

Task:

Size of population – 20

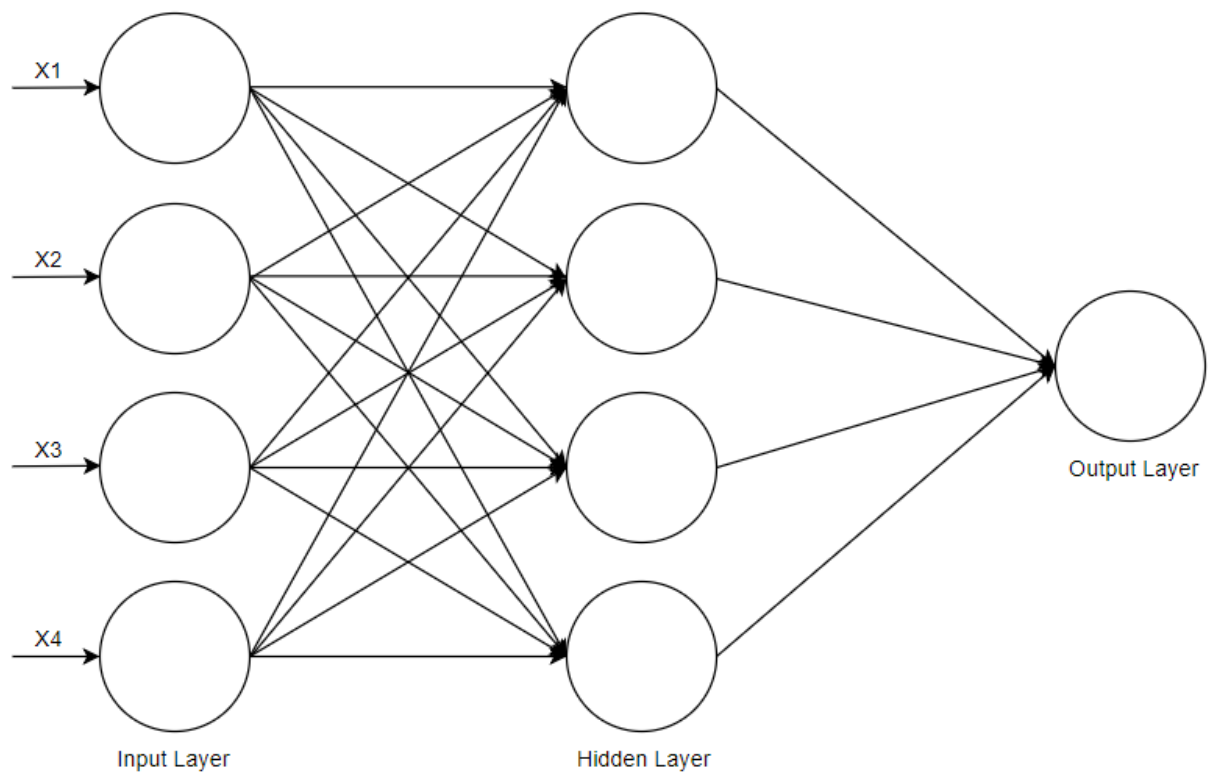
Size of chromosome – 20

Mutation percent – 0.01

Multi-point crossover with 2 crossover random point

Truncate selection mode

Neural NetWork (4-4-1) scheme:



Beginner generation table:

Input X1	Input X2	Input X3	Input X4	Real Y	Actually Y	Fitness +/-
-1	-1	-1	-1	1	-1	8+ 8-
-1	-1	-1	1	-1	-1	
-1	-1	1	-1	1	1	
-1	-1	1	1	-1	-1	
-1	1	-1	-1	-1	1	
-1	1	-1	1	-1	-1	
-1	1	1	-1	1	-1	
-1	1	1	1	-1	1	
1	-1	-1	-1	-1	-1	
1	-1	-1	1	1	1	
1	-1	1	-1	1	1	
1	-1	1	1	-1	1	
1	1	-1	-1	1	-1	
1	1	-1	1	-1	1	
1	1	1	-1	1	-1	
1	1	1	1	1	1	

NetWork coefficients in beginner generation:

W1	0,456
W2	-0,15698
W3	0,1999
W4	-0,89198
W5	0,94189
W6	-0,917
W7	-0,158
W8	-0,1798
W9	0,2608
W10	0,15927
W11	-0,4652
W12	0,61487
W13	-0,42545
W14	0,34548
W15	0,7561
W16	-0,3641

Intermediate generation table:

Input X1	Input X2	Input X3	Input X4	Real Y	Actually Y	Fitness +/-
-1	-1	-1	-1	-1	-1	12+ 4-
-1	-1	-1	1	1	1	
-1	-1	1	-1	-1	-1	
-1	-1	1	1	1	1	
-1	1	-1	-1	1	1	
-1	1	-1	1	1	-1	
-1	1	1	-1	1	1	
-1	1	1	1	-1	-1	
1	-1	-1	-1	1	-1	
1	-1	-1	1	1	1	
1	-1	1	-1	1	-1	
1	-1	1	1	1	1	
1	1	-1	-1	-1	1	
1	1	-1	1	1	1	
1	1	1	-1	1	1	
1	1	1	1	1	1	
1	1	1	1	1	1	

NetWork in intermediate generation:

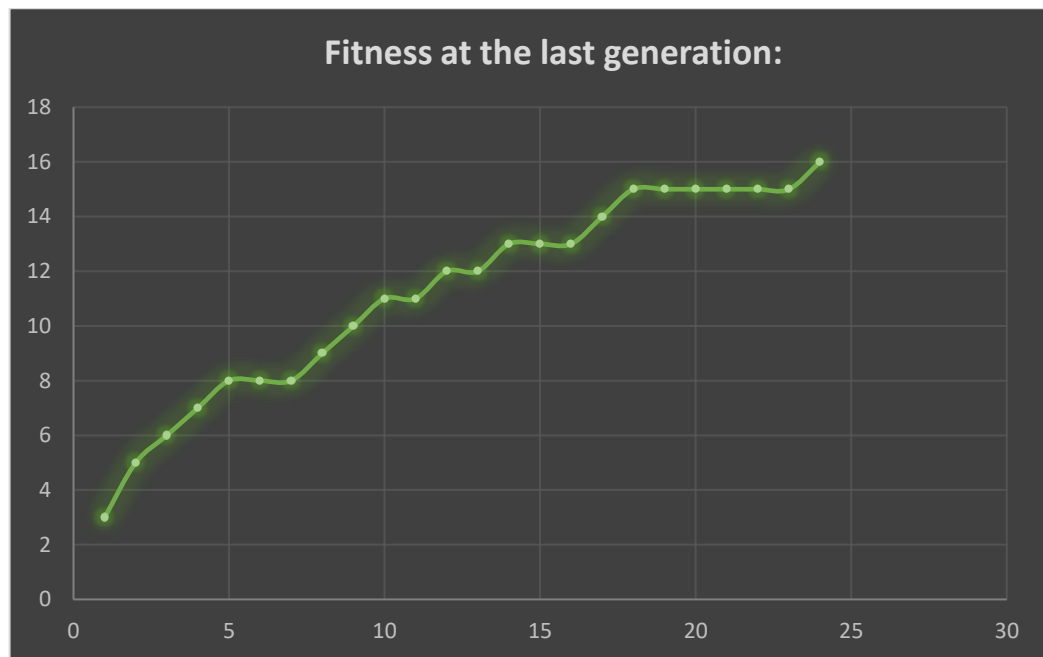
W1	-0,7981
W2	0,1589
W3	0,014
W4	-0,6217
W5	0,0147
W6	-0,364
W7	0,2451
W8	-0,6157
W9	-0,7431
W10	0,1034
W11	-0,1918
W12	-0,6189
W13	0,4691
W14	0,2371
W15	0,3641
W16	-0,9104

Last generation table:

Input X1	Input X2	Input X3	Input X4	Real Y	Actually Y	Fitness +/-
-1	-1	-1	-1	-1	-1	16+ 0-
-1	-1	-1	1	1	1	
-1	-1	1	-1	-1	-1	
-1	-1	1	1	1	1	
-1	1	-1	-1	1	1	
-1	1	-1	1	-1	-1	
-1	1	1	-1	1	1	
-1	1	1	1	1	1	
1	-1	-1	-1	1	1	
1	-1	-1	1	1	1	
1	-1	1	-1	-1	-1	
1	-1	1	1	1	1	
1	1	-1	-1	-1	-1	
1	1	-1	1	1	1	
1	1	1	-1	1	1	
1	1	1	1	1	1	

NetWork in last generation:

W1	-0,3489
W2	0,45631
W3	0,15798
W4	-0,74566
W5	-0,0321
W6	0,015
W7	-0,637
W8	-0,8156
W9	0,8125
W10	-0,2198
W11	0,03158
W12	-0,498
W13	-0,985
W14	0,48963
W15	0,98715
W16	-0,42395



Conclusion GA: Algorithm achieved 100% accuracy (in my case). All cases, Was matched by our NN (4-4-1). So, We can say that GA is aplicapable for training NN.