



ASSIGNMENT 5



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING
Faculty of Engineering

SCHOOL OF COMPUTING
FACULTY OF ENGINEERING
UNIVERSITI TEKNOLOGI MALAYSIA
81310, UTM JOHOR BAHRU, JOHOR
+607-5538828 (ACADEMIC OFFICE)
+60 – 5538822 (FAX)

PREPARED BY:

Group: T10

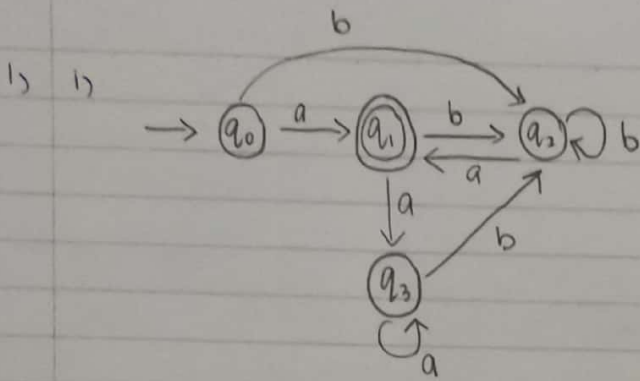
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|----|--------------------------------------|-----------|
| 1. | GUI YU XUAN | A20EC0039 |
| 2. | MUHAMMAD NABIEL IZZUDDIN BIN RADZUAN | A20EC0241 |
| 3. | MUHAMMAD HAZIQ BIN AZLI | A20EC0240 |

SECTION/COURSE CODE : [SECI1013] [01] – [DISCRETE STRUCTURE]

LECTURER : [DR. RAZANA ALWEE]

SESSION/SEMESTER : [2020/2021] - [01]

Case Study Report submitted to School of Computing, Univerisiti Teknologi Malaysia in partial fulfilment to complete the SECI1013 Assignment for Semester 1 session 2020/2021



ii) DFA can determine whether the password is valid or not.

DFA read the password from initial state and accept it if the password stop at final state.

2) i)

fs	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 ₃

ii) a) $w = aaaa$

$$S_0 \xrightarrow{a} S_2 \xrightarrow{a} S_4 \xrightarrow{a} S_2 \xrightarrow{a} S_4 \xrightarrow{a} S_2 \xrightarrow{a} S_4$$

$\therefore w$ is not accepted by DFA because S_4 is not final state.

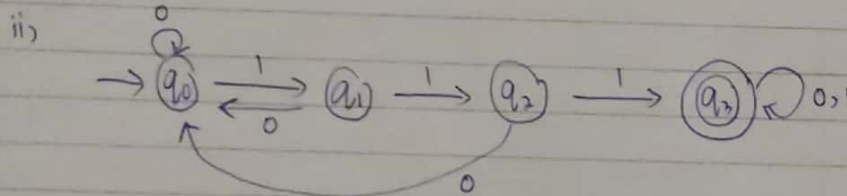
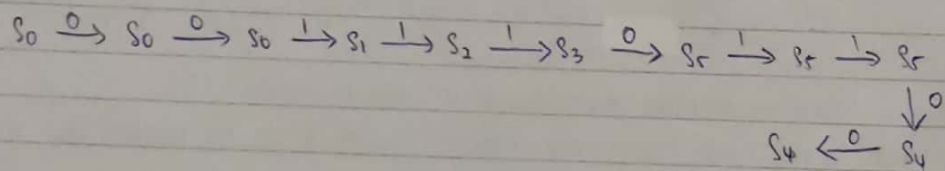
b) $w = ababab$

$$S_0 \xrightarrow{a} S_2 \xrightarrow{b} S_3 \xrightarrow{a} S_3 \xrightarrow{b} S_3 \xrightarrow{a} S_3 \xrightarrow{b} S_3$$

$\therefore w$ is accepted by DFA because S_3 is final state.

- 3) i) a) $S = \{s_0, s_1, s_2, s_3, s_4, s_5\}$
 $\Sigma = \{0, 1\}$
 $q_0 = s_0$
 $F = \{s_1, s_5\}$

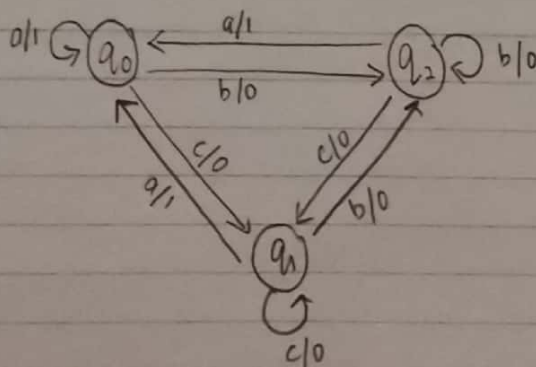
b) string 0011101100 is accepted by DFA



- 4) State : $q_0 = \text{wander}$
 $q_1 = \text{evade}$
 $q_2 = \text{attack}$

Input : $a = \text{not enemies}$
 $b = \text{enemies \& not vulnerable}$
 $c = \text{enemies \& vulnerable}$

Output : $0 = \text{shoot}$
 $1 = \text{not shoot}$



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