

P67 习题10:

$$C_f = [I \quad C_{f12}] \quad B_k = [B_1 \quad B_2]$$

$$\text{其中 } B_1 = \begin{bmatrix} -1 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix} \quad B_2 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & -1 \\ 1 & -1 & 0 & 0 \end{bmatrix}$$

$e_1 \quad e_2 \quad e_5 \quad e_8 \qquad e_3 \quad e_4 \quad e_6 \quad e_7$

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

勿忘负号!

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

$e_1 \quad e_2 \quad e_5 \quad e_8 \quad e_3 \quad e_4 \quad e_6 \quad e_7$

$$(2) \quad B_{11} = \begin{bmatrix} -1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & -1 & 0 & -1 \\ 0 & 1 & -1 & 0 \end{bmatrix} \quad B_{12} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 \end{bmatrix}$$

$e_1 \quad e_3 \quad e_4 \quad e_7 \qquad e_2 \quad e_5 \quad e_6 \quad e_8$

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

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

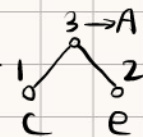
$$S_f = \begin{bmatrix} 0 & 1 & 0 & 1 & 1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 \\ -1 & -1 & 0 & -1 & 0 & 0 & 1 & 0 \\ 0 & -1 & 1 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

67页习题14: state act as a seat

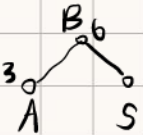
S权重: 3 t权重: 4 a权重: 5 空格权重: 4 e权重: 2 c权重: 1

用_表示空格 1 2 3 4 4 5

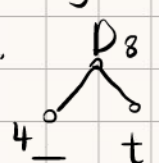
按权排序为: c e S _ t a

取出 c, e  合并权重为3, 插回队列

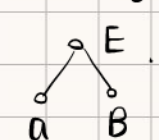
3	3	4	4	5
A	S	_	t	a

取出 A, S  合并权重为6, 插回队列

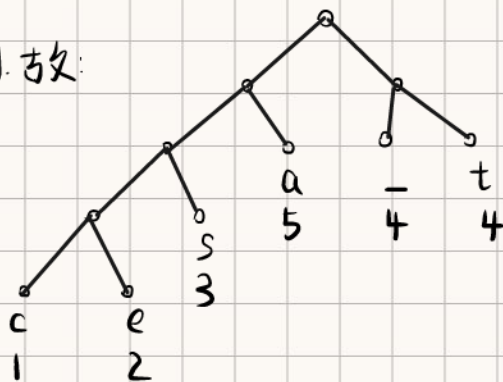
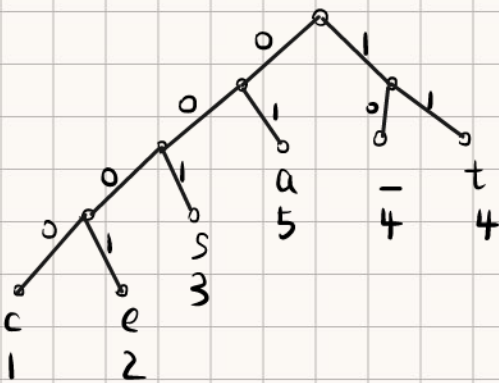
4	4	5	6
_	t	a	B

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:

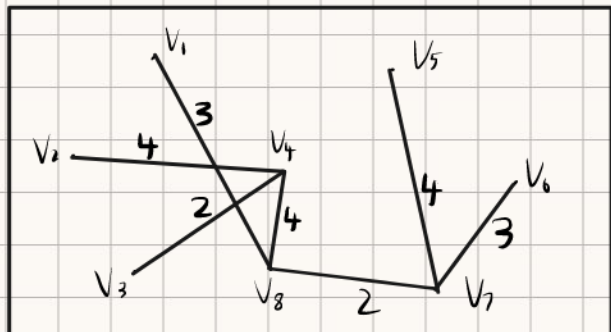
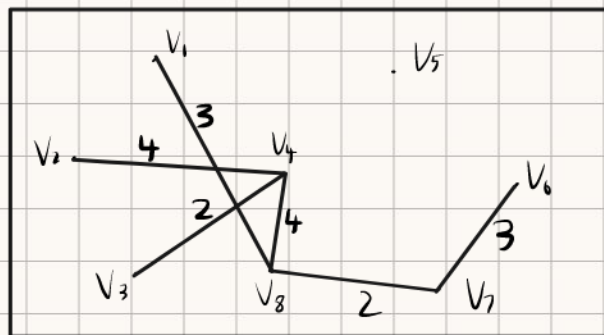
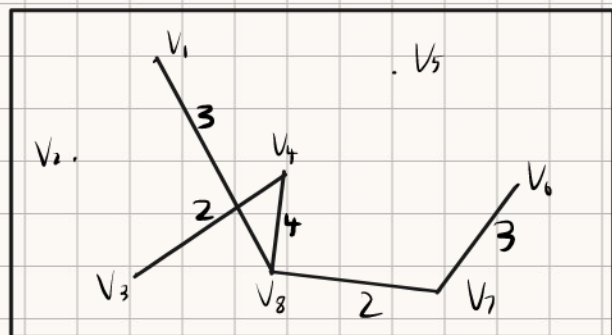
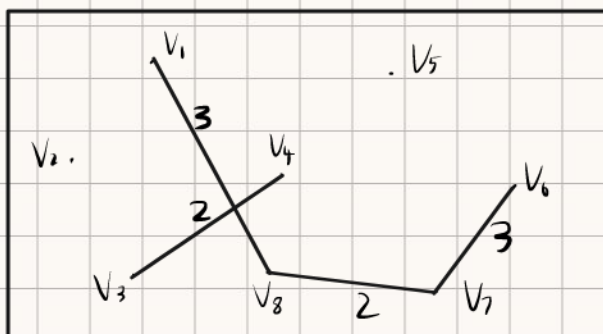
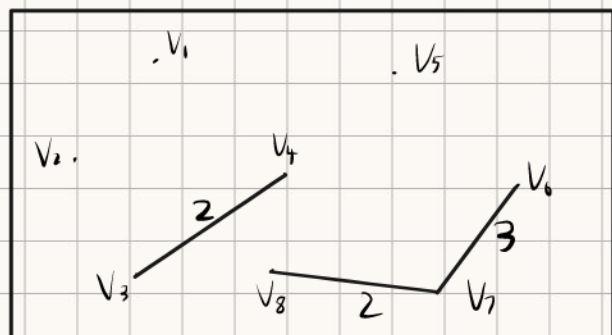
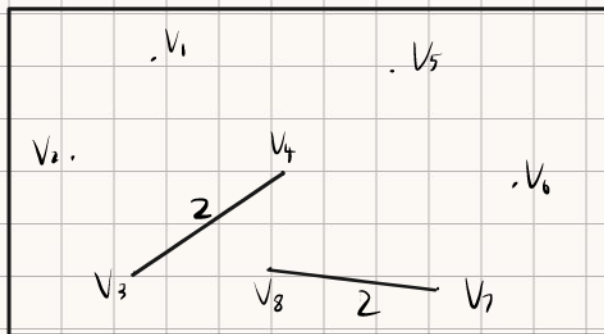
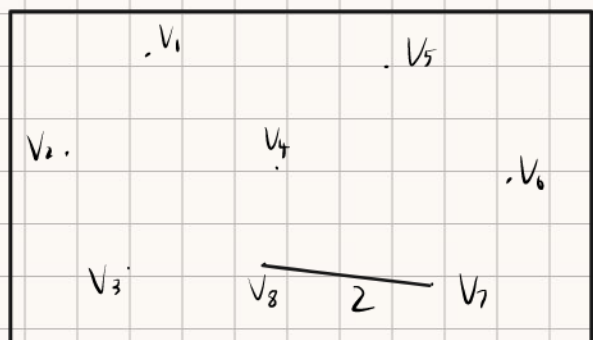
进行编码



即:

c: 00000	空格: 00
e: 00001	t: 01
S: 0001	
a: 01	

采用kruska



总权重为: 22

最终最小支撑树

