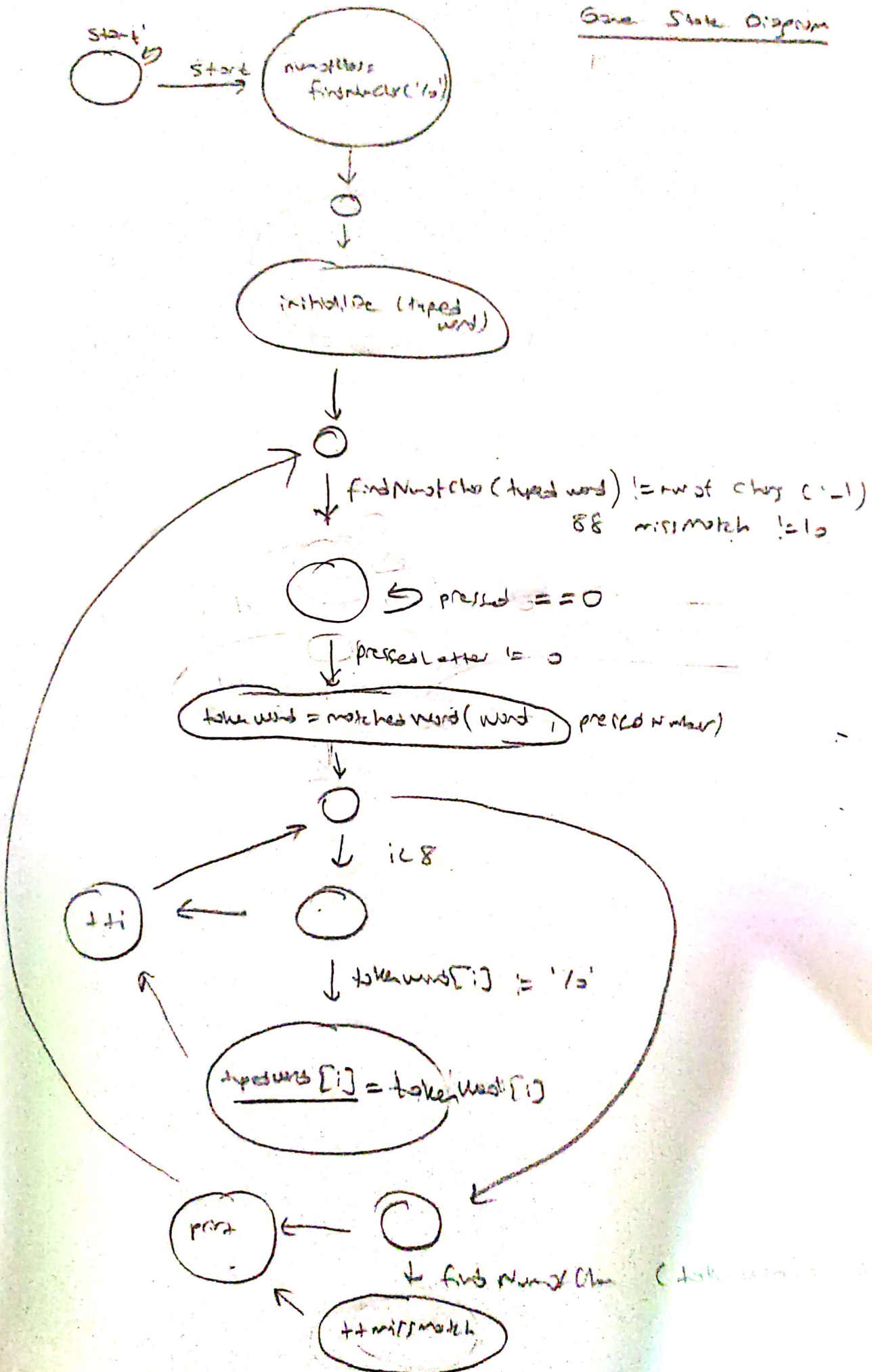
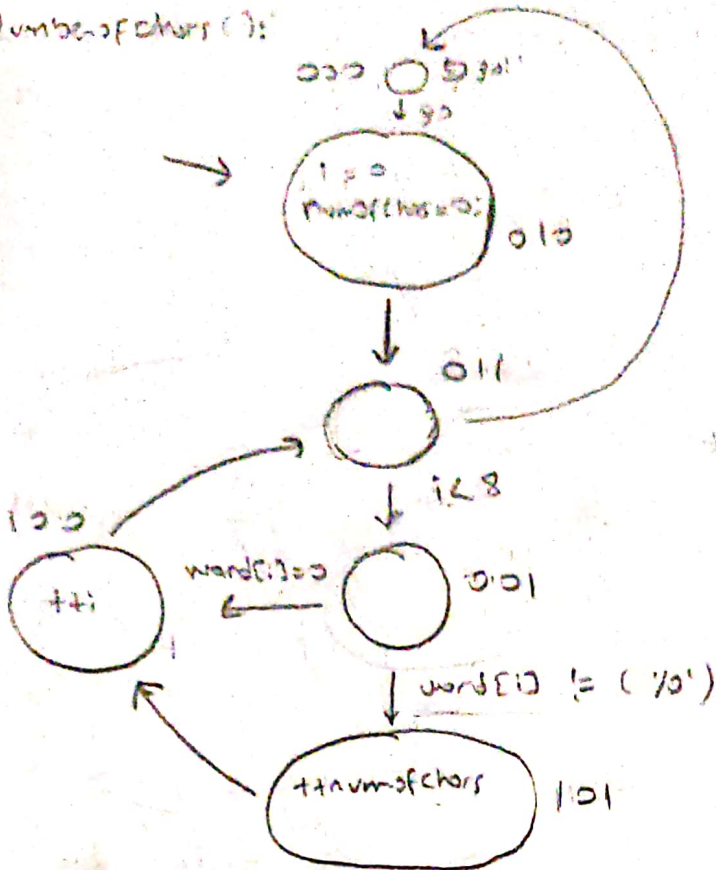


Game State Diagram



find Number of chars (7):



incl = S2, S1, S0	1	0	0	0	0	S2
inclNum = S2, S1, S0	0	0	0	1	0	S1
inclNum = S2, S1, S0	0	1	1	1	0	S0
inclNum = S2, S1, S0	1	0	0	0	0	incl
inclNum = S2, S1, S0	0	1	0	0	0	inclNum
inclNum = S2, S1, S0	0	0	0	0	1	inclNum
inclNum = S2, S1, S0	0	0	0	0	0	inclNum

S2	S1	S0	ld	ld	ld	N2	N1	N0
0	0	0	x	x	0	0	0	0
0	0	0	x	x	1	0	1	1
0	1	0	x	x	x	0	1	0
0	1	1	0	x	x	0	0	1
0	1	1	1	x	x	0	0	1
0	0	1	x	0	x	1	0	0
0	0	1	x	1	x	1	0	1
1	0	0	x	x	x	0	1	0
1	0	1	x	x	x	1	0	0

$$N2 = S2'S1'S0'ld + S2'S1'S0'ld + S2'S1'S0'$$

$$= S2'S1'S0' + S2'S1'S0' = S1'S0'$$

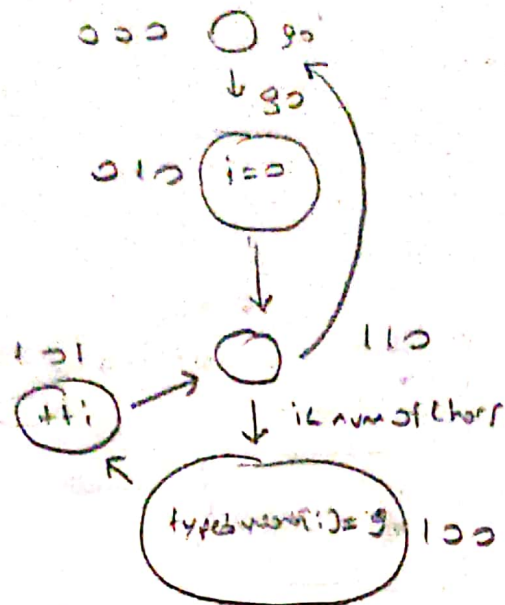
$$N1 = S2'S1'S0'ld + S2'S1'S0' + S2'S1'S0'$$

$$= S2'S0'(S1'ld + S1') + S2'S1'S0' = S0'(S2'S1' + S2'(S1'ld + S1'))$$

$$N0 = S2'S1'S0' + S2'S1'S0'ld + S2'S1'S0'ld + S2'S1'S0'$$

$$= S0'(S2'S1' + S2'S1') + S2'S0'(S1'ld + S1'ld)$$

$$= S0'(S2 \oplus S1) + S2'S0'(S1'ld + S1'ld)$$



Initialize

S2	S1	S0	lt	g0	N2	N1	N0
0	0	0	x	0	0	0	0
0	0	0	x	1	0	1	0
0	1	0	x	x	1	1	0
1	1	0	0	x	0	0	0
1	1	0	1	x	1	0	0
1	0	0	x	x	1	0	1
1	0	1	x	x	1	1	0

$$N2 = S2'S1'S0 + S2'S1'S0'lt + S2'S1'S0'g0 + S2'S1'S0'lt'g0$$

$$= S2'S1'S0 + S2(S1'S0'lt + S1'g0)$$

$$N1 = S2'S1'S0'g0 + S2'S1'S0 + S2'S1'S0'$$

$$= S2'S0'(S1'g0 + S1) + S2'S1'S0$$

$$N0 = S2'S1'S0'$$

S2	S1	S0	incl	resL
0	0	0	0	0
0	1	0	1	1
1	1	0	0	0
1	0	0	0	0
1	0	1	1	0

$$incl = S2'S1'S0 + S2'S1'S0'$$

$$resL = S2'S1'S0'$$

S2	S1	S0	1E9	1E4	S0	N2	N1	N0
0	0	0	x	x	x	0	0	0
0	0	0	x	x	x	0	0	0
1	0	0	x	x	x	0	0	0
1	0	0	x	0	x	0	0	0
1	0	1	x	1	x	0	0	1
0	0	1	0	x	x	0	1	0
0	0	1	1	x	x	0	1	0
0	1	1	x	x	x	0	1	0
0	1	0	x	x	x	1	0	1

$$N2 = S2'S1'S0' + S2'S1'S0 + S2'S1'S1$$

$$= S2'S1'S0' + S0'(S2 \oplus S1)$$

$$= S0'(S2'S1' + (S2 \oplus S1))$$

$$N1 = S2'S1'S0'1E9 + S2'S1'S0'1E4 + S2'S1'S0$$

$$= S2'S1'S0 + S2'S1'S0$$

$$= S2'S0$$

$$N0 = S0'S1'S0 + S2'S1'S0'1E4 + S2'S1'S0'1E9 + S2'S1'S1$$

$$= S2'S1'(S0 + S0'1E4) + S2'(S1'S0'1E9 + S1'S1)$$

S2	S1	S0	incl	excl
0	0	0	1	0
0	0	1	0	0
0	1	1	0	0
0	1	0	0	0
1	0	0	0	0
1	0	1	0	0
1	1	1	0	0
1	1	0	0	0

$$incl = S2'S1'S0 + S2'S1'S1$$

$$= S0'(S2 \oplus S1)$$

$$excl = S2'S1'S0$$

$$= S2'S1'S0$$

$$clrn = S2'S1'S0 + S2'S1'S0$$

$$= S1'S0$$

$$dln = S2'S1'S0 + S2'S1'S1$$

$$= S2'S1$$

match table

match state
Diagram

