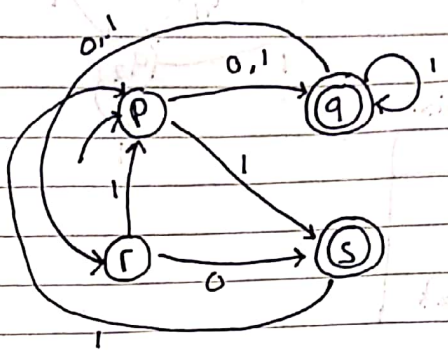
Hermaya Al Chaerunnisa
A11.2018.11012
A11.

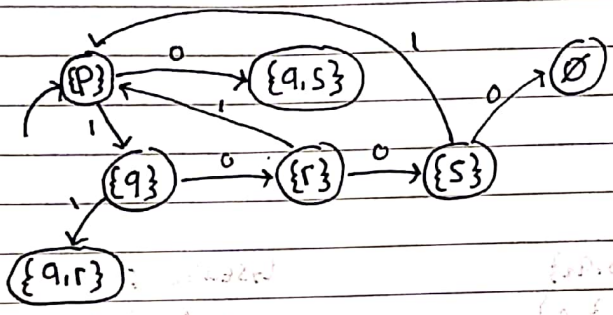
Tugas 1
Otomata dan Teori Bahasa

(A) $Q = \{P, q, r, s\}$
$\Sigma = \{0, 1\}$
$q_0 = P$
$F = \{q, s\}$



δ	0	1
P	{q,s}	{q}
q	{r}	{q,r}
r	{s}	{P}
s	∅	{P}

↳ Menelusuri semua state



↳ State {q,s}

$\delta(\{q,s\}, 0)$
$\delta(\{q\}, 0) = \{r\}$
$\delta(\{s\}, 0) = \emptyset$ ∪
$\{r\}$

$\delta(\{q,s\}, 1)$
$\delta(\{q\}, 1) = \{q,r\}$
$\delta(\{s\}, 1) = \{P\}$ ∪
$\{P,q,r\}$

↳ State {q,r}

$\delta(\{q,r\}, 0)$
$\delta(\{q\}, 0) = \{r\}$
$\delta(\{r\}, 0) = \{s\}$ ∪
$\{r,s\}$

$\delta(\{q,r\}, 1)$
$\delta(\{q\}, 1) = \{q,r\}$
$\delta(\{r\}, 1) = \{P\}$ ∪
$\{P,q,r\}$

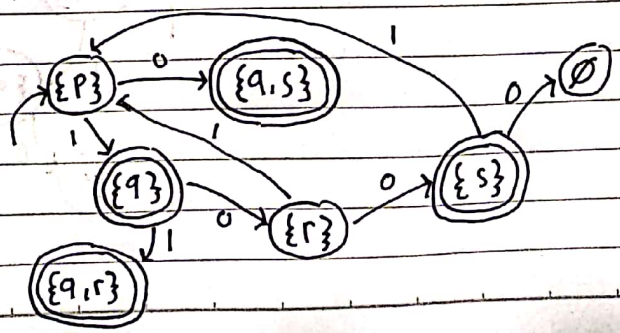
↳ state ∅

$\delta(\emptyset, 0) = \emptyset$
$\delta(\emptyset, 1) = \emptyset$

↳ Menentukan Final State

$F_{NFA} = \{q, s\}$
$F_{DFA} = \{q\}, \{s\}, \{q,s\}, \{q,r\}$

↳ Hasil Akhir DFA

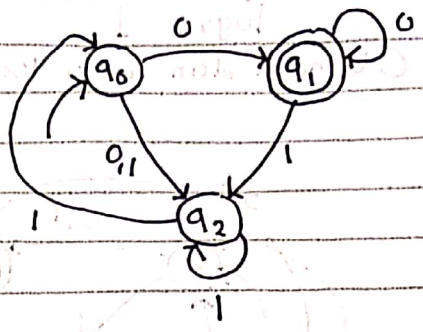


(B) $Q = \{q_0, q_1, q_2\}$

$\Sigma = \{0, 1\}$

$S = q_0$

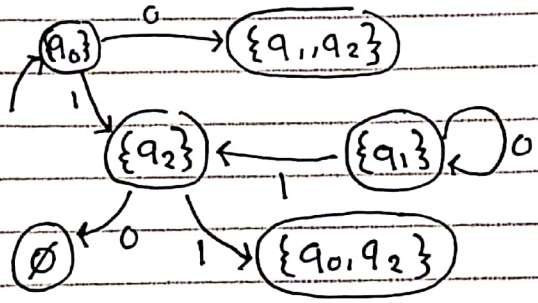
$F = \{q_1\}$



↳ Membuat tabel transisi

δ	0	1
q_0	$\{q_1, q_2\}$	$\{q_2\}$
q_1	$\{q_1\}$	$\{q_2\}$
q_2	$\emptyset$	$\{q_0, q_2\}$

↳ Menelusuri Semua State



↳ State $\{q_1, q_2\}$

$\delta(\{q_1, q_2\}, 0)$

$\delta(\{q_1\}, 0) = \{q_1\}$

$\delta(\{q_2\}, 0) = \{\emptyset\}$ ∪ $\{q_1\}$

$\delta(\{q_1, q_2\}, 1)$

$\delta(\{q_1\}, 1) = \{q_2\}$

$\delta(\{q_2\}, 1) = \{q_0, q_2\}$ ∪ $\{q_0, q_2\}$

↳ State $\{q_0, q_2\}$

$\delta(\{q_0, q_2\}, 0)$

$\delta(\{q_0\}, 0) = \{q_1, q_2\}$

$\delta(\{q_2\}, 0) = \emptyset$

$\delta(\{q_0, q_2\}, 1)$

$\delta(\{q_0\}, 1) = \{q_2\}$

$\delta(\{q_2\}, 1) = \{q_0, q_2\}$ ∪ $\{q_0, q_2\}$

↳ State $\emptyset$

$\delta(\emptyset, 0) = \emptyset$

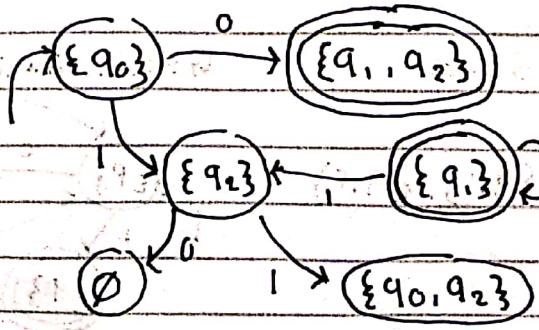
$\delta(\emptyset, 1) = \emptyset$

↳ Menentukan Final State

$F_{NFA} = \{q_1\}$

$F_{DFA} = \{q_1\}, \{q_1, q_2\}$

↳ Hasil Akhir DFA

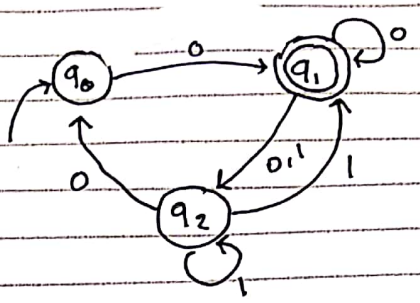


ⓒ $Q = \{q_0, q_1, q_2\}$

$\Sigma = \{0, 1\}$

$S = q_0$

$F = \{q_1\}$



↳ Membuat tabel transisi

δ	0	1
q_0	$\{q_1\}$	$\emptyset$
q_1	$\{q_1, q_2\}$	$\{q_2\}$
q_2	$\{q_0\}$	$\{q_1, q_2\}$

↳ Menelusuri semua state

↳ State $\{q_1, q_2\}$

$\delta(\{q_1, q_2\}, 0)$

$\delta(\{q_1\}, 0) = \{q_1, q_2\}$

$\delta(\{q_2\}, 0) = \{q_0\}$ ∪

$\{q_0, q_1, q_2\}$

$\delta(\{q_1, q_2\}, 1)$

$\delta(\{q_1\}, 1) = \{q_2\}$

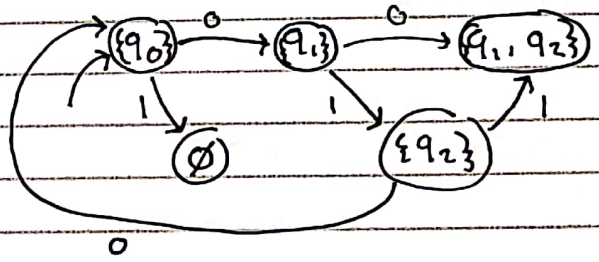
$\delta(\{q_2\}, 1) = \{q_1, q_2\}$ ∪

$\{q_1, q_2\}$

↳ State $\emptyset$

$\delta(\emptyset, 0) = \emptyset$

$\delta(\emptyset, 1) = \emptyset$



↳ Menentukan Final State

$F_{NFA} = \{q_1\}$

$F_{DFA} = \{q_1\}, \{q_1, q_2\}$

↳ Hasil Akhir DFA