

Skarubo Artem AI-13

Prisoner's dilemma

Rules:

P1	P2		P1	P2
Yes	Yes		1	1
Yes	No		5	0
No	Yes		0	5
No	No		3	3

Below in my program “1” means “Yes” and “0” means “No”.

Parameters:

Population size	50
Chromosome size	64
Crossover	One point

First population (initial population):

Average fitness – 3.34

Best player - Player 30

Best player fitness – 7

Best player strategy –

0111010101010110111110001100011001011001001010101100010101010101

Best player opponents:

Opponent	Opponent strategy	Score (best player, opponent)
Player 6	10001101101110011111111000011100 00000010001101010010100100011111	(148, 143)
Player 2	01001000011010111101100110010100 00101011111100001101100101100010	(149, 139)
Player 30	01110101010101101111100011000110 01011001001010101100010101010101	(126, 126)
Player 31	00110110000000100011011000111110 01100001100011011000100110001110	(160, 135)
Player 21	01101110000100010010110110110110 11101010000001110110000101110000	(152, 137)
Player 34	10100111010110101001000000000110 01000011100011001011001100110110	(157, 132)
Player 36	11110101111110110011011101000000 11111111010001001110111010100010	(126, 151)
Player 29	01101010011011101101101100011111 00111000001010110010010000110001	(143, 138)
Player 47	01101110100110000100101110011101 11101000110010000011111101101001	(141, 146)
Player 11	01110100110010010011101101111100 10010000011100100011010111011101	(137, 142)

Fourth population (the generation where appears player with 10 fitness):

Average fitness – 5.91

Best player - Player 35

Best player fitness – 10

Best player strategy –

0111111111001111000111000110010111101011110101010111101101110111

Best player opponents:

Opponent	Opponent strategy	Score (best player, opponent)
Player 21	10111100100111000010010100111100 10000100100000111010011001101000	(177, 102)
Player 25	01100010000101101110111001101101 00100000110000000010000100001110	(185, 95)
Player 12	00100101100010100100011010100010 01101111001010101011010000100000	(184, 99)
Player 1	01000010010001010001010000101100 01101110011100011011010011011001	(173, 98)
Player 19	10010000100001100100100011111000 01110111110110110111001110000111	(156, 106)
Player 24	11110101000100111100101110000110 00101011100011100011101111111001	(146, 111)
Player 2	10011010101100001001100011011010 11101101011100011000110000100010	(170, 105)
Player 30	01011110101111100110110111010101 000011011011111011110000011101111	(131, 116)
Player 37	11000101010101100111011111110011 01111111011111110001100011111000	(130, 120)
Player 10	11100101110101110111100110101110 11011101110110010111010111101000	(128, 118)

Tenth population (last population):

This population have 8 players with 10 fitness.

Average fitness - 8.71

One of the best players - Player 4

Best player fitness – 10

Best player strategy –

1101100101111110000011111011111000101110001110111010100100111111

Best player opponents:

Opponent	Opponent strategy	Score (best player, opponent)
Player 6	00100111110011000101001010100101 00000101010000100000000000101110	(189, 104)
Player 22	10111000110101001111000001111000 10011110000011000000011110000011	(169, 114)
Player 25	10011011011100101010110000100000 11100000100001111001000011111010	(166, 111)
Player 29	11000111000001110011001110000010 00100010100100110100101010011001	(173, 108)
Player 33	01100000111001000101110011101100 00001100010111001001001010101010	(170, 110)
Player 7	00000011011101010111010110101101 10100001110001001101011000100010	(167, 117)
Player 18	10000010111010100111101100001100 00000110010100111000110101010001	(168, 108)
Player 11	01001110000111001101000011110001 11110100101110110101100011011101	(147, 122)
Player 32	11100111010101011010100100111100 01001011100111010110111001100011	(142, 122)
Player 24	00010101010101000000010001001001 01011101110011011000001011110010	(176, 111)

Graph with results:

