



INSTITUTE OF INFORMATION TECHNOLOGY
JAHANGIRNAGAR UNIVERSITY

Number of Assignment : 03

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Course Title : Theory of Computing

Course Code : ICT - 3105

Submitted To

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Question: Create a NFA that describes the language of string $\{a, b\}$ that end in "bb"

Answer to the question no-1

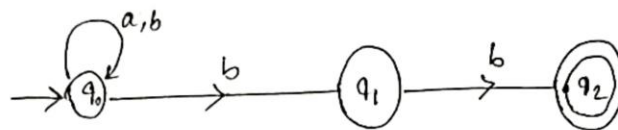


Fig: Accept string end with "bb"

$$L = \{w \mid w \text{ end with "bb"}\}$$

$$\text{Here, } Q = \{q_0, q_1, q_2\}$$

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

$$q_0 = q_0$$

$$F = \{q_2\}$$

$$\delta = \rightarrow$$

| | a | b |
|-------------------|-------------|----------------|
| $\rightarrow q_0$ | $\{q_0\}$ | $\{q_0, q_1\}$ |
| q_1 | \emptyset | $\{q_2\}$ |
| $* q_2$ | \emptyset | \emptyset |

Question: Design DFA that describes the language of string $\{a, b\}$ that do not contain the string "aab".

Answer to the question no-2

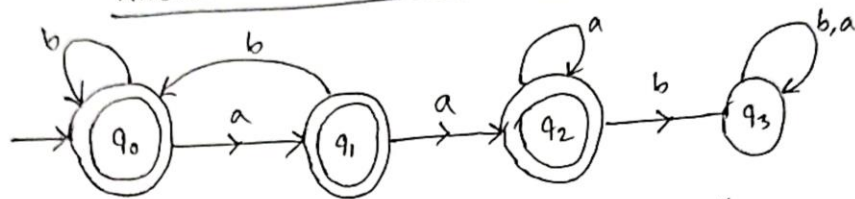


Fig: DFA that do not contain "aab"

$L = \{w \mid w \text{ do not contain "aab"}\}$

Hence, $Q = \{q_0, q_1, q_2, q_3\}$

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

$q_0 = q_0$

$F = \{q_0, q_1, q_2\}$

$\delta =$

| | a | b |
|-------|-------|-------|
| q_0 | q_1 | q_0 |
| q_1 | q_2 | q_0 |
| q_2 | q_2 | q_3 |
| q_3 | q_3 | q_3 |