Bronco ID: | 0 | 1 | 4 | 5 | 5 | 6 | 3 | 7 | 3 |
Last Name: Leos
First Name: Hugo

Assignment 4

1.

a.

x1	x2	x0	w1	w2	w0	t	z(net)	y	t-y			
0	0	1	1	1	1	0	1	1	-1	0	0	-0.4
0	1	1	1	1	0.6	0	1.6	1	-1	0	-0.4	-0.4
1	0	1	1	0.6	0.2	0	1.2	1	-1	-0.4	0	-0.4
1	1	1	0.6	0.6	-0.2	1	1	1	0	0	0	0
0	0	1	0.6	0.6	-0.2	0	-0.2	0	0	0	0	0
0	1	1	0.6	0.6	-0.2	0	0.4	1	-1	0	-0.4	-0.4
1	0	1	0.6	0.2	-0.6	0	0	0	0	0	0	0
1	1	1	0.6	0.2	-0.6	1	0.2	1	0	0	0	0
0	0	1	0.6	0.2	-0.6	0	-0.6	0	0	0	0	0
0	1	1	0.6	0.2	-0.6	0	-0.4	0	0	0	0	0
1	0	1	0.6	0.2	-0.6	0	0	0	0	0	0	0
1	1	1	0.6	0.2	-0.6	1	0.2	1	0	0	0	0

b.

x1	x0	w1	w0	t	z(net)	y	t-y		
0	1	0	0	1	0	0	1	0	0.1
1	1	0	0.1	0	0.1	1	-1	-0.1	-0.1
0	1	-0.1	0	1	0	0	1	0	0.1
1	1	-0.1	0.1	0	0	0	0	0	0
0	1	-0.1	0.1	1	0.1	1	0	0	0
1	1	-0.1	0.1	0	0	0	0	0	0

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2. LINK

Bronco ID: | 0 | 1 | 4 | 5 | 5 | 6 | 3 | 7 | 3 |
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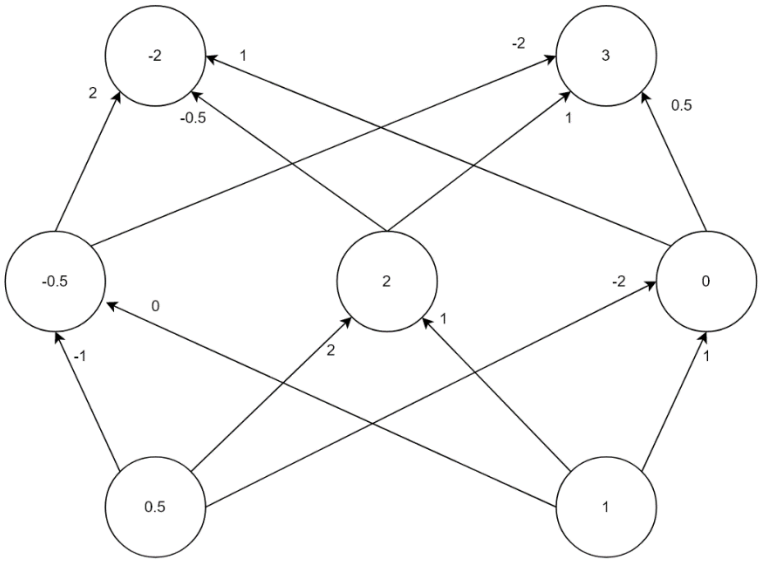
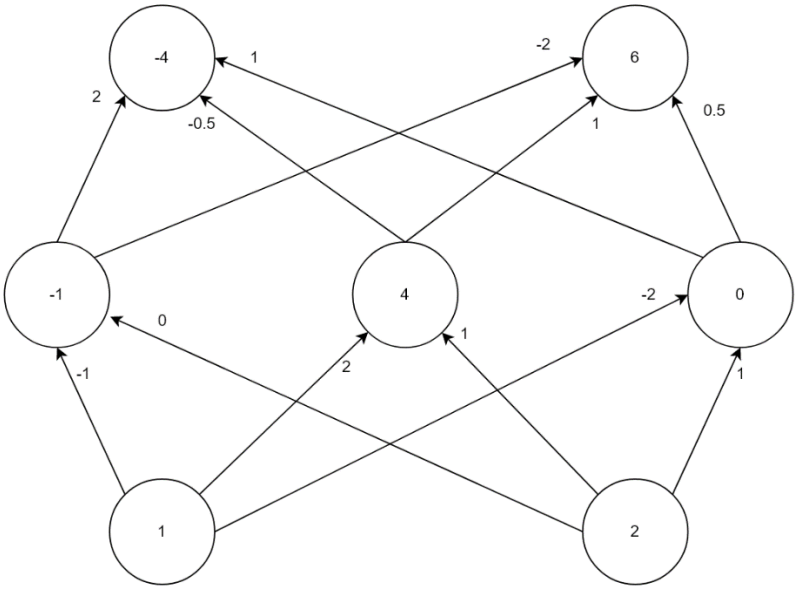
First Name: Hugo

3.

a.



b.



No, the input values were doubled, and the weights were unchanged so output just doubled.

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4. LINK

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5.

Fitness(C_1) = $\frac{1}{5}$

Fitness(C_2) = $\frac{3}{5}$

Fitness(C_3) = $\frac{4}{5}$

Fitness(C_4) = $\frac{2}{5}$

1st generation (C_1=1001001, C_2=0100101, C_3=1011000, C_4=1101100):

Pr(C_1) = $\frac{1}{10}$ (4th)

Pr(C_4) = $\frac{2}{10}$ (3rd)

Pr(C_2) = $\frac{3}{10}$ (2nd)

Pr(C_3) = $\frac{4}{10}$ (1st)

C_3 = 101|1000 → C_5 = 110|1000

C_4 = 110|1100 → C_6 = 101|1100

Fitness(C_2) = $\frac{3}{5}$

Fitness(C_3) = $\frac{4}{5}$

Fitness(C_5) = $\frac{3}{5}$

Fitness(C_6) = $\frac{4}{5}$

2nd generation (C_2=0100101, C_3=1011000, C_5=1101000, C_6=1011100):

Pr(C_2) = $\frac{3}{14}$ (4th)

Pr(C_5) = $\frac{3}{14}$ (3rd)

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$Pr(C_6) = \frac{4}{14}$ (2^{nd})

$Pr(C_3) = \frac{4}{14}$ (1^{st})

C_3 = 101|10|00 → C_7 = 101|11|00

C_6 = 101|11|00 → C_8 = 101|10|00

Mutation: C_8 = 1011000 → C_8 = 1011010

$Fitness(C_3) = \frac{4}{5}$

$Fitness(C_6) = \frac{4}{5}$

$Fitness(C_7) = \frac{4}{5}$

$Fitness(C_8) = \frac{5}{5}$

Final answer: C_8 = 1011010 has accuracy 1.0.