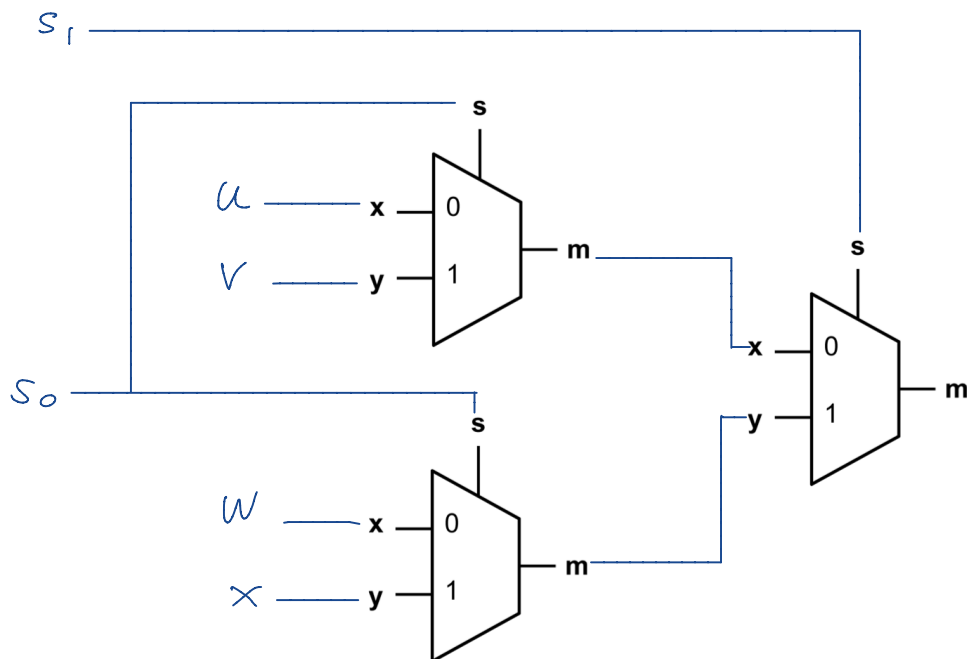CSC258
Lab 2
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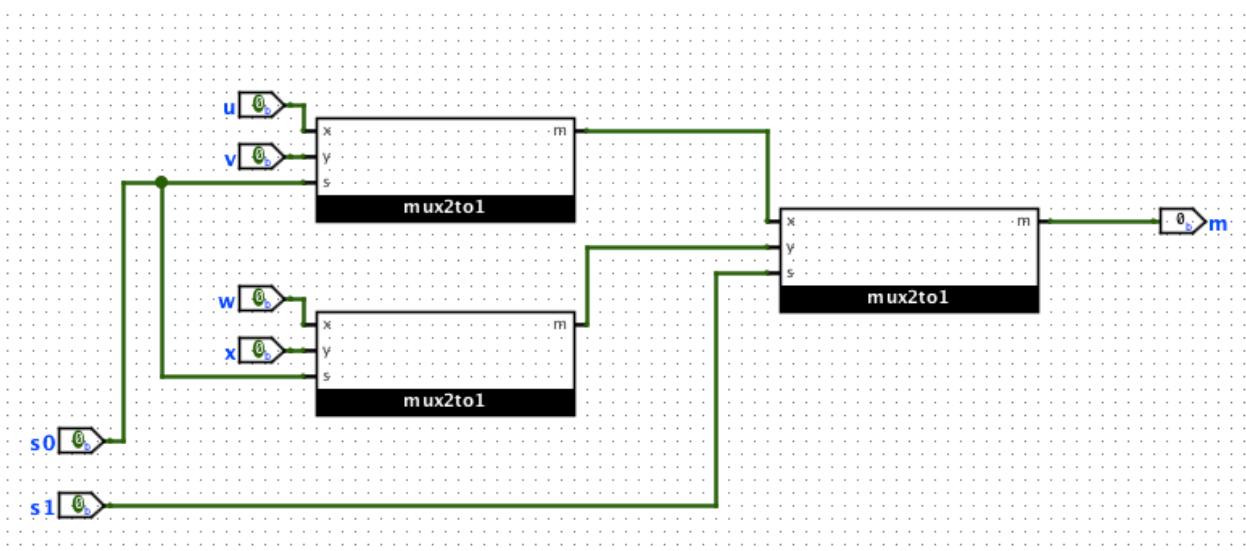
Part II
1. It would have 2^6 rows since there are 6 input variables.
2.

$s_1 s_0$	m
00	u
01	v
10	w
11	x

3.

4.

Unmapped Components:	Mapped Components:	Command:
	PIN: /m#LED0	Release component
	PIN: /s0#Button0	Release all components
	PIN: /s1#Button0	Load Map
	PIN: /u#Button0	Save Map
	PIN: /v#Button0	Cancel
	PIN: /w#Button0	Done
	PIN: /x#Button0	
		1.0x 1.5x 2.0x

No messages
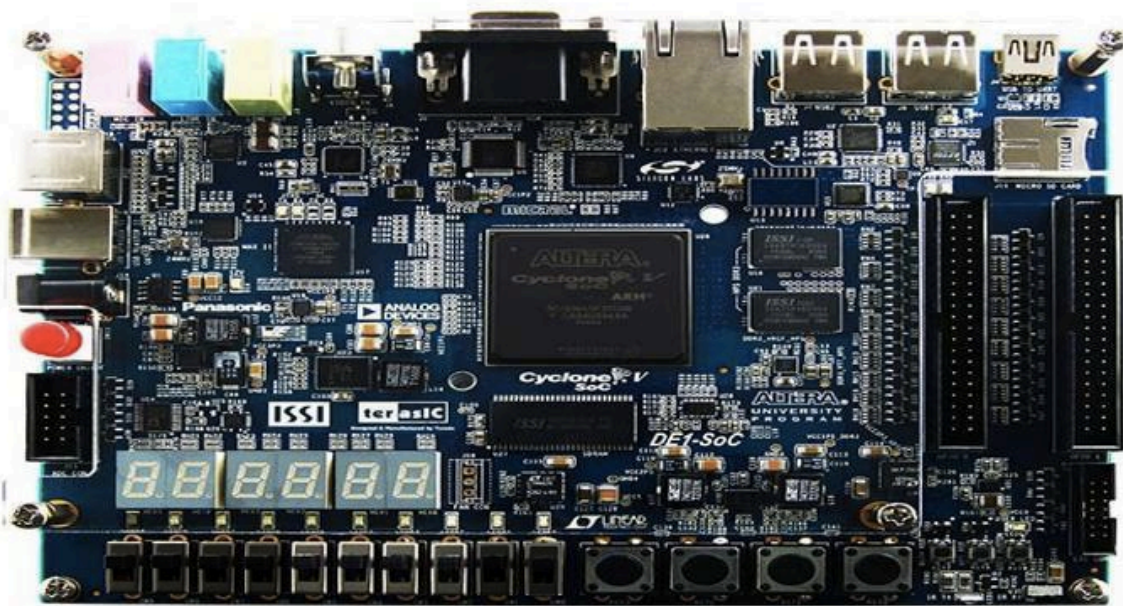
Part III

1.

Segment 0

	$\overline{c_3}\,\overline{c_2}$	$\overline{c_3}\,c_2$	$c_3\,c_2$	$c_3\,\overline{c_2}$
$\overline{c_1}\,\overline{c_0}$	1	0	1	1
$\overline{c_1}\,c_0$	0			1
$c_1\,c_0$	1	1	1	0
$c_1\,\overline{c_0}$	1	1	1	1

$$\overline{c_3}\,c_1$$
$$c_2\,c_1$$
$$\left.\begin{array}{c} c_1\,\overline{c_0}\,c_3 \\ c_1\,\overline{c_0}\,c_3 \end{array}\right\} \overline{c_0}\,c_3$$
$$c_3\,\overline{c_2}\,\overline{c_1}$$
$$\overline{c_3}\,\overline{c_2}\,\overline{c_0}$$
$$\overline{c_3}\,c_2\,c_0$$

$$\text{Segment } 0 = \overline{c_3}\,c_1 + c_2\,c_1 + \overline{c_0}\,c_3 +$$
$$c_3\,\overline{c_2}\,\overline{c_1} + \overline{c_3}\,\overline{c_2}\,\overline{c_0} + \overline{c_3}\,c_2\,c_0$$

Segment 1

	$\overline{c_3}\,\overline{c_2}$	$\overline{c_3}\,c_2$	$c_3\,c_2$	$c_3\,\overline{c_2}$
$\overline{c_1}\,\overline{c_0}$	1	1	0	1
$\overline{c_1}\,c_0$	1	0	1	1
$c_1\,c_0$	1	1	0	0
$c_1\,\overline{c_0}$	1	0	0	1

$$\overline{c_3}\,\overline{c_2}$$
$$\left.\begin{array}{c} c_3\,\overline{c_2}\,\overline{c_1} \\ \overline{c_3}\,\overline{c_2}\,\overline{c_1} \end{array}\right\} \overline{c_2}\,\overline{c_1}$$
$$c_1\,\overline{c_0}\,\overline{c_2}$$
$$c_1\,c_0\,\overline{c_3}$$
$$\overline{c_1}\,c_0\,c_3$$
$$\overline{c_1}\,\overline{c_0}\,\overline{c_3}$$

$$\text{Segment } 1 = \overline{c_3}\,\overline{c_2} + \overline{c_2}\,\overline{c_1} + \overline{c_1}\,\overline{c_0}\,\overline{c_3} + c_1\,c_0\,c_3$$
$$+ c_1\,c_0\,\overline{c_3} + c_1\,\overline{c_0}\,\overline{c_2}$$

Segment 2

	$\overline{c_3}\,\overline{c_2}$		$\overline{c_3}\,c_2$		$c_3\,c_2$		$c_3\,\overline{c_2}$	
$\overline{c_1}\,\overline{c_0}$	1	0	1	f	0	C	1	8
$\overline{c_1}\,c_0$	1	1	1	5	1	d	1	9
$c_1\,c_0$	1	3	1	7	0	F	1	b
$c_1\,\overline{c_0}$	0	2	1	6	0	E	1	A

$\overline{c_3}\,c_2$

$c_3\,\overline{c_2}$

$\overline{c_3}\,\overline{c_2}\,c_0$

$\overline{c_2}\,\overline{c_1}$

$\overline{c_1}\,c_0\,c_2$

Segment 2 $= \overline{c_3}\,c_2 + c_3\,\overline{c_2} + \overline{c_3}\,\overline{c_2}\,c_0 + \overline{c_2}\,\overline{c_1} + \overline{c_1}\,c_2\,c_0$

Segment 3

	$\overline{c_3}\,\overline{c_2}$	$\overline{c_3}\,c_2$	$c_3\,c_2$	$c_3\,\overline{c_2}$
$\overline{c_1}\,\overline{c_0}$	1	0	1	1
$\overline{c_1}\,c_0$	0	1	1	0
$c_1\,c_0$	1	0	0	1
$c_1\,\overline{c_0}$	1	1	1	0

$\overline{c_1}\,c_0\,c_2$

$\overline{c_1}\,\overline{c_0}\,c_3$

$\overline{c_1}\,\overline{c_0}\,\overline{c_2}$

$c_1\,\overline{c_0}\,\overline{c_3}$

$c_1\,\overline{c_0}\,c_2$

$c_1\,c_0\,\overline{c_2}$

Segment 3 $= \overline{c_1}\,c_0\,c_2 + \overline{c_1}\,\overline{c_0}\,c_3 + \overline{c_1}\,\overline{c_0}\,\overline{c_2} +$

$c_1\,\overline{c_0}\,\overline{c_3} + c_1\,\overline{c_0}\,c_2 + c_1\,c_0\,\overline{c_2}$

Segment 4

	$\overline{c_3}\,\overline{c_2}$	$\overline{c_3}\,c_2$	$c_3\,c_2$	$c_3\,\overline{c_2}$
$\overline{c_1}\,\overline{c_0}$	1	0	1	1
$\overline{c_1}\,c_0$	0	0	1	0
$c_1\,c_0$	0	0	1	1
$c_1\,\overline{c_0}$	1	1	1	1

$c_3\,c_1$

$\left.\begin{array}{c} c_3\,c_2\,\overline{c_1} \\ \overline{c_1}\,\overline{c_0}\,c_3 \end{array}\right\}$ — $\overline{c_1}\,c_3\,(c_2+\overline{c_0})$

$\left.\begin{array}{c} c_1\,\overline{c_0}\,\overline{c_3} \\ \overline{c_3}\,\overline{c_2}\,c_0 \end{array}\right\}$ — $\overline{c_0}\,\overline{c_3}\,(c_1+\overline{c_2})$

Segment $4 = c_3\,c_1 + \overline{c_1}\,c_3\,(c_2+\overline{c_0}) +$

$\overline{c_0}\,\overline{c_3}\,(c_1+\overline{c_2})$

$= c_3\,(c_1 + \overline{c_1}\,c_2 + \overline{c_1}\,\overline{c_0}) + \overline{c_0}\,\overline{c_3}\,(c_1+\overline{c_2})$

$= c_3\,c_1 + c_3\,c_2\,\overline{c_1} + \overline{c_1}\,\overline{c_0}\,c_3 + c_1\,\overline{c_0}\,\overline{c_3} + \overline{c_3}\,\overline{c_2}\,\overline{c_0}$

Segment 5

	$\overline{c_3}\,\overline{c_2}$		$\overline{c_3}\,c_2$		$c_3\,c_2$		$c_3\,\overline{c_2}$	
$\overline{c_1}\,\overline{c_0}$	1	0	1	4	1	C	1	8
$\overline{c_1}\,c_0$	0	1	1	5	0	d	1	9
$c_1\,c_0$	0	3	0	7	1	F	1	b
$c_1\,\overline{c_0}$	0	2	1	6	1	E	1	A

$c_3\,c_1$

$\overline{c_1}\,\overline{c_0}$

$c_1\,\overline{c_0}\,c_2$

$\overline{c_3}\,c_2\,\overline{c_1}$

$c_3\,\overline{c_2}$

Segment $5 = c_3\,c_1 + c_3\,\overline{c_2} + \overline{c_1}\,\overline{c_0} + \overline{c_3}\,c_2\,\overline{c_1} + c_1\,\overline{c_0}\,c_2$

Segment 6

	$\overline{c_3}\,\overline{c_2}$		$\overline{c_3}\,c_2$		$c_3\,c_2$		$c_3\,\overline{c_2}$	
$\overline{c_1}\,\overline{c_0}$	0	0	1	f	0	c	1	8
$\overline{c_1}\,c_0$	0	1	1	5	1	d	1	9
$c_1\,c_0$	1	3	0	7	1	F	1	b
$c_1\,\overline{c_0}$	1	2	1	6	1	E	1	A

$c_1\,\overline{c_0}$

$c_3\,c_0$

$\overline{c_3}\,c_2\,\overline{c_1}$

$\overline{c_3}\,\overline{c_2}\,c_1$

$c_3\,\overline{c_2}$

Segment $6 = c_1\,\overline{c_0} + c_3\,c_0 + \overline{c_3}\,c_2\,\overline{c_1} + \overline{c_3}\,\overline{c_2}\,c_1 + c_3\,\overline{c_2}$

3.
Segment 0

status	c3	c2	c1	c0	m
pass	0	0	0	0	1
pass	0	0	0	1	0
pass	0	0	1	0	1
pass	0	0	1	1	1
pass	0	1	0	0	0
pass	0	1	0	1	1
pass	0	1	1	0	1
pass	0	1	1	1	1
pass	1	0	0	0	1
pass	1	0	0	1	1
pass	1	0	1	0	1
pass	1	0	1	1	0
pass	1	1	0	0	1
pass	1	1	0	1	0
pass	1	1	1	0	1
pass	1	1	1	1	1

Passed: 16 Failed: 0

Segment 1

status	c3	c2	c1	c0	m
	0	0	0	0	1
	0	0	0	1	1
	0	0	1	0	1
	0	0	1	1	1
	0	1	0	0	1
	0	1	0	1	0
	0	1	1	0	0
	0	1	1	1	1
	1	0	0	0	1
	1	0	0	1	1
	1	0	1	0	1
	1	0	1	1	0
	1	1	0	0	0
	1	1	0	1	1
	1	1	1	0	0
	1	1	1	1	0

Passed: 0 Failed: 0

Segment 2

status	c3	c2	c1	c0	m
pass	0	0	0	0	1
pass	0	0	0	1	1
pass	0	0	1	0	0
pass	0	0	1	1	1
pass	0	1	0	0	1
pass	0	1	0	1	1
pass	0	1	1	0	1
pass	0	1	1	1	1
pass	1	0	0	0	1
pass	1	0	0	1	1
pass	1	0	1	0	1
pass	1	0	1	1	1
pass	1	1	0	0	0
pass	1	1	0	1	1
status	c3	c2	c1	0	0
pass	1	1	1	1	0

Passed: 16 Failed: 0

Segment 3

Passed: 16 Failed: 0

status	c3	c2	c1	c0	m
pass	0	0	0	0	1
pass	0	0	0	1	0
pass	0	0	1	0	1
pass	0	0	1	1	1
pass	0	1	0	0	0
pass	0	1	0	1	1
pass	0	1	1	0	1
pass	0	1	1	1	0
pass	1	0	0	0	1
pass	1	0	0	1	0
pass	1	0	1	0	0
pass	1	0	1	1	1
pass	1	1	0	0	1
pass	1	1	0	1	1
pass	1	1	1	0	1
pass	1	1	1	1	0

Segment 4

Passed: 16 Failed: 0

status	c3	c2	c1	c0	m
pass	0	0	0	0	1
pass	0	0	0	1	0
pass	0	0	1	0	1
pass	0	0	1	1	0
pass	0	1	0	0	0
pass	0	1	0	1	0
pass	0	1	1	0	1
pass	0	1	1	1	0
pass	1	0	0	0	1
pass	1	0	0	1	0
pass	1	0	1	0	1
pass	1	0	1	1	1
pass	1	1	0	0	1
pass	1	1	0	1	1
pass	1	1	1	0	1
pass	1	1	1	1	1

Segment 5

Passed: 16 Failed: 0

status	c3	c2	c1	c0	m
pass	0	0	0	0	1
pass	0	0	0	1	0
pass	0	0	1	0	0
pass	0	0	1	1	0
pass	0	1	0	0	1
pass	0	1	0	1	1
pass	0	1	1	0	1
pass	0	1	1	1	0
pass	1	0	0	0	1
pass	1	0	0	1	1
pass	1	0	1	0	1
pass	1	0	1	1	1
pass	1	1	0	0	1
pass	1	1	0	1	0
pass	1	1	1	0	1
pass	1	1	1	1	1

Segment 6

status	c3	c2	c1	c0	m
Passed: 16 Failed: 0					
pass	0	0	0	0	0
pass	0	0	0	1	0
pass	0	0	1	0	1
pass	0	0	1	1	1
pass	0	1	0	0	1
pass	0	1	0	1	1
pass	0	1	1	0	1
pass	0	1	1	1	0
pass	1	0	0	0	1
pass	1	0	0	1	1
pass	1	0	1	0	1
pass	1	0	1	1	1
pass	1	1	0	0	0
pass	1	1	0	1	1
pass	1	1	1	0	1
pass	1	1	1	1	1