INT201 Decision, Computation and Language

Tutorial 3

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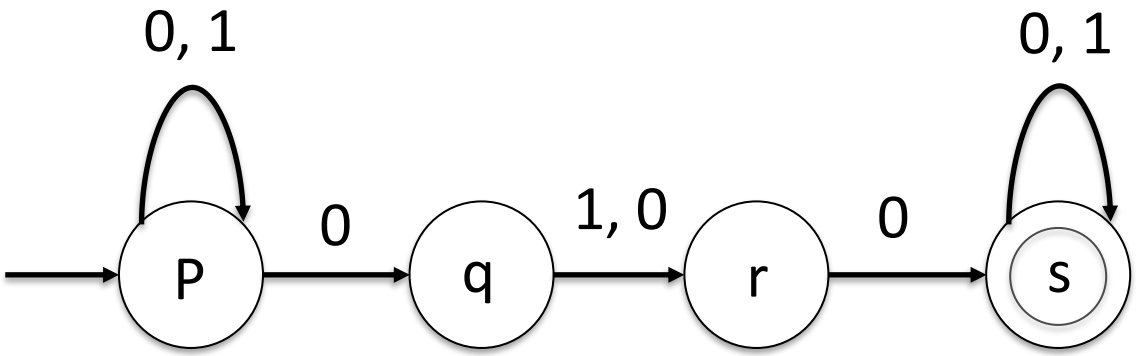
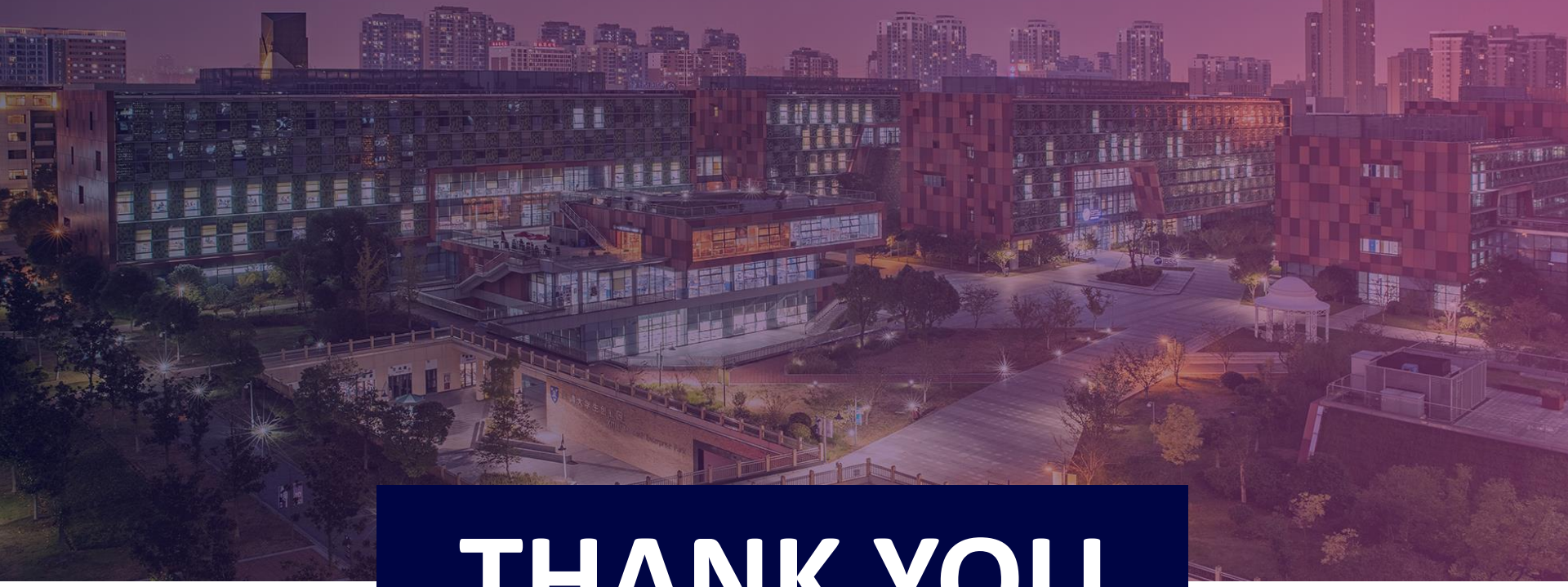
1. An NFA over alphabet $A = \{0, 1\}$ is given by the diagram below. Convert it to the equivalent DFA by filling the entries of the table and pointing out the accepting states.



	0	1
{p}		
{p, q}		
{p, r}		
{p, q, r}		
{p, q, s}		
{p, q, r, s}		
{p, r, s}		
{p, s}		

2. Give NFAs with the specified number of states recognizing each of the following languages. In all cases, the alphabet is $\Sigma = \{0, 1\}$.

(a) The language $\{ w \in \Sigma^* \mid w \text{ ends with } 00 \}$ with three states.
(b) The language $\{ w \in \Sigma^* \mid w \text{ contains the substring } 0101, \text{ i.e., } w = x0101y \text{ for some } x, y \in \Sigma^* \}$ with five states.
(c) The language $0^*1^*0^* 0$ with three states.



THANK YOU

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