

Lab 2

DFA lab

1. a. q_0 is the start state

b. $\{(ab \cup b)^*\} \cdot \{q_3\}$

c. $q_0 \rightarrow q_1 \rightarrow q_3 \rightarrow q_1 \rightarrow q_3$

d. Yes, this machine accepts $abab$.

e. No, this machine doesn't accept ϵ

2. 1. $Q = \{q_0, q_1, q_2, q_3\}$

2. $\Sigma = \{a, b\}$

3. $\delta(q_0, a) = q_1, \delta(q_0, b) = q_3, \delta(q_1, a) = q_2$

$\delta(q_1, b) = q_3, \delta(q_2, a) = q_2, \delta(q_2, b) = q_2$

$\delta(q_3, a) = q_1, \delta(q_3, b) = q_3$

4 start state : q_0

5. the set of accept states

$F = \{q_3\}$

$(\{q_0, q_1, q_2, q_3\}, \{a, b\}, \delta, q_0, \{q_3\})$

3. a. two strings are accepted by DFA

first one

b a b b b

second one

a b a b b

b. two strings are rejected by DFA

first one

a a a b

second one

a b a

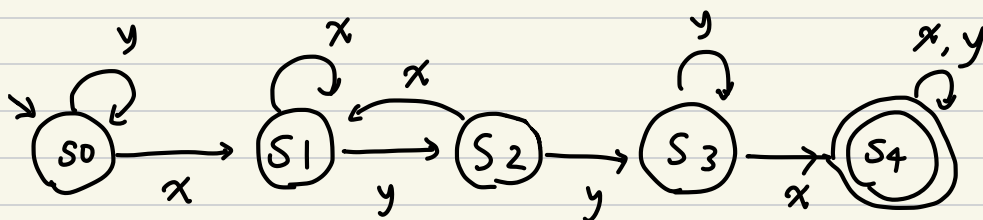
c.

Language = $\{ w \mid w \text{ contain } ab \text{ or}$

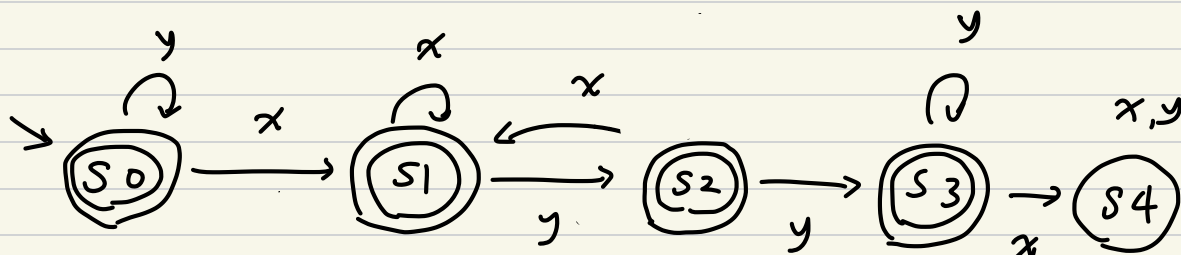
$b, \text{ and doesn't contain "aa" substring}$

$\}$

4, ① L_1

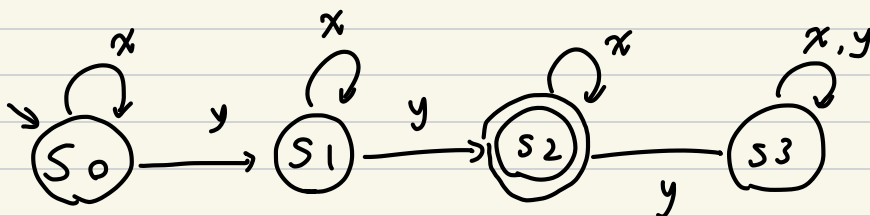


②



③

L_3



④

L_4

