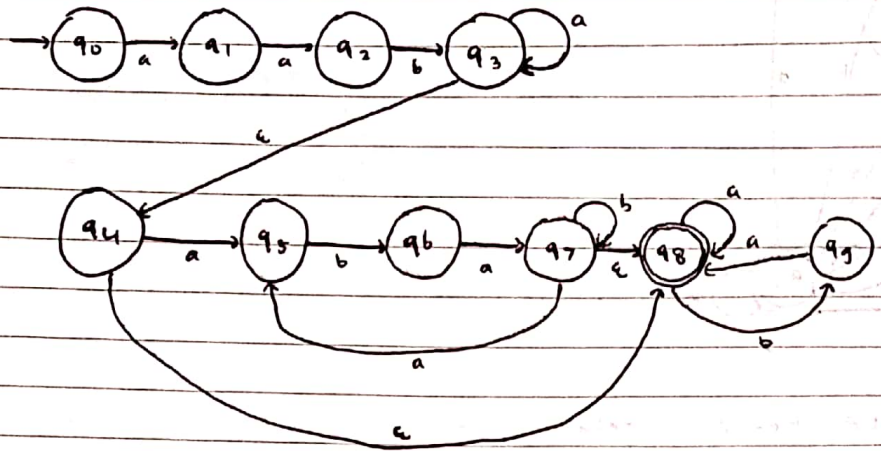
Date

1. Buatkan Nondeterministic Finite Automata - ε dari ER berikut:

r: $aaba^*(abab)^*(a+ba)^*$



2. Konversi NFA - ε ke NFA

δ	a	b	ε
q_0	q_1	∅	∅
q_1	q_2	∅	∅
q_2	∅	q_3	∅
q_3	q_3	∅	q_4
q_4	q_5	∅	q_8
q_5	∅	q_6	∅
q_6	q_7	∅	∅
q_7	q_5	q_7	q_8
q_8	q_8	q_9	∅
q_9	q_8	∅	∅

ε-closure

q_0 : q_0
q_1 : q_1
q_2 : q_2
q_3 : q_3, q_4, q_8
q_4 : q_4, q_8
q_5 : q_5
q_6 : q_6
q_7 : q_7, q_8
q_8 : q_8
q_9 : q_9

tabel transisi baru

δ	a	b
q_0	q_1	∅
q_1	q_2	∅
q_2	∅	q_3, q_4, q_8
q_3	q_3, q_4, q_5, q_8	q_9
q_4	q_5, q_8	q_9
q_5	∅	q_6
q_6	q_7, q_8	∅
q_7	q_5, q_8	q_7, q_8, q_9
q_8	q_8	q_9
q_9	q_8	∅

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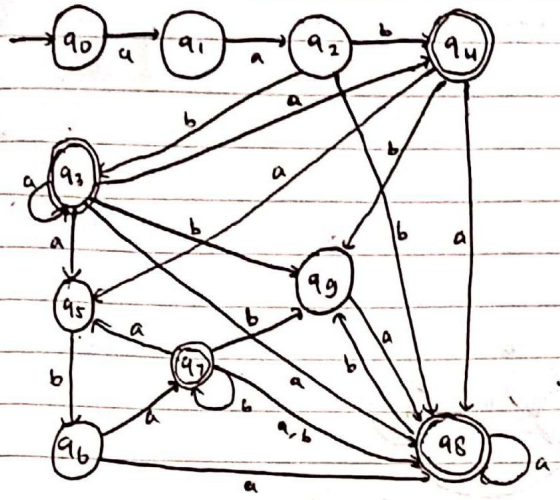

3. Konversi NFA ke DFA kemudian reduksi

tabel transisi DFA

δ	a	b
q_0 (A)	q_1 (B)	{} (Q)
q_1 (B)	q_2 (C)	{} (Q)
q_2 (C)	{} (Q)	q_3, q_4, q_8 (K)
~~q_3 (D)~~	~~q_3, q_4, q_5, q_8~~	~~q_9~~
~~q_4 (E)~~	~~q_5, q_8~~	~~q_9~~
~~q_5 (F)~~	~~{}~~	~~q_6~~
~~q_6 (G)~~	~~q_7, q_8~~	~~{}~~
~~q_7 (H)~~	~~q_5, q_8~~	~~q_7, q_8, q_9~~
q_8 (I)	q_8 (I)	q_9 (J)
q_9 (J)	q_8 (I)	{} (Q)
q_3, q_4, q_8 (K)	q_3, q_4, q_5, q_8 (L)	q_9 (J)
q_3, q_4, q_5, q_8 (L)	q_3, q_4, q_5, q_8 (L)	q_6, q_9 (P)
q_5, q_8 (M)	q_8 (I)	q_6, q_9 (P)
q_7, q_8 (N)	q_5, q_8 (M)	q_7, q_8, q_9 (O)
q_7, q_8, q_9 (O)	q_5, q_8 (M)	q_7, q_8, q_9 (O)
q_6, q_9 (P)	q_7, q_8 (N)	{} (Q)
{} (Q)	{} (Q)	{} (Q)

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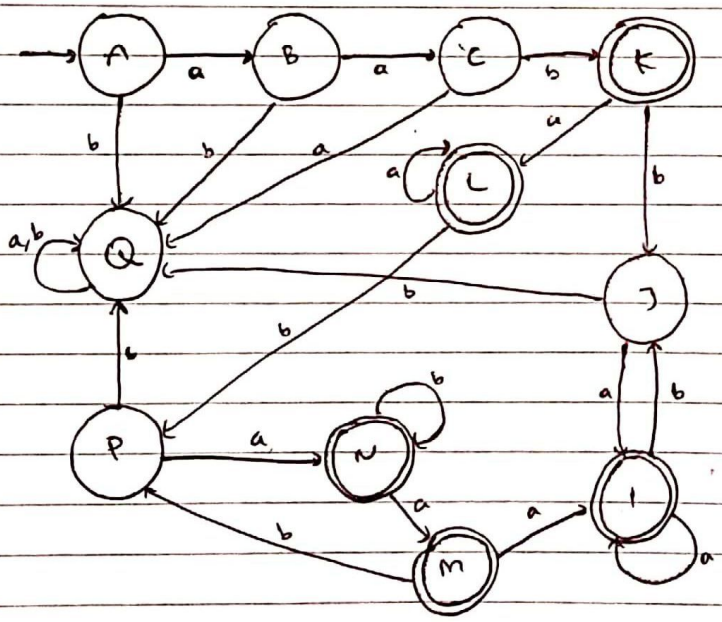
Reduksi

0 equivalence	{A, B, C, J, P, Q}	{I, K, L, M, N, O}
1 equivalence	{A, B, Q}	{I, K, L, M}
	{C}	{N, O}
	{J, P}	
	~~{I, K, L, M, N, O}~~	
2 equivalence	{A, Q}	{I, K, L, M}
	{B}	{N, O}
	{C}	
	{J}	
	{P}	
3 equivalence	{A}{Q}{B}{C}{J}	{I, K}
	{P}	{L, M}
		{N, O}
4 equivalence	{A}{B}{C}{J}{P}{Q}	{I}{K}{L}{M}{N, O}
5 equivalence	{A}{B}{C}{J}{P}{Q}	{I}{K}{L}{M}{N, O}



4. Aturan Produksi

V : {A, B, C, I, J, K, L, M, N, ~~O~~, P, Q}

T : {a, b}

S : A

P : { A → aB | bQ , B → aC | bQ , C → aQ | bK , K → aL | bJ | ε ,
L → aL | bP | ε , I → aI | bJ | ε , J → aJ | bQ , Q → aQ | bQ ,
P → aN | bQ , N → aM | bN | ε , M → aI | bP | ε }

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