

NAMA : SARAH NURLATIFAH
NIM : 2206156
KELAS : TEKNIK INFORMATIKA - E

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Carilah materi-materi dari berbagai sumber mengenai:

1. Buatlah satu bahasa reguler sesuai keinginan anda
2. Bagaimana proses ekuivalensi dari ϵ -NFA ke NFA, untuk bahasa reguler soal no 1
3. Bagaimana proses ekuivalensi dari ϵ -NFA ke DFA, untuk bahasa reguler soal no 1

Susun draft laporan hasil pembelajaran pada file word/ pdf dengan format

nama: **L6_KELAS_NIM**

Rekam laporan hasil pembelajaran, upload ke chanel YT, copas URL VIDEO, tambahkan ke File Laporan

Submit file laporan (+ **URL VIDEO**) ke LMS

Penyelesaian :

Mo. _____
Date _____

EKUIVALENSI ϵ -NFA ke NFA & DFA

* Ekuivalensi ϵ -NFA ke NFA
Diketahui diagram state ϵ -NFA

\rightarrow (B) $\xrightarrow{\epsilon}$ (A) $\xrightarrow{0}$ (E)
 $\downarrow \epsilon$ $\downarrow 1$
(L) \rightarrow (Z)

- Tabel transisi untuk ϵ -NFA semula

Q	Σ	
	0	1
$\rightarrow B$	\emptyset	\emptyset
A	E	\emptyset
E	\emptyset	Z
L	\emptyset	Z
*Z	\emptyset	\emptyset

\rightarrow (B) $\xrightarrow{\epsilon}$ (A) $\xrightarrow{0}$ (E)
 $\downarrow \epsilon$ $\downarrow 1$
(L) \rightarrow (Z)

- Tentukan ϵ -closure untuk setiap state

ϵ -closure (B) = {B, A, L}
 ϵ -closure (A) = {A, L}
 ϵ -closure (E) = {E}
 ϵ -closure (L) = {L}
 ϵ -closure (Z) = {Z}

- Menentukan fungsi transisi hasil perubahan (δ') dari ϵ -NFA ke NFA, dengan rumus

$$\delta' = \epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$$

Q	δ	
	0	1
$\rightarrow B$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$
A	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$
E	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$
L	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$
*Z	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(\text{state}), \text{input}))$

Q	δ	
	0	1
$\rightarrow B$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(B), 0))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(B), 1))$
A	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(A), 0))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(A), 1))$
E	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(E), 0))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(E), 1))$
L	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(L), 0))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(L), 1))$
*Z	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(Z), 0))$	$\epsilon\text{-closure}(\delta(\epsilon\text{-closure}(Z), 1))$

Q	δ	
	0	1
$\rightarrow B$	$\epsilon\text{-closure}(\delta(\{B, A, L\}, 0))$	$\epsilon\text{-closure}(\delta(\{B, A, L\}, 1))$
A	$\epsilon\text{-closure}(\delta(\{A, L\}, 0))$	$\epsilon\text{-closure}(\delta(\{A, L\}, 1))$
E	$\epsilon\text{-closure}(\delta(\{E\}, 0))$	$\epsilon\text{-closure}(\delta(\{E\}, 1))$
L	$\epsilon\text{-closure}(\delta(\{L\}, 0))$	$\epsilon\text{-closure}(\delta(\{L\}, 1))$
Z	$\epsilon\text{-closure}(\delta(\{Z\}, 0))$	$\epsilon\text{-closure}(\delta(\{Z\}, 1))$

No.

Date

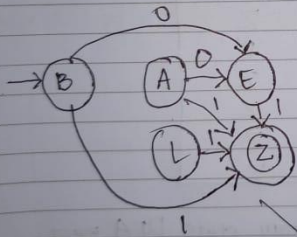
Q	δ	
	0	1
$\rightarrow B$	$E_closure(\delta(B,0); \delta(A,0); \delta(L,0))$	$E_closure(\delta(B,1); \delta(A,1); \delta(L,1))$
A	$E_closure(\delta(A,0); \delta(L,0))$	$E_closure(\delta(A,1); \delta(L,1))$
E	$E_closure(\delta(E,0))$	$E_closure(\delta(E,1))$
L	$E_closure(\delta(L,0))$	$E_closure(\delta(L,1))$
*Z	$E_closure(\delta(Z,0))$	$E_closure(\delta(Z,1))$

Q	δ	
	0	1
$\rightarrow B$	$E_closure(\emptyset; E, \emptyset)$	$E_closure(\emptyset; \emptyset; Z)$
A	$E_closure(E, \emptyset)$	$E_closure(\emptyset; \emptyset; Z)$
E	$E_closure(\emptyset)$	$E_closure(Z)$
L	$E_closure(\emptyset)$	$E_closure(Z)$
*Z	$E_closure(\emptyset)$	$E_closure(\emptyset)$

Q	δ	
	0	1
$\rightarrow B$	E	Z
A	E	Z
E	\emptyset	Z
L	\emptyset	Z
*Z	\emptyset	\emptyset

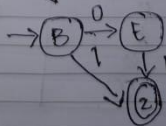
- Menentukan state-state akhir

Q	Σ	
	0	1
$\rightarrow B$	E	Z
A	E	Z
E	\emptyset	Z
L	\emptyset	Z
*Z	\emptyset	\emptyset



- Mensederhanakan

Q	Σ	
	0	1
$\rightarrow B$	E	Z
E	\emptyset	Z
*Z	\emptyset	\emptyset



Ekivalensi E-NFA ke DFA

$$n(Q) = 3$$

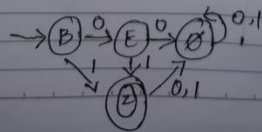
$$n(Q') = 2^3 = 8 = \{\emptyset, B, A, Z, BA, BZ, AZ, BAZ\}$$

Tabel transisi DFA yang ekuivalen (δ)

δ	0	1
\emptyset	\emptyset	\emptyset
$\rightarrow B$	E	Z
E	\emptyset	Z
*Z	\emptyset	\emptyset
BA	E	Z
BZ	E	Z
AZ	\emptyset	Z
BAZ	E	Z

Maka akan membentuk diagram state DFA yang ekuivalen, sebagai berikut:

δ'	0	1
\emptyset	\emptyset	\emptyset
$\rightarrow B$	E	Z
E	\emptyset	Z
*Z	\emptyset	\emptyset



Link Video :

https://youtu.be/ps_GlrtZ5fQ?si=lGAaZWn_18GG8loe