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Evolving Neural Network.

Scenario. Number of Chromosomes – 20; Genes in each Chromosome – 20. Percent of mutation – 2%. Multipoint crossover with two crossover random point.

Neural Network visualization:

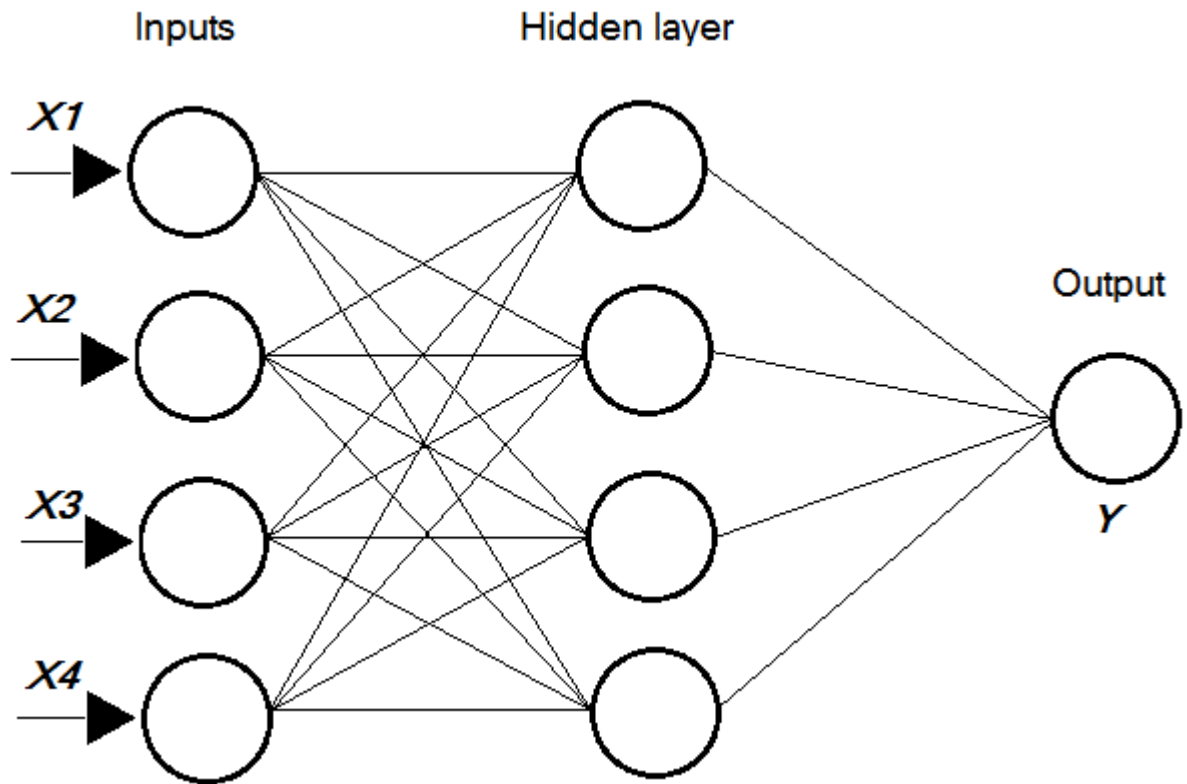
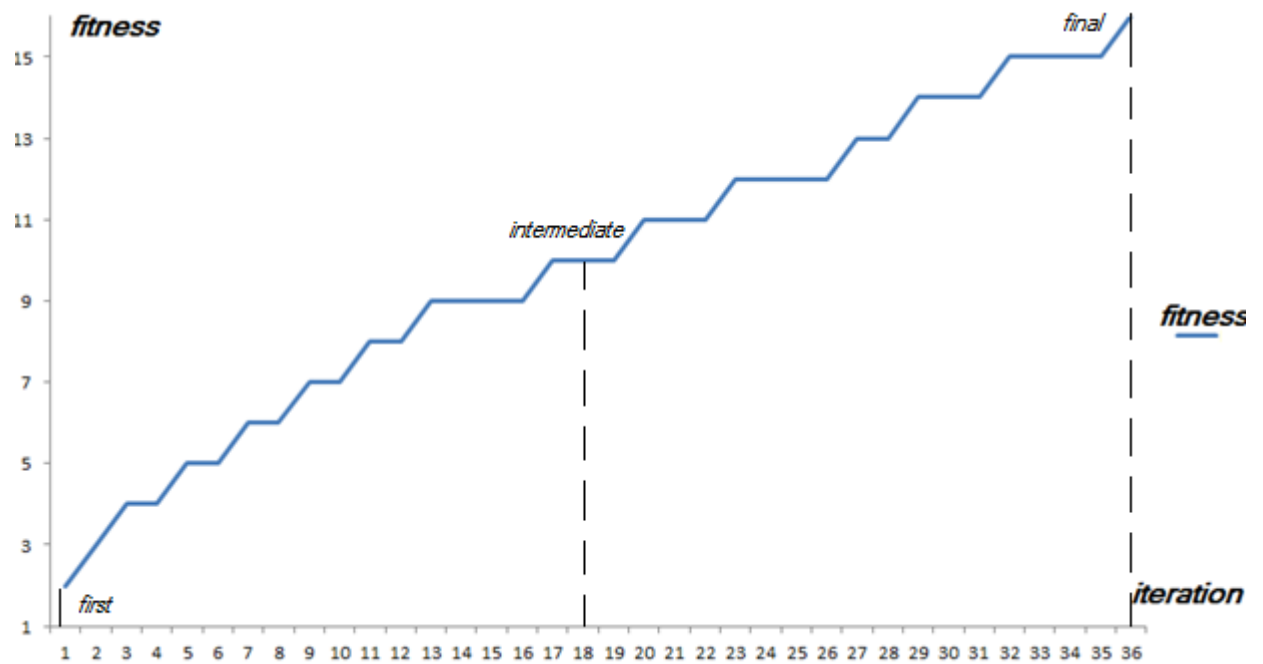


Table 1 – First Generation

Input	Real Y	Actual Y	Fitness
0000	-1	1	2
0001	1	1	
0010	1	-1	
0011	-1	1	
0100	1	-1	
0101	-1	1	
0110	-1	1	
0111	1	1	
1000	1	-1	
1001	-1	1	
1010	-1	1	
1011	1	-1	
1100	-1	1	
1101	1	-1	
1110	1	-1	

1111	-1	1	
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Graph – Iteration vs. Fitness



Weights:

w1	-0,2145
w2	0,145
w3	0,492
w4	0,9143
w5	-0,621
w6	0,5289
w7	0,1241
w8	0,6357
w9	-0,3375
w10	-0,2784
w11	0,5109
w12	-0,69
w13	0,7213
w14	0,2953
w15	-0,5517
w16	-0,1394

Table 2 – Intermediate Generation

Input	Real Y	Actual Y	Fitness
0000	-1	1	
0001	1	1	

0010	1	1	10
0011	-1	-1	
0100	1	-1	
0101	-1	-1	
0110	-1	-1	
0111	1	1	
1000	1	-1	
1001	-1	-1	
1010	-1	-1	
1011	1	-1	
1100	-1	1	
1101	1	1	
1110	1	1	
1111	-1	1	

Weights:

w1	0,1742
w2	-0,2494
w3	0,5123
w4	-0,9143
w5	0,732
w6	0,098
w7	0,401
w8	-0,3138
w9	0,2492
w10	-0,3849
w11	0,8962
w12	-0,7301
w13	0,4407
w14	-0,0392
w15	0,711
w16	-0,5024

Table 3 – Final Generation

Input	Real Y	Actual Y	Fitness
0000	-1	-1	
0001	1	1	
0010	1	1	
0011	-1	-1	
0100	1	1	
0101	-1	-1	

0110	-1	-1	16
0111	1	1	
1000	1	1	
1001	-1	-1	
1010	-1	-1	
1011	1	1	
1100	-1	-1	
1101	1	1	
1110	1	1	
1111	-1	-1	

Weights:

w1	0,8121
w2	0,5812
w3	-0,2201
w4	-0,528
w5	0,1364
w6	0,0343
w7	0,2473
w8	0,5114
w9	-0,3509
w10	-0,2784
w11	0,4115
w12	-0,824
w13	0,1392
w14	0,2953
w15	-0,1773
w16	-0,9411