5\quad e_8}{\begin{bmatrix} -1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix}} \qquad B_2 = \underset{e_3\quad e_4\quad e_6\quad e_7}{\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & -1 \\ 1 & -1 & 0 & 0 \end{bmatrix}}$

$$C_{f12} = -B_{11}^T \cdot (B_{12}^{-1})^T = -\begin{bmatrix} -1 & 1 & 0 & 0 \\ 1 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \cdot \begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 1 & 0 & -1 \\ 0 & 0 & 0 & -1 \\ 1 & 0 & 0 & -1 \end{bmatrix} = -\begin{bmatrix} 1 & 1 & -1 & -1 \\ 0 & 0 & 1 & 1 \\ 1 & 1 & 0 & -1 \\ -1 & 0 & 0 & 1 \end{bmatrix}$$

勿忘负号!

$$\therefore C_f = \underset{e_1\quad e_2\quad e_5\quad e_8\quad e_3\quad e_4\quad e_6\quad e_7}{\begin{bmatrix} 1 & 0 & 0 & 0 & -1 & -1 & 1 & 1 \\ 0 & 1 & 0 & 0 & 0 & 0 & -1 & -1 \\ 0 & 0 & 1 & 0 & -1 & -1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 1 & 0 & 0 & -1 \end{bmatrix}}$$

(2)

$B_{11} = \underset{e_1\quad e_3\quad e_4\quad e_7}{\begin{bmatrix} -1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & -1 & 0 & -1 \\ 0 & 1 & -1 & 0 \end{bmatrix}} \qquad B_{12} = \underset{e_2\quad e_5\quad e_6\quad e_8}{\begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix}}$

$$S_{f1} = B_{12}^{-1} B_{11} = \begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} -1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & -1 & 0 & -1 \\ 0 & 1 & -1 & 0 \end{bmatrix}$$

$$= \begin{bmatrix} 0 & 1 & 0 & 1 \\ 1 & 0 & 1 & 0 \\ -1 & -1 & 0 & -1 \\ 0 & -1 & 1 & 0 \end{bmatrix}$$

$$S_f = \begin{bmatrix} 0 & 1 & 0 & 1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 \\ -1 & -1 & 0 & -1 & 0 & 0 & 1 & 0 \\ 0 & -1 & 1 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

① 求逆

$$\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & -1 \\ 1 & -1 & 0 & 0 \end{bmatrix} \begin{bmatrix} 1 & & & \\ & 1 & & \\ & & 1 & \\ & & & 1 \end{bmatrix}$$

$$\downarrow \qquad\qquad \downarrow$$

$$\begin{bmatrix} -1 & 0 & 0 & -1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & -1 & 0 & 0 \end{bmatrix} \begin{bmatrix} & & 1 & \\ & 1 & & \\ 1 & & & \\ & & & 1 \end{bmatrix}$$

$$\downarrow \qquad\qquad \downarrow$$

$$\begin{bmatrix} 1 & -1 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} & & & 1 \\ & 1 & & \\ 1 & & & \\ & & 1 & \end{bmatrix}$$

$$\downarrow \qquad\qquad \downarrow$$

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} & 1 & & 1 \\ & 1 & & \\ 1 & & & \\ & & 1 & \end{bmatrix}$$

$$\downarrow \qquad\qquad \downarrow$$

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} & 1 & & 1 \\ & 1 & & \\ 1 & & & \\ & 1 & 1 & 1 \end{bmatrix}$$

$$\downarrow$$

$$\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 1 & 0 & -1 \\ 0 & 0 & 0 & -1 \\ 1 & 0 & 0 & -1 \end{bmatrix} \xleftarrow{T} \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & -1 & -1 & -1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} 1 & & & \\ & 1 & & \\ & & 1 & \\ & & & 1 \end{bmatrix}$$

$$\Big\downarrow (3)+(1) \qquad\qquad \Big\downarrow (3)+(1) \to 3$$

$$\begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \begin{bmatrix} 1 & & & \\ & 1 & & \\ 1 & & 1 & \\ & & & 1 \end{bmatrix}$$

$$\Big\downarrow \begin{matrix}(1-3)\to 1 \\ -4\end{matrix} \qquad\qquad \Big\downarrow$$

$$\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix}$$

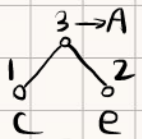
67页习题14: State act as a seat

S权重: 3 t权重: 4 a权重: 5 空格权重: 4 e权重: 2 C权重: 1

用_表示空格 1 2 3 4 4 5

按权排序为: c e S _ t a

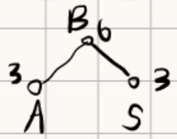
取出 C, e.



合并权重为3, 插回队列

3	3	4	4	5
A	S	_	t	a

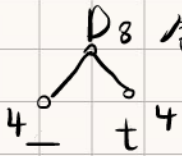
取出 A, S.



合并权重为6. 插回队列

4	4	5	6
_	t	a	B

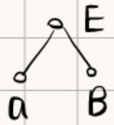
取出 _与 t.



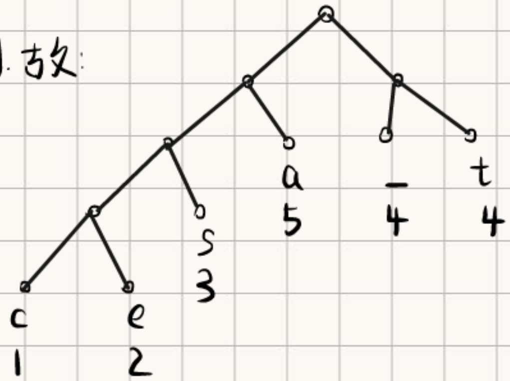
合并权重为8. 插回队列

5	6	8
a	B	D

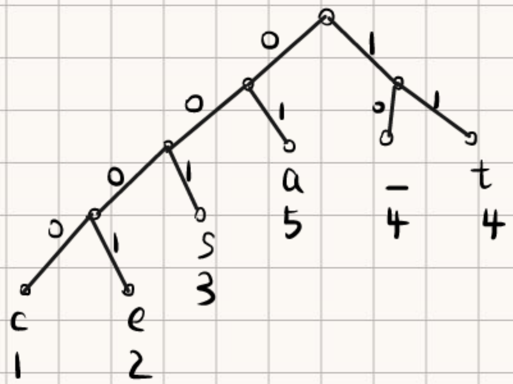
取出 a与B



代回队列. 故:

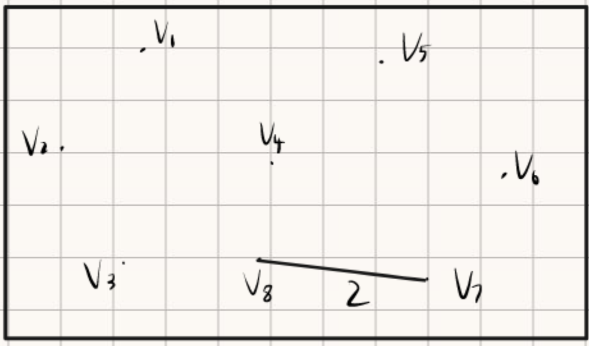


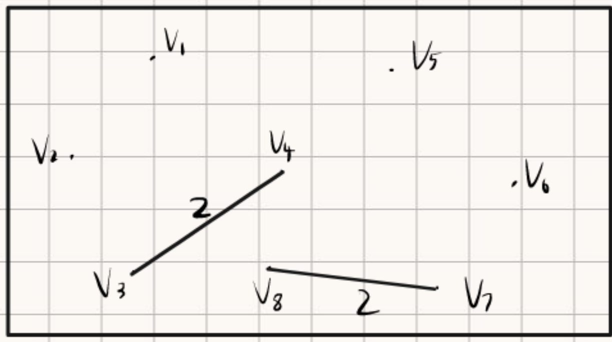
进行编码

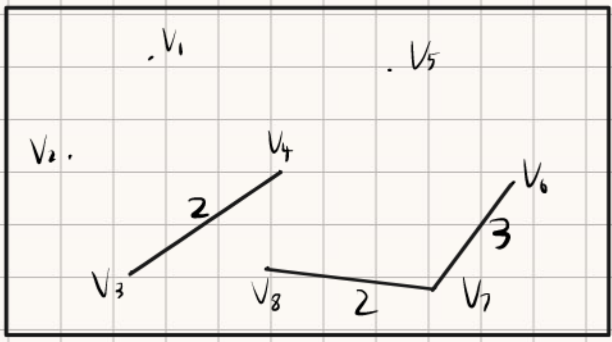


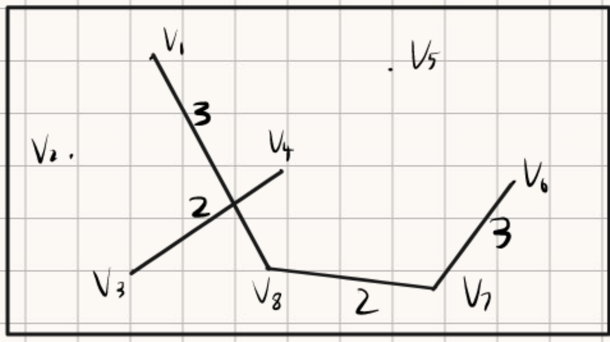
即: C: 0000　　空格: 0 0
e: 0001　　t: 0 1
S: 001
a: 01

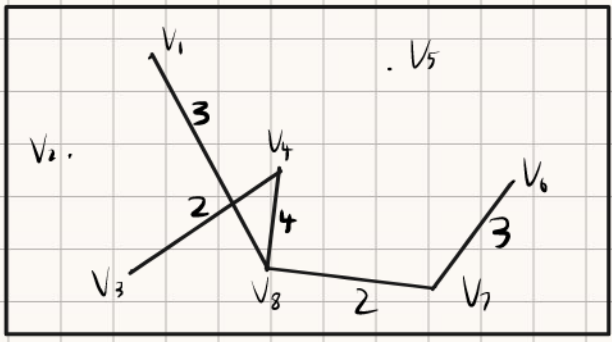
采用kruska

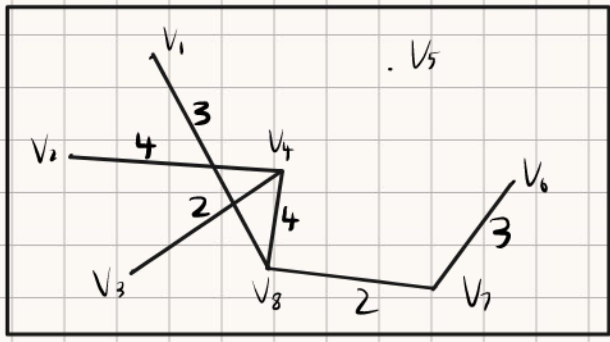


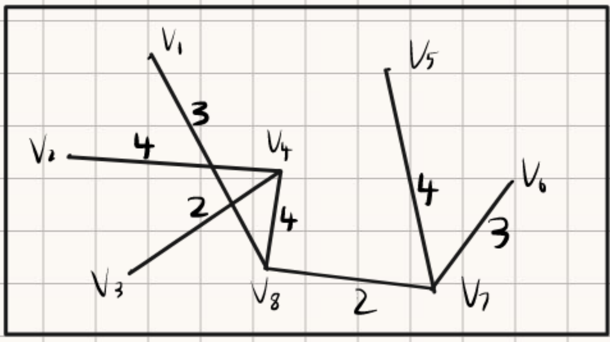












总权重为: 22