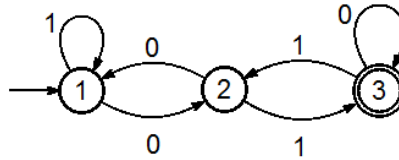


## HW #4

제출: 9 월 28 일 밤 12 시까지

1. 다음 DFA 가 표현하는 regular expression 을 Chapter 3 교과서 TP 의 3.2.1 From DFA's to Regular Expressions - Example 3.5 (교과서 p95 ~ 97) 에 사용된 방법을 이용하여 구하시오.

Derive all  $R_{ij}^{(k)}$  for  $i = 1,2,3, j = 1,2,3, k = 0,1,2,3$  ( $R_{ij}^{(k)} = R_{ij}^{(k-1)} + R_{ik}^{(k-1)}(R_{kk}^{(k-1)})^*R_{kj}^{(k-1)}$ )



$$\begin{array}{lll}
 R_{11}^0 = \varepsilon + 1 & R_{12}^0 = 0 & R_{13}^0 = \phi \\
 R_{21}^0 = 0 & R_{22}^0 = \varepsilon & R_{23}^0 = 1 \\
 R_{31}^0 = \phi & R_{32}^0 = 1 & R_{33}^0 = \varepsilon + 0
 \end{array}$$

$$\begin{array}{lll}
 R_{11}^1 = 1^* & R_{12}^1 = 1^*0 & R_{13}^1 = \phi \\
 R_{21}^1 = 01^* & R_{22}^1 = \varepsilon + 01^*0 & R_{23}^1 = 1 \\
 R_{31}^1 = \phi & R_{32}^1 = 1 & R_{33}^1 = \varepsilon + 0
 \end{array}$$

$$\begin{array}{l}
 R_{11}^2 = 1^* + 1^*0(01^*0)^*01^* \\
 R_{12}^2 = 1^*0(01^*0)^* \\
 R_{13}^2 = 1^*0(01^*0)^*1 \\
 R_{21}^2 = (01^*0)^*01^* \\
 R_{22}^2 = (01^*0)^* \\
 R_{23}^2 = (01^*0)^*1 \\
 R_{31}^2 = 1(01^*0)^*01^* \\
 R_{32}^2 = 1(01^*0)^* \\
 R_{33}^2 = \varepsilon + 0 + 1(01^*0)^*1
 \end{array}$$

$$R_{13}^3 = 1^*0(01^*0)^*1(0 + 1(01^*0)^*1)^*$$