UTM

UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of engineering (School of computing)
Discrete structure (SECI1013-10)

Topic: Assignment 5

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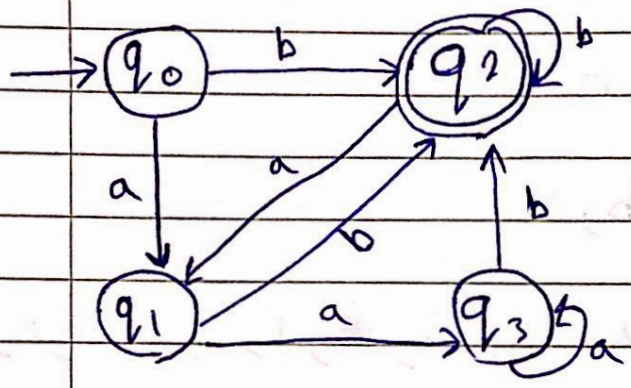
Q1

i)

f_s	a	b
q_0	q_1	q_2
q_1	q_3	q_2
q_2	q_1	q_2
q_3	q_3	q_2



ii) DFA can applied to verify of email.

ii) DFA can be used to first match the email after that the password can be ~~mach~~ matched usin DFA with the password stored for email address. Inaddition, DFA can determine whether a password is invalid or not for example one integer at least and alphabet, there cannot be any special as it would lead to a dead state. Minimum length password

No.

Date

DFA could be built in order to accept a password with minimum length and all specification.

No.

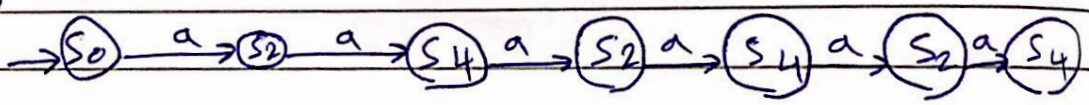
Date

Q2

i)

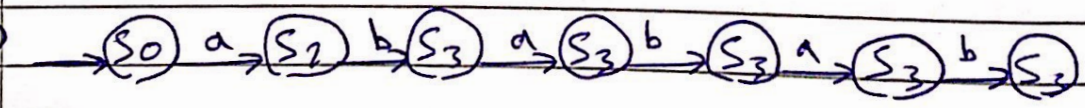
f_s	a	b
S_0	S_2	S_1
S_1	S_3	S_1
S_2	S_4	S_3
S_3	S_3	S_3
S_4	S_2	S_4

ii) a)



W is not accepted by DFA because S4 is not final state.

b)



ababab is accepted by DFA because S_3 final state.

Question 3

i. a) $S = \{S_0, S_1, S_2, S_3, S_4, S_5\}$

$I = \{0, 1\}$

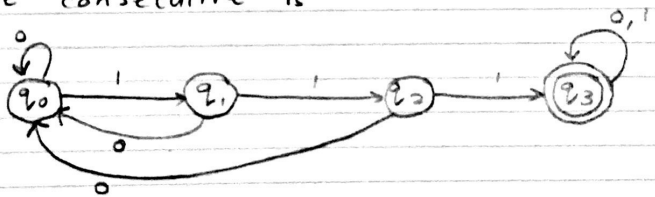
$q_0 = \{S_0\}$

$F = \{S_0, S_1, S_5\}$

b) 0011101100

* $S_0 \xrightarrow{0} S_0 \xrightarrow{0} S_0 \xrightarrow{1} S_1 \xrightarrow{1} S_2 \xrightarrow{1} S_3 \xrightarrow{0} S_5 \xrightarrow{1} S_5 \xrightarrow{1} S_5 \xrightarrow{0} S_4 \xrightarrow{0} S_4$
* not accepted by the DFA

ii. three consecutive 1s



Question - 4

Let WANDER = W

EVADE = E

ATTACK = A

$\therefore S = \{W, E, A\}$

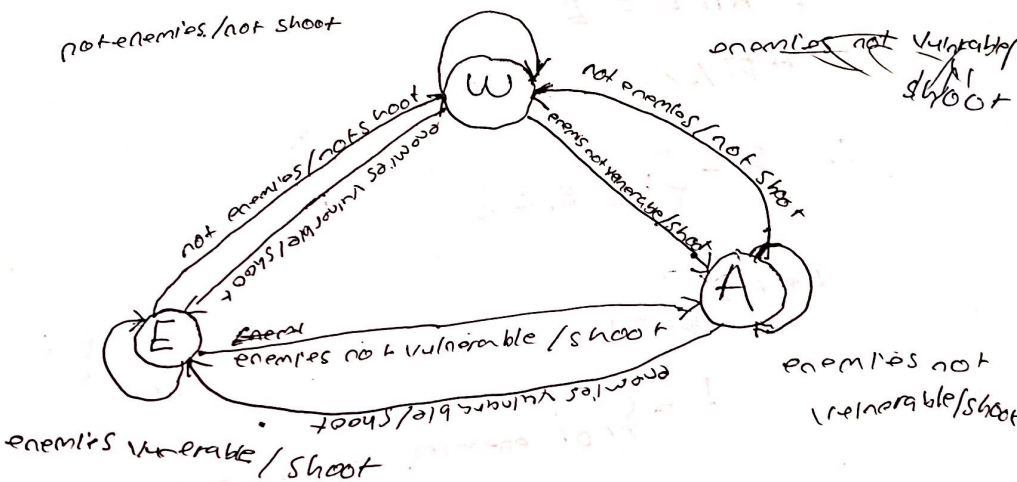
Let, $q_0 = W$

I = {not enemies, enemies not Vulnerable, enimies Vulnerable}

O = {Shoot, not Shoot}

Q4

The finit state diagram to model the game is



No.

Date

Q5