

CS-3252

Section 01

-

Assignment #11

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Exercises

- Exercise 8.2.1b

Input: 000111

$q_0000111$

Xq_100111

$X0q_10111$

$X00q_1111$

$X0q_20Y11$

Xq_200Y11

$q_2X00Y11$

Xq_000Y11

XXq_10Y11

$XX0q_1Y11$

$XX0Yq_111$

$XX0q_2YY1$

XXq_20YY1

Xq_2X0YY1

XXq_00YY1

$XXXq_1YY1$

$XXXq_1Y1$

$XXXYYq_11$

$XXXq_2YY$

$XXXq_2YYY$

XXq_2XYYY

$XXXq_0YYY$

$XXXq_3YY$

$XXXq_3Y$

$XXXq_3B$

$XXXq_4B$

The machine halts in q_4 .

- Exercise 8.2.1c

Input: 00111

$q000111$

$Xq10111$

$X0q1111$

$Xq20Y11$

$q2X0Y11$

$Xq00Y11$

$XXq1Y11$

$XXYq111$

$XXq2YY1$

$Xq2XYY1$

$q2XXYY1$

$Xq0XYY1$

$XXq0YY1$

$XXYq3Y1$

$XXYYq31$

The machine halts in q_3 .

- Exercise 8.2.2c

$$\{ww^R \mid w \in (0+1)^*\}$$

State	0	1	B
q_{init}	(q_0, B, R)	(q_1, B, R)	(q_f, B, R)
q_0	$(q_0, 0, R)$	$(q_0, 1, R)$	(q_0R, B, L)
q_1	$(q_1, 0, R)$	$(q_1, 1, R)$	(q_1R, B, L)
q_0R	(q_{back}, B, L)	-	-
q_1R	-	(q_{back}, B, L)	-
q_{back}	$(q_{back}, 0, L)$	$(q_{back}, 1, L)$	(q_{init}, B, R)

- Exercise 8.2.3a

State	\$	0	1	B	Purpose
q_0	$(q_R, \$, R)$	-	-	-	Tape head scanning \$
q_R	-	$(q_R, 0, R)$	$(q_R, 1, R)$	(q_1, B, L)	Scanning until end
q_1	$(q_B, 1, L)$	$(q_L, 1, L)$	$(q_1, 0, L)$	-	When carry is 1
q_L	$(q_f, \$, R)$	$(q_L, 0, L)$	$(q_L, 1, L)$	-	When carry is 0
q_B	-	-	(q_f, B, R)	-	Format

- Exercise 8.2.3b

Input: \$111

$q_0\$111$

$\$q_R111$

$\$1q_R11$

$\$11q_R1$

$\$111q_R$

$\$11q_11$

$\$1q_110$

$\$q_1100$

$q_1 \$000$

$q_B B1000$

$q_f 1000$