



University of Moratuwa
Faculty of Information Technology
B.Sc. in Information Technology and
B.Sc. in Artificial Intelligence
Level 3 Semester 1

CM 3230/CM3211 -Automata Theory
Tutorial 02

1. Give nondeterministic Finite automata to accept the following languages. Try to take advantage of nondeterminism as much as possible.
 - a. Accept all strings end with **a**, $\Sigma = \{a, b\}$
 - b. Accept all strings containing **bab** as a substring, $\Sigma = \{a, b\}$
 - c. The set of strings over alphabet {0, 1, , 9} such that the final digit has appeared before
 - d. The set of strings over alphabet {0, 1, , 9} such that the final digit has not appeared before
2. Convert the above NFA in Part 1(a) and Part 1(b) into equivalent DFA
3. Convert the following NFA to DFA

a.

	0	1
→ p	{p,q}	{p}
q	{r}	{r}
r	{s}	∅
*s	{s}	{s}

b.

	0	1
→ p	{q, s}	{q}
*q	{r}	{q, r}
r	{s}	{p}
*s	∅	{p}

4. Convert the following NFA to DFA and informally describe the language accepted by it.

	0	1
→ p	{p, q}	{p}
q	{r, s}	{t}
r	{p, r}	{t}
*s	∅	∅
*t	∅	∅