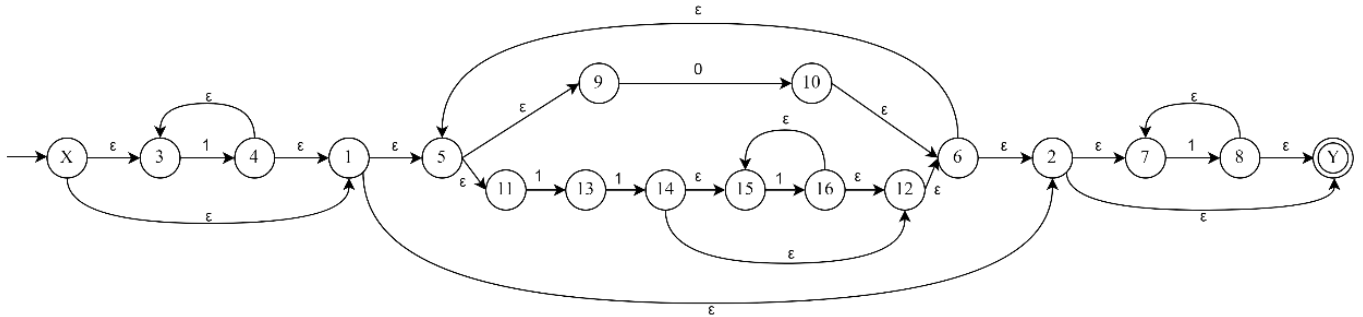


Assignment1 Solution

1、【参考解答】

① 根据汤普森构造法构造相应的 NFA:

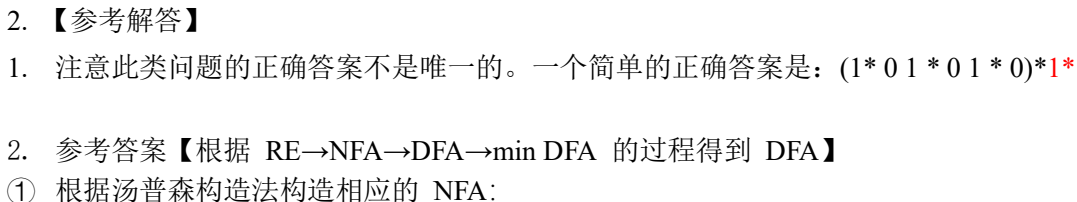
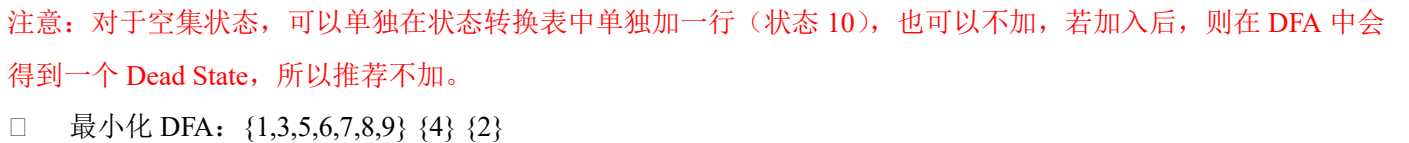


② 构造状态转换表: Start state: {1}; Accepting state: {1,2,3,4,5,6,7,8,9}

I	I ₀	I ₁
{X,3,1,5,11,9,2,7,Y}	{10,6,5,9,11,2,7,Y}	{4,3,1,5,9,11,8,7,Y,13}
{10,6,5,9,11,2,7,Y}	{10,6,5,9,11,2,7,Y}	{8,7,Y,13}
{4,3,1,5,9,11,8,7,Y,13}	{10,6,5,9,11,2,7,Y}	{4,3,1,5,9,11,8,7,Y,13,14,15,12,6,2}
{8,7,Y,13}	\emptyset	{8,7,Y,14,15,12,6,2,7,Y,5,9,11}
{4,3,1,5,9,11,8,7,Y,13,14,15,12,6,2}	{10,6,5,9,11,2,7,Y}	{4,3,1,5,9,11,8,7,Y,13,14,15,12,6,2,16}
{8,7,Y,14,15,12,6,2,7,Y,5,9,11}	{10,6,5,9,11,2,7,Y}	{8,7,Y,13,16,15,12,6,2,5,9,11}
{4,3,1,5,9,11,8,7,Y,13,14,15,12,6,2,16}	{10,6,5,9,11,2,7,Y}	{4,3,1,5,9,11,8,7,Y,13,14,15,12,6,2,16}
{8,7,Y,13,16,15,12,6,2,5,9,11}	{10,6,5,9,11,2,7,Y}	{8,7,Y,13,14,15,12,6,2,5,9,11,16}
{8,7,Y,13,14,15,12,6,2,5,9,11,16}	{10,6,5,9,11,2,7,Y}	{8,7,Y,13,14,15,12,6,2,5,9,11,16}
\emptyset	\emptyset	\emptyset

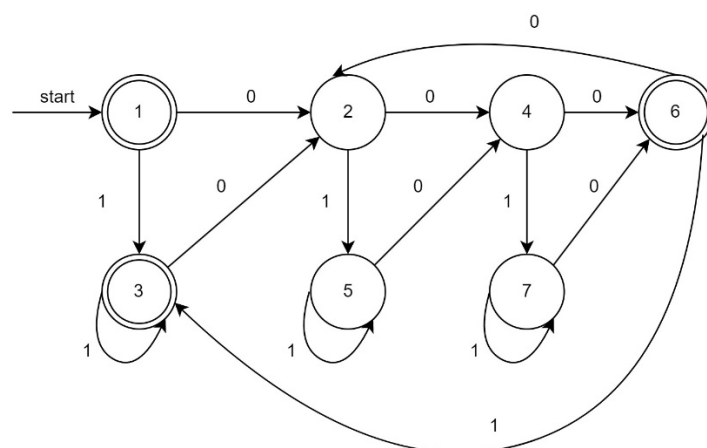
状态	I ₀	I ₁
1	2	3
2	2	4
3	2	5
4	10	6
5	2	7
6	2	8
7	2	7
8	2	9
9	2	9
10	10	10

画出对应的 DFA:



I	I0	I1	Accept
T1 {0,1,2,4,14,15,17}	T2 {5,6,8}	T3 {2,3,4,15,16,17}	Yes
T2 {5,6,8}	T4 {9,10,12}	T5 {6,7,8}	No
T3 {2,3,4,15,16,17}	T2 {5,6,8}	T3 {2,3,4,15,16,17}	Yes
T4 {9,10,12}	T6 {13,14,1,2,4,15,17}	T7 {10,11,12}	No
T5 {6,7,8}	T4 {9,10,12}	T5 {6,7,8}	No
T6 {13,14,1,2,4,15,17}	T2 {5,6,8}	T8 {2,3,4,15,16,17}	Yes
T7 {10,11,12}	T6 {13,14,1,2,4,15,17}	T7 {10,11,12}	no

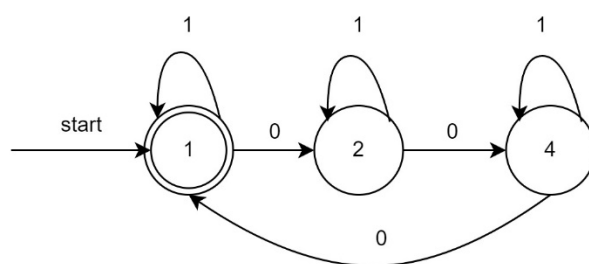
画出对应的 DFA:



③ 最小化 DFA

初始划分: {1, 3, 6} {2, 4, 5, 7}

最小化结果: {2, 5} {4, 7} {1, 3, 6}



此类问题可根据题目要求直接画出 DFA，最小化结果是唯一的。