## CS-3252

## Section 01

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# Assignment #3

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### Exercises

• Exercise 2.3.2

State	0	1
Ø	Ø	Ø
$\rightarrow$ p	qs	q
* q	r	qr
r	s	р
* s	Ø	р
qs	r	pqr
qr	rs	pqr
pqr	qrs	pqr
rs	s	р
qrs	rs	pqr

#### $\bullet$ Exercise 2.3.3

The language this automaton accepts is all strings that end with either 01 or 00.

State	0	1
Ø	Ø	Ø
$\rightarrow$ p	pq	p
q	rs	t
r	pr	t
* s	Ø	Ø
* t	Ø	Ø
pq	pqrs	pt
* pqrs	pqrs	pt
* pt	pq	p
* rs	pr	t
pr	pqr	pt
pqr	pqrs	pt

ullet Exercise 2.3.4(b) The set of strings over alphabet 0, 1, ..., 9 such that the final digit has not appeared before.

State	0	1	2	3	4	5	9	7	∞	6
$\rightarrow q_s$	$\{q_{1-9}\}$	$\{q_{0,2-9}\}$	$\{q_{0-1,3-9}\}$	$\{q_{0-2,4-9}\}$	$\{q_{0-3,5-9}\}$	$\{q_{0-4,6-9}\}$	$\{q_{0-5,7-9}\}$	$\{q_{0-6,8-9}\}$	$\{q_{0-7,9}\}$	{40-8}
$d_0$	$\{q_f\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$	$\{q_0\}$
$q_1$	$\{q_1\}$	$\{q_f\}$	$\{q_1\}$	$\{q_1\}$	$\{q_1\}$	$\{q_1\}$	$\{q_1\}$	$\{q_1\}$	$\{q_1\}$	$\{q_1\}$
$q_2$	$\{q_2\}$	$\{q_2\}$	$\{q_f\}$	$\{q_2\}$	$\{q_2\}$	$\{q_2\}$	$\{q_2\}$	$\{q_2\}$	$\{q_2\}$	$\{q_2\}$
$q_3$	$\{q_3\}$	$\{q_3\}$	$\{q_3\}$	$\{q_f\}$	$\{q_3\}$	$\{q_3\}$	$\{q_3\}$	$\{q_3\}$	$\{q_3\}$	$\{q_3\}$
$q_4$	$\{q_4\}$	$\{q_4\}$	$\{q_4\}$	$\{q_4\}$	$\{q_f\}$	$\{q_4\}$	$\{q_4\}$	$\{q_4\}$	$\{q_4\}$	$\{q_4\}$
$q_5$	$\{q_5\}$	$\{q_5\}$	$\{q_5\}$	$\{q_5\}$	$\{q_5\}$	$\{q_f\}$	$\{q_5\}$	$\{q_5\}$	$\{q_5\}$	$\{q_5\}$
de	$\{b\}$	$\{q_6\}$	$\{q_6\}$	$\{q_6\}$	$\{q_6\}$	$\{q_6\}$	$\{q_f\}$	$\{q_6\}$	$\{q_6\}$	$\{q_6\}$
7.5	{42}	$\{4b\}$	$\{47\}$	$\{47\}$	$\{4b\}$	$\{q_7\}$	$\{4b\}$	$\{q_f\}$	$\{42\}$	{42}
$q_8$	{48}	$\{q_8\}$	$\{q_8\}$	$\{q_8\}$	$\{q_8\}$	$\{q_8\}$	$\{q_8\}$	$\{q_8\}$	$\{q_f\}$	{48}
6 <i>b</i>	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{6b\}$	$\{q_f\}$
$^*q_f$	Ø	Ø	0)	0	0	Ø	0	Ø	Ø	Ø