Stefan Marth CSE320
LAB 2

Note: 1 – OFF and 0 – ON (Outputs are active low)

Hexadecimal Digit	Inputs				Outputs (segments)						
	D_3	D_2	D_1	D_0	S_g	S_f	S_e	S_d	S_c	S_b	S_a
0	0	0	0	0	1	0	0	0	0	0	0
1	0	0	0	1	1	1	1	1	0	0	1
2	0	0	1	0	0	1	0	0	1	0	0
3	0	0	1	1	0	1	1	0	0	0	0
4	0	1	0	0	0	0	1	1	0	0	1
5	0	1	0	1	0	0	1	0	0	1	0
6	0	1	1	0	0	0	0	0	0	1	0
7	0	1	1	1	1	1	1	1	0	0	0
8	1	0	0	0	0	0	0	0	0	0	0
9	1	0	0	1	0	0	1	1	0	0	0
A	1	0	1	0	X	X	X	X	X	X	X
B	1	0	1	1	X	X	X	X	X	X	X
C	1	1	0	0	X	X	X	X	X	X	X
D	1	1	0	1	X	X	X	X	X	X	X
E	1	1	1	0	X	X	X	X	X	X	X
F	1	1	1	1	X	X	X	X	X	X	X

Table 1. Truth table of the seven-segment display decoder

$segment\_a = \overline{D_3}\,\overline{D_2}\,\overline{D_1}D_0 + D_2\overline{D_1}\,\overline{D_0}$

$segment\_b = D_2\overline{D_1}D_0 + D_2D_1\overline{D_0}$

$segment\_c = \overline{D_2}D_1\overline{D_0}$

$segment\_d = D_2\overline{D_1}\,\overline{D_0} + \overline{D_2}\,\overline{D_1}D_0 + D_2D_1D_0$

$segment\_e = D_2\overline{D_1} + D_0$

$segment\_f = D_1D_0 + \overline{D_3}\,\overline{D_2}D_0 + \overline{D_3}\,\overline{D_2}D_1$

$segment\_g = \overline{D_3}\,\overline{D_2}\,\overline{D_1} + D_2D_1D_0$