พิสูจว่าเป็น reg
1. วาด DFA or NFA
2. เขียน Reg. Express +, ., ( ), *
3. คุณสมบัติปิด ของ ภาษา Reg (Properties) (เรื่อง set)

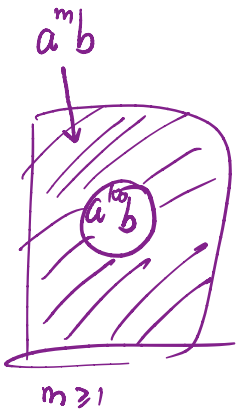
Theory of Computation

Exercise 4:

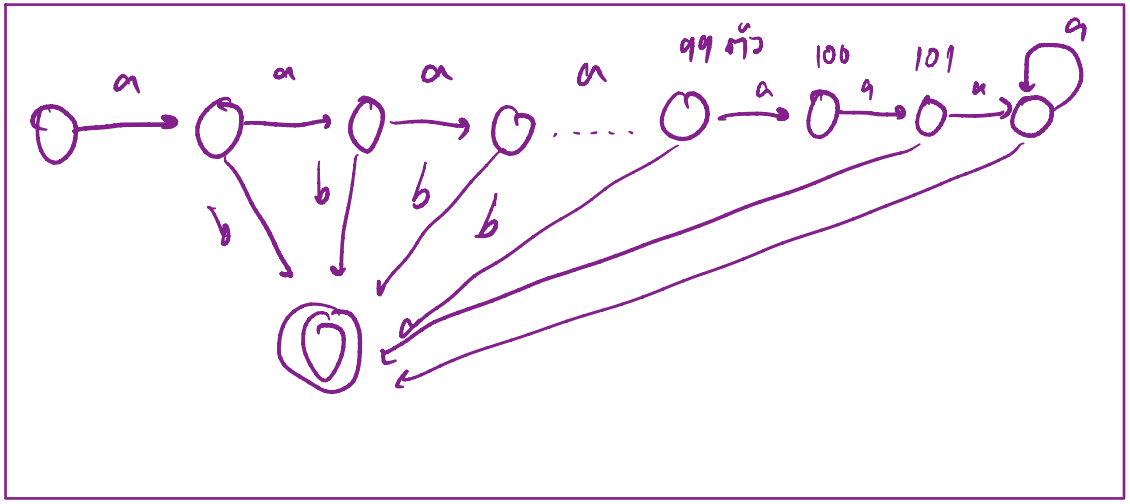
(Closure properties of Regular Language and Regular Expression)

1. Prove that the language $\{a^m b : m \geq 1 \; and \; m \neq 100\}$ is regular. เป็น { ab, aab, $a^{99}b$ }

$\overline{a^{100}b}$ คือ Reg



aa^*b



Ans $aa^*b \cap (\overline{a^{100}b})$

↓ มีโอกาสเป็น λ

2. Find regular expression for the following language

$$L = \{ w \in \{a, b\}^* : w \text{ does not end with } ab \}$$

ห้ามจบด้วย ab

$= \{ \lambda, a, b, aa, ba, bb, aaa, \ldots \}$

เขียนออกมาที่ไม่ลงท้ายด้วย ab

$\overline{\{ab\}^*}$

Ans $\lambda + a + b + (a+b)^* \cdot (aa + ba + bb)$

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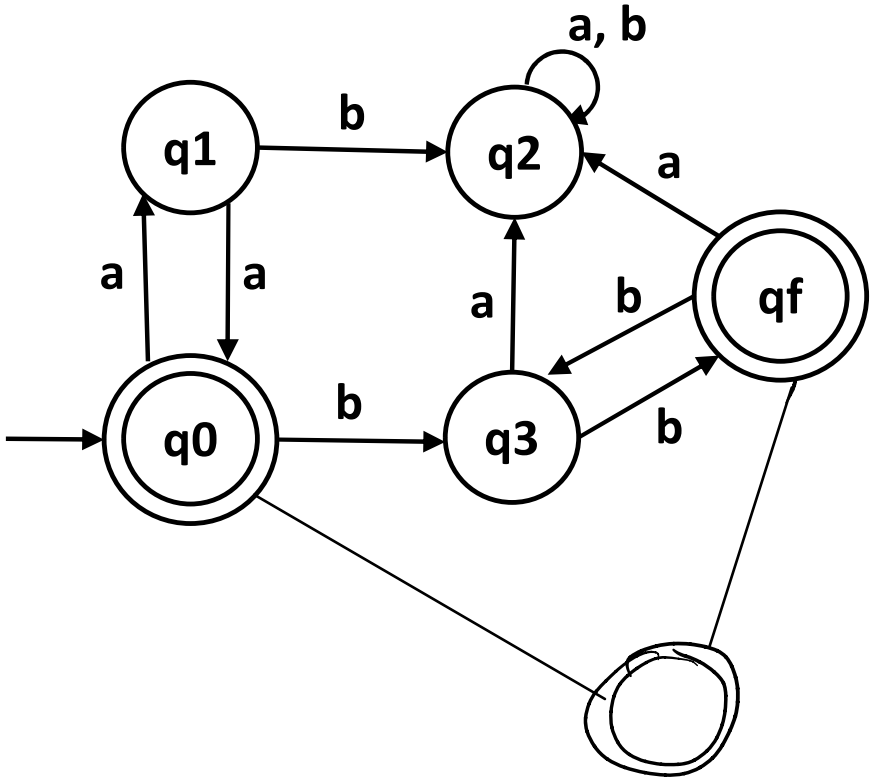
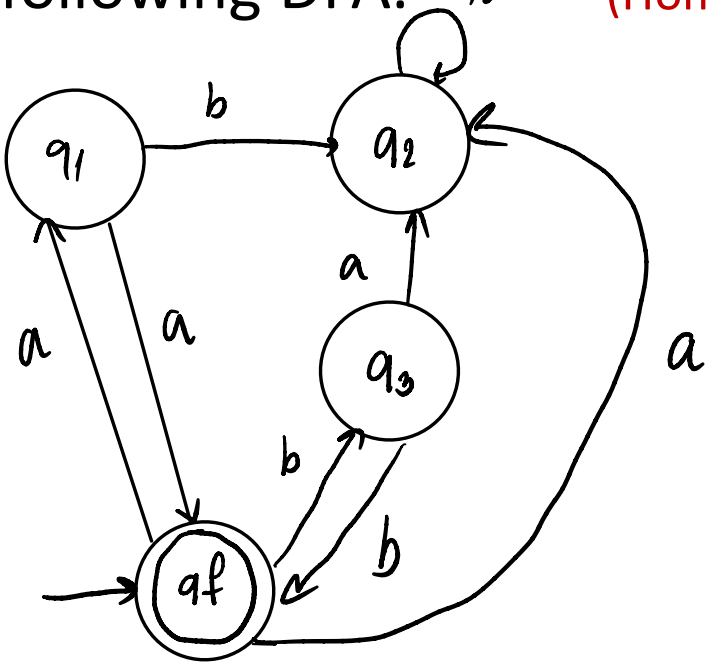
*3. Find regular expression for the following DFA. (Homework 3)





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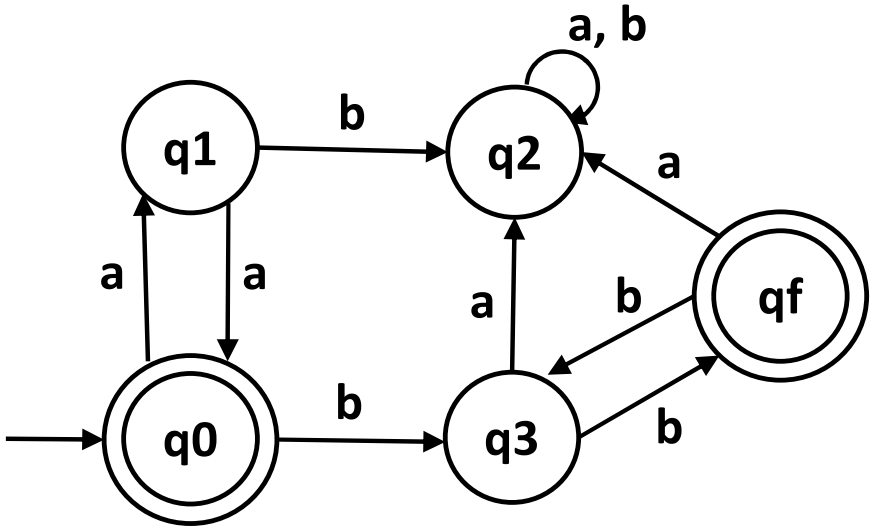

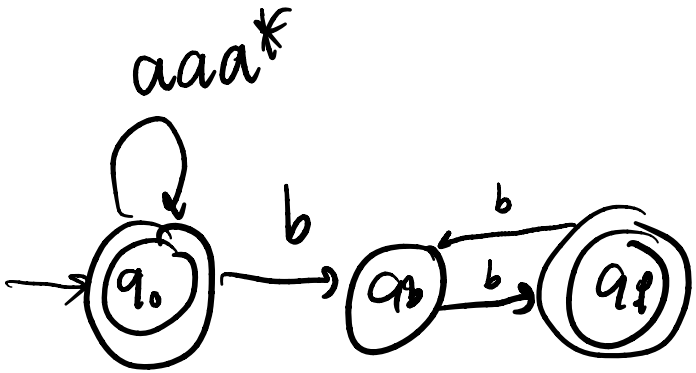

Ans $\lambda + aaa^* + aaa^*.bbb^* + bbb^*$

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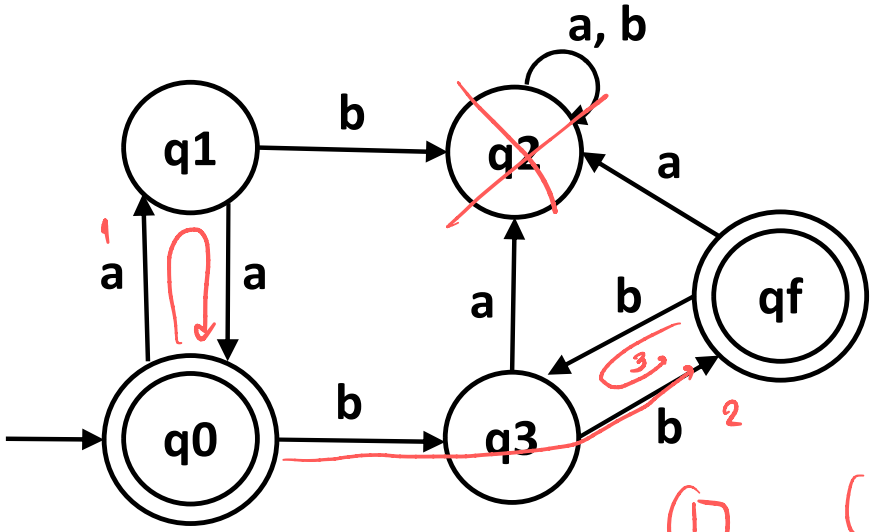

Ans

(1) $(aa)^*.(bb)^*$ optimal (สั้นสุด)

$bb.(bb)^* + \lambda$

จับแต่ ได้ เลขเยอะ λ

(2) $(aa)^*.(bb.(bb)^* + \lambda)$