

CS375 WK7

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```
graph TD
    START([START]) --> RD1{READ}
    RD1 -- c --> RD2{READ}
    RD1 -- d --> RD3{READ}
    RD2 -- Δ --> ACCEPT([ACCEPT])
    RD2 -- c --> RD1
    RD2 -- d --> RD4{READ}
    RD3 -- c --> RD1
    RD3 -- d --> RD4
    RD4 -- Δ --> REJECT1([REJECT])
    RD4 -- c --> RD3
    RD4 -- d --> RD5{READ}
    RD5 -- Δ --> REJECT2([REJECT])
    RD5 -- c --> RD2
    RD5 -- d --> RD6{READ}
    RD6 -- Δ --> REJECT3([REJECT])
    RD6 -- c --> RD5
```

Figure 3: Q02: FA

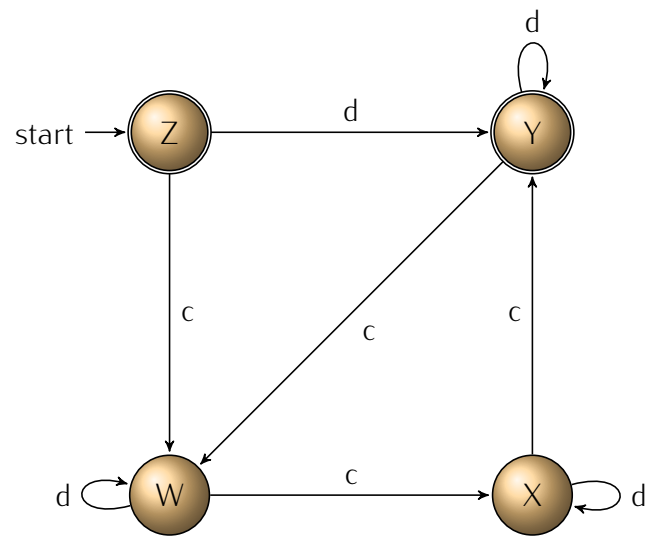


Figure 4: Q02: PDA

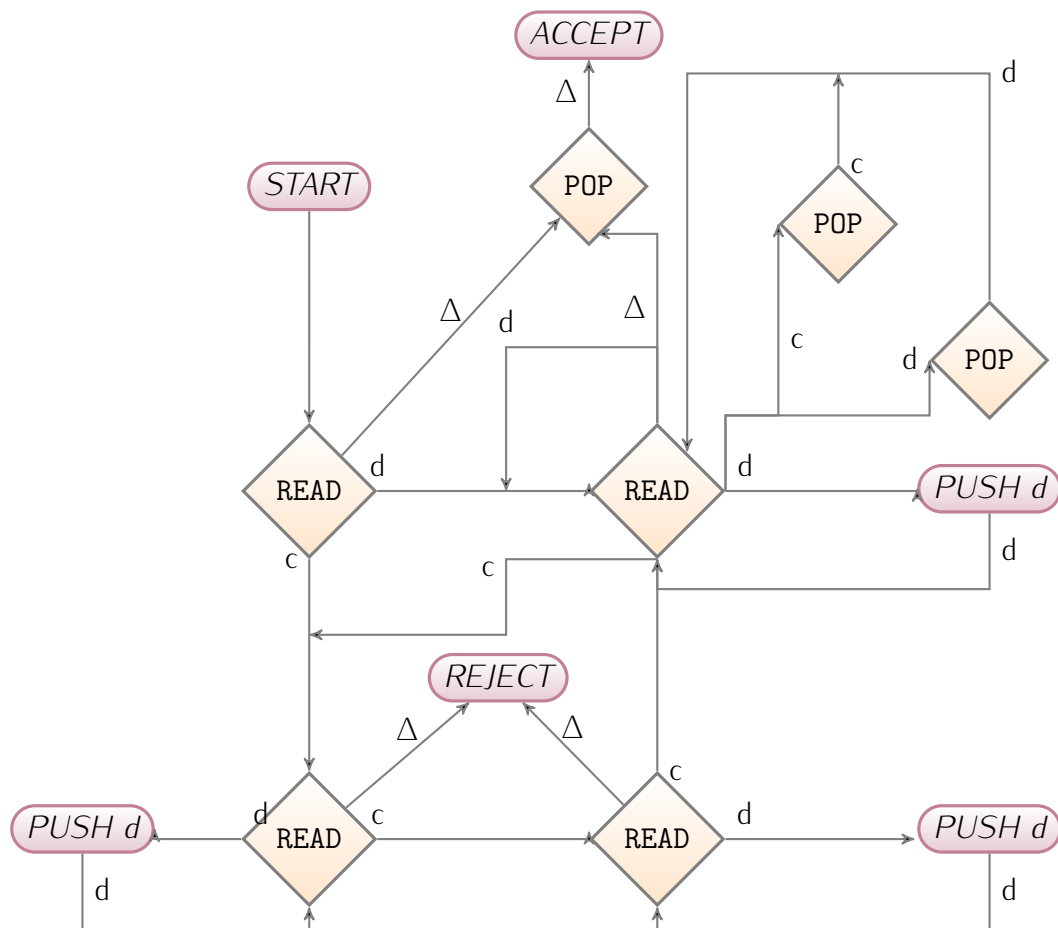


Figure 5: Q03a: Conversion Form

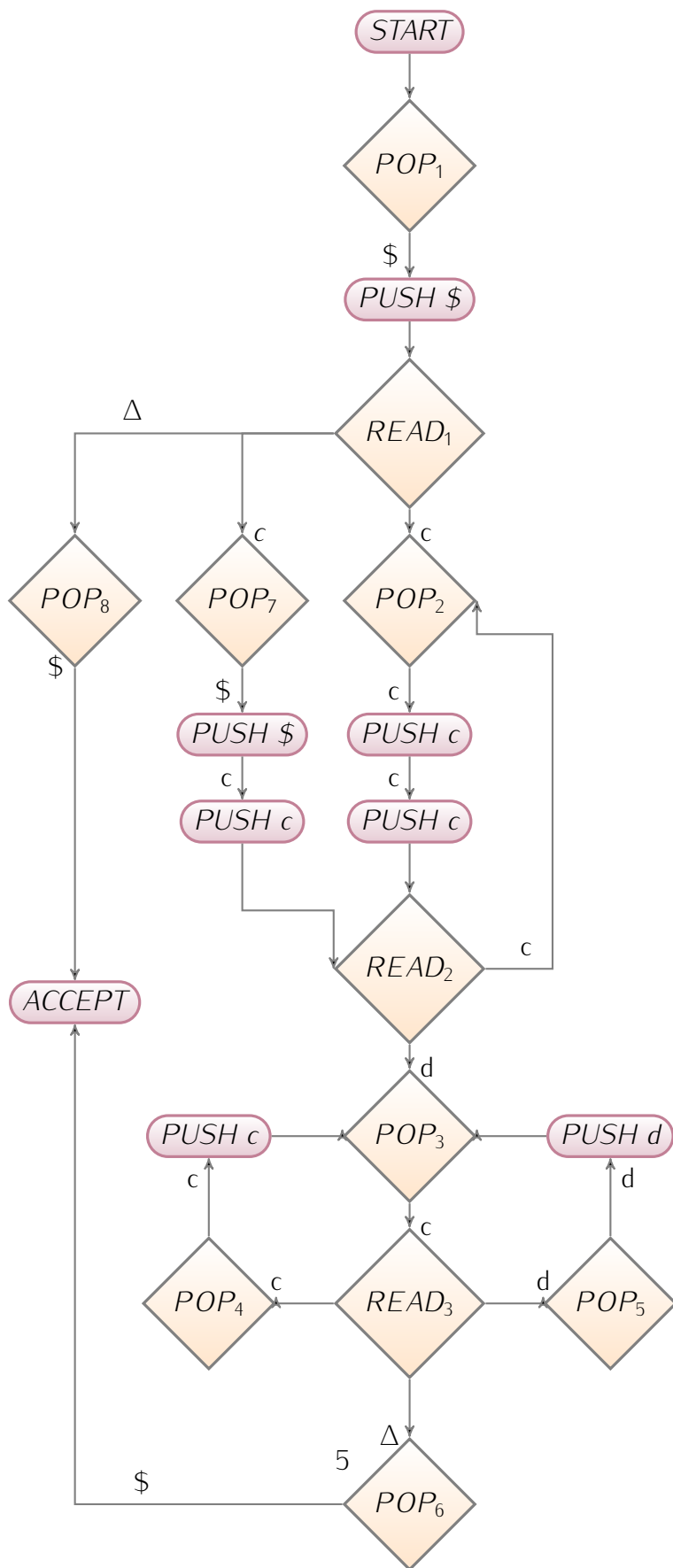


Figure 6: Q03.a Summary Table

FROM Where	To Where	READ What	POP What	PUSH What	ROW Number
START	$READ_1$	Λ	\$	\$	1
$READ_1$	ACCEPT	Λ	\$	-	2
$READ_1$	$READ_2$	c	\$	c\$	3
$READ_1$	$READ_2$	c	c	cc	4
$READ_2$	$READ_2$	c	c	cc	5
$READ_2$	$READ_3$	d	c	-	6
$READ_3$	$READ_3$	c	cc	c	7
$READ_3$	$READ_3$	d	dc	d	7
$READ_3$	ACCEPT	Λ	\$	-	8

Figure 7: Q03.a Productions

Rule 1: $S \rightarrow Net(START, ACCEPT, \$)$

Rule 2:

$Net(READ_1, ACCEPT, \$) \rightarrow Row_2$

$Net(READ_2, READ_3, \$) \rightarrow Row_6$

$Net(READ_3, ACCEPT, \$) \rightarrow Row_8$

Rule 3:

$Row_1 \rightarrow \Lambda$

$Row_2 \rightarrow \Lambda$

$Row_3 \rightarrow c$

$Row_4 \rightarrow c$

$Row_5 \rightarrow c$

$Row_6 \rightarrow d$

$Row_7 \rightarrow c$

$Row_8 \rightarrow c$

Figure 8: Q03.b

STATE	STACK	TAPE
Start	Δ	c c c d d d d
$Read_1$	Δ	c c c d d d d
Push	$c\Delta$	c c c d d d d
$Read_2$	$c\Delta$	c c c d d d d
Push	$cc\Delta$	c c c d d d d
$Read_2$	$cc\Delta$	c c c d d d d
Push	$ccc\Delta$	c c c c d d d d
$Read_2$	$ccc\Delta$	c c c c d d d d
Pop	$cc\Delta$	c c c d d d d
$Read_3$	$cc\Delta$	c c c d d d d
Pop	$c\Delta$	c c c d d d d
$Read_3$	$c\Delta$	c c c d d d d
Pop	Δ	c c c d d d d
$Read_3$	Δ	c c c d d d d
Pop	Δ	c c c d d d d
Accept	Δ	c c c d d d d

Figure 9: Q03.c

STATE	STACK	TAPE
Start	Δ	c c c d c d
$Read_1$	Δ	c c c d c d
Push	$c\Delta$	c c c d c d
$Read_2$	$c\Delta$	c c c d c d
Push	$cc\Delta$	c c c d c d
$Read_2$	$cc\Delta$	c c c d c d
Push	$ccc\Delta$	c c c c d c d
$Read_2$	$ccc\Delta$	c c c c d c d
Pop	$cc\Delta$	c c c d c d
$Read_3$	$cc\Delta$	c c c d c d
Pop	$c\Delta$	c c c d c d
$Read_3$	$c\Delta$	c c c d c d
Pop	Δ	c c c d c d
$Read_3$	Δ	c c c d c d
Pop	Δ	c c c d c d
Accept	Δ	c c c d c d

Figure 10: Q03.d

STATE	STACK	TAPE
Start	Δ	c c c a c c
$Read_1$	Δ	c c c a c c
Push	$c\Delta$	c c c a c c
$Read_2$	$c\Delta$	c c c a c c
Push	$cc\Delta$	c c c a c c
$Read_2$	$cc\Delta$	c c c a c c
Push	$ccc\Delta$	c c c a c c
$Read_2$	$ccc\Delta$	c c c a c c
Pop	$cc\Delta$	c c c a c c
$Read_3$	$cc\Delta$	c c c a c c
Pop	$c\Delta$	c c c a c c
$Read_3$	$c\Delta$	c c c a c c
Pop	Δ	c c c a c c
$Read_3$	Δ	c c c a c c
Pop	Δ	c c c a c c
Accept	Δ	c c c a c c

Figure 11: Q03.e

STATE	STACK	TAPE
Start	Δ	c c c c a a
$Read_1$	Δ	c c c c a a
Push	$c\Delta$	c c c c a a
$Read_2$	$c\Delta$	c c c c a a
Push	$cc\Delta$	c c c c a a
$Read_2$	$cc\Delta$	c c c c a a
Push	$ccc\Delta$	c c c c a a
$Read_2$	$ccc\Delta$	c c c c a a
Push	$cccc\Delta$	c c c c c a a
$Read_2$	$cccc\Delta$	c c c c c a a
Pop	$ccc\Delta$	c c c c a a
$Read_2$	$ccc\Delta$	c c c c a a
Pop	$cc\Delta$	c c c c a a
$Read_3$	$cc\Delta$	c c c c a a
Pop	$c\Delta$	c c c c a a
Reject	$c\Delta$	c c c c a a

Figure 12: Q05-07: Conversion Form

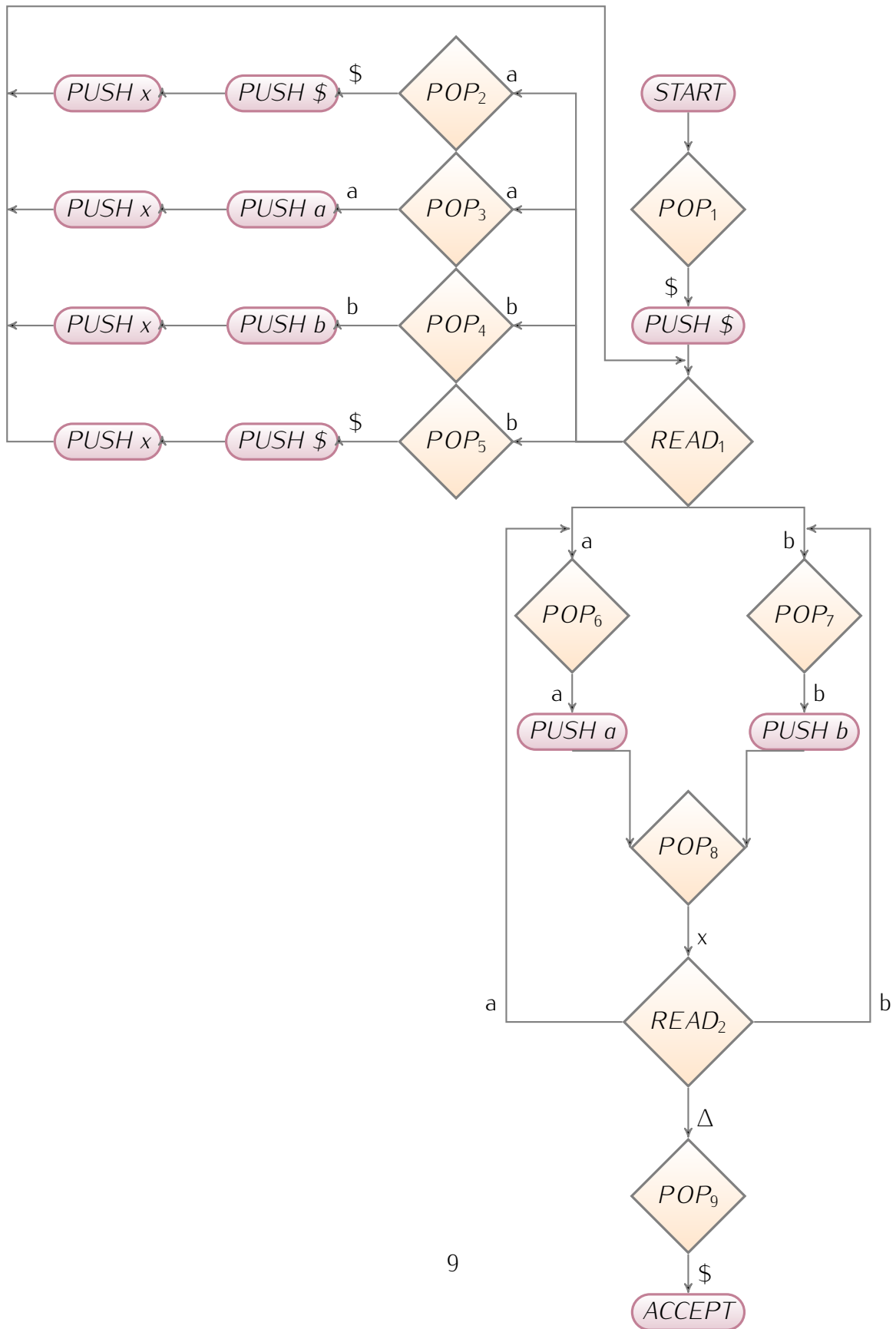


Figure 13: Q05-07: Summary Table

FROM Where	To Where	READ What	POP What	PUSH What	ROW Number
START	$READ_1$	Λ	\$	\$	1
$READ_1$	$READ_1$	a	\$	x\$	2
$READ_1$	$READ_1$	a	a	xa	3
$READ_1$	$READ_1$	b	b	xb	4
$READ_1$	$READ_1$	b	\$	x\$	5
$READ_1$	$READ_2$	a	ax	a	6
$READ_1$	$READ_2$	b	bx	b	7
$READ_2$	$READ_2$	a	ax	a	8
$READ_2$	$READ_2$	b	bx	b	9
$READ_2$	ACCEPT	Δ	\$	-	10

Figure 14: Q08-11: Conversion Form

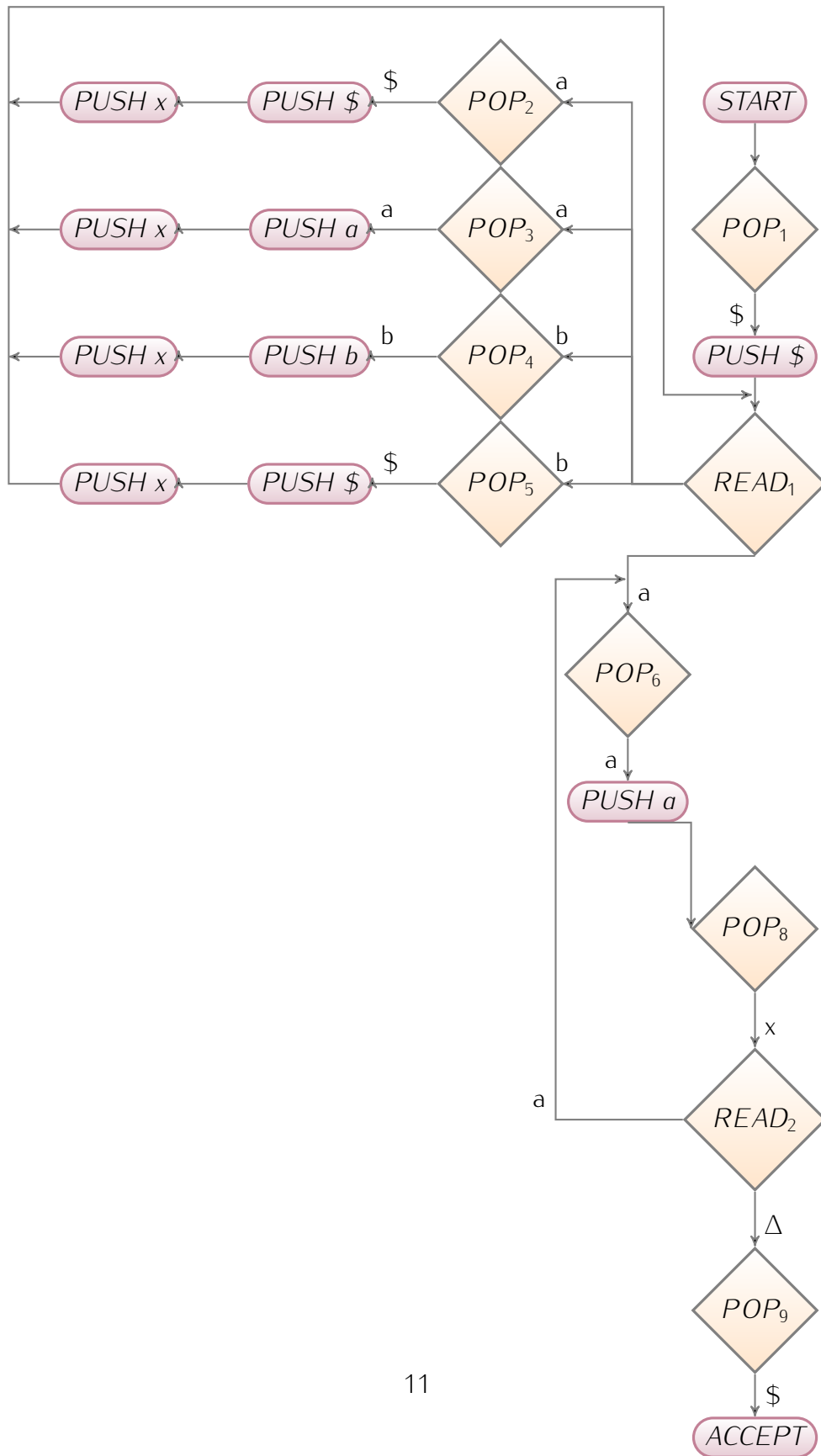


Figure 15: Q08-11: Summary Table

FROM Where	To Where	READ What	POP What	PUSH What	ROW Number
START	$READ_1$	\wedge	\$	\$	1
$READ_1$	$READ_1$	a	\$	x\$	2
$READ_1$	$READ_1$	a	a	xa	3
$READ_1$	$READ_1$	b	b	xb	4
$READ_1$	$READ_1$	b	\$	x\$	5
$READ_1$	$READ_2$	a	ax	a	6
$READ_2$	$READ_2$	a	ax	a	8
$READ_2$	ACCEPT	Δ	\$	-	10