

STUDENT PORTFOLIO



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Department: CSE
Specialization: Cloud Computing
Semester: 5

Subject Title: 18CSC301T Formal Language and Automata

Handled By: Safa M

Assignment

(Write about the assignment questions and how u solved differently)

1. Design a DFA That ends with abbaa
2. Convert to RE for the given DFA
3. PDA
4. Consider the following Micro English context free grammar S
→ (NP)(VP) (NP) → (Article)(Noun)(Object) (VP) → (Verb)(OptNP)(object)
(OptNP)
→ e|(NP) (Object) → e|(Prep)(Article)(Noun) (Noun)
→ man|dog|girl|table (Article) → a|the (Prep) → of|with|from (Verb) →
loves|likes|hates
Remove the null production
5. Write the regular expression accepting the string over Σ (0, 1) which starts with two consecutive 0's and ends with two consecutive 1's.

Assignment

(what is the most interesting part in the assignment)

The most interesting part of the assignment was to solve all the mathematical questions and how it helped me understand the subject.

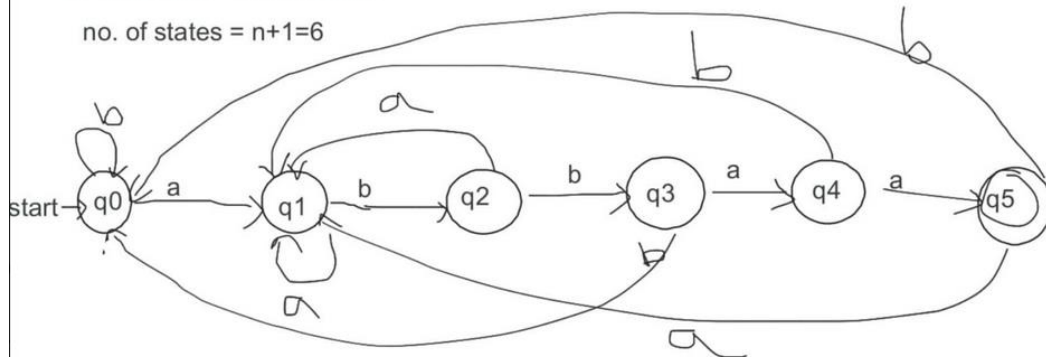
length of string (n) = 5

$$\Sigma = \{a, b\}$$

$$Q = \{q_0, q_1, q_2, q_3, q_4, q_5\}$$

Regular exp = $(a+b)^*abbaa$

no. of states = $n+1=6$



$$D = \{6, 2, 12, q_0, q_5\}$$

$$\delta = Q \times \Sigma$$



$$q_1 \rightarrow q_1 \cdot 0$$

$$q_2 \rightarrow q_1 \cdot 1 + q_2 \cdot 1$$

$$q_3 \rightarrow q_2 \cdot 0 + q_3 \cdot (0+1)$$

$$q_1 \rightarrow q_1 \cdot 0$$

$$q_1 \rightarrow \epsilon + q_1 \cdot 0$$

$$q_1 \rightarrow \epsilon \cdot (0)^*$$

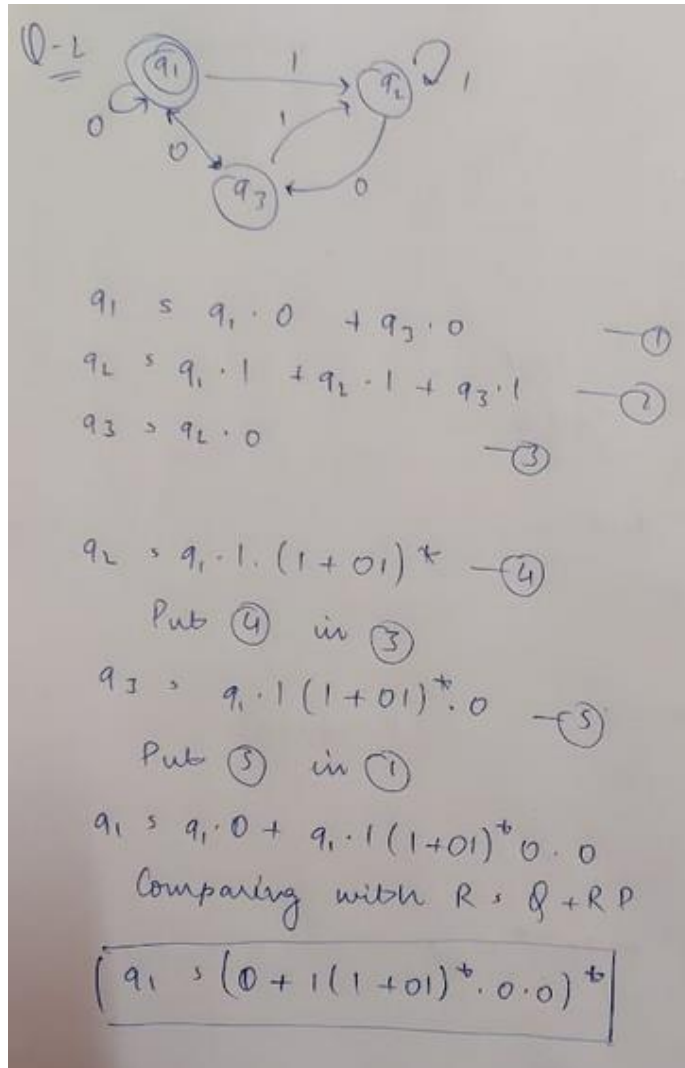
$$q_1 \rightarrow (0)^*$$

$$q_2 \rightarrow 0^*1 + q_2 \cdot 1 \quad (R + Q + RP)$$

$$q_2 \rightarrow 0^*1 \cdot 1^*$$

$$r \rightarrow q_1 + q_2$$

$$\rightarrow (0)^* + (0)^*1 \cdot (1)^*$$



$z0, E \rightarrow z0, a, z0 \rightarrow az0, a, a \rightarrow aa, b, a \rightarrow a, a, a \rightarrow E, E, z0 \rightarrow z0$

(a) Remove Null prod.

$\text{Object} \rightarrow \epsilon$, $\text{optNP} \rightarrow \epsilon$

$S \rightarrow (\text{NP})(\text{VP})$

$\text{NP} \rightarrow (\text{Article})(\text{Noun})$

$\text{VP} \rightarrow (\text{Verb})(\text{Object}) / (\text{Verb})(\text{optNP}) / \text{Verb}$

$\text{optNP} \rightarrow \text{NP}$

$\text{Object} \rightarrow \text{Prep} / \text{Article} / \text{Noun}$

Noun

Article

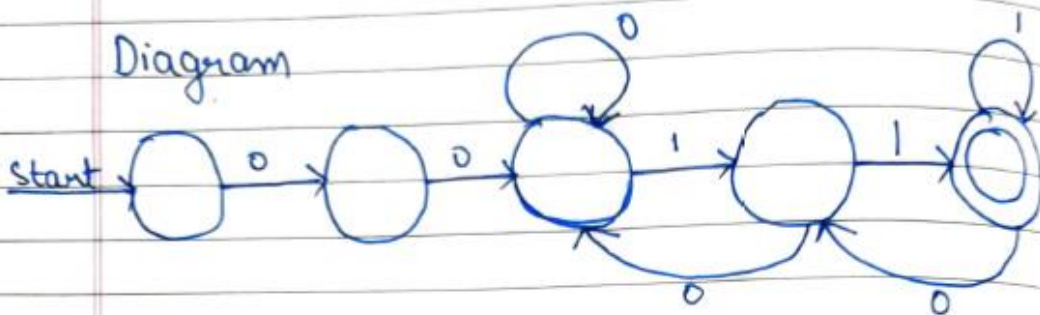
Prep

Verb

} same

Q.1 RE = $00(0+1)^*11$

Diagram



$L = \{0011, 00011, 00111, 000011, 000111, 001011, 001111, \dots\}$

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Signature

Note: Enclose the assignment and relevant certificates along with the profile