05.11.2018
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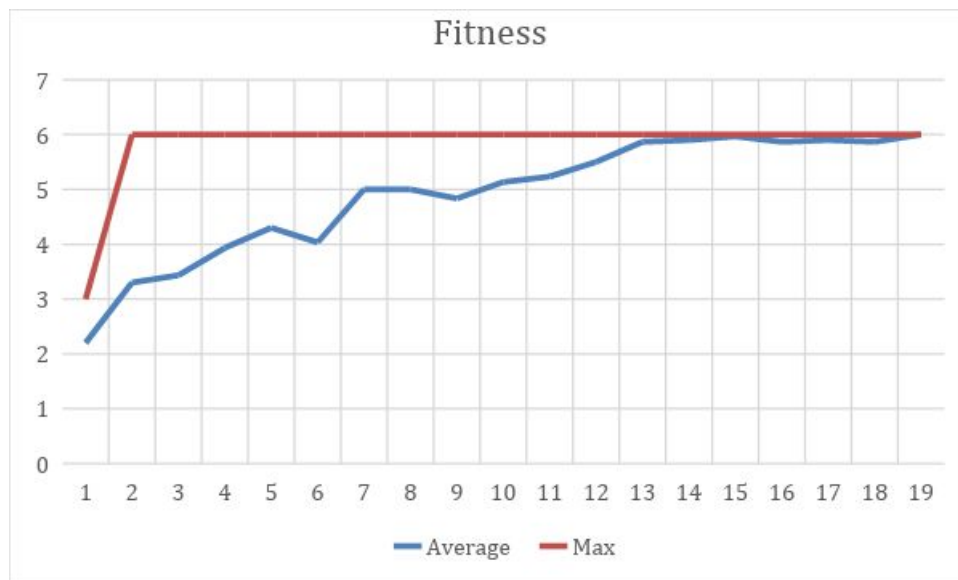# Contemporary intelligent information Artificial intelligence

Sorting network

The First scenario:
Population: 30
Gen in chromosome: 12
Crossover: uniform

[0, 0, 2, 1, 1, 3, 1, 2, 0, 1, 2, 2] - the first population / best chromosome fitness 3
[3, 2, 0, 3, 0, 1, 2, 3, 2, 2, 1, 2] - the intermediate population / best chromosome fitness 6
[3, 2, 0, 3, 0, 1, 2, 3, 2, 2, 1, 2] - the final population / best chromosome fitness 6

0 equals 00 in binary system
1 equals 01 in binary system
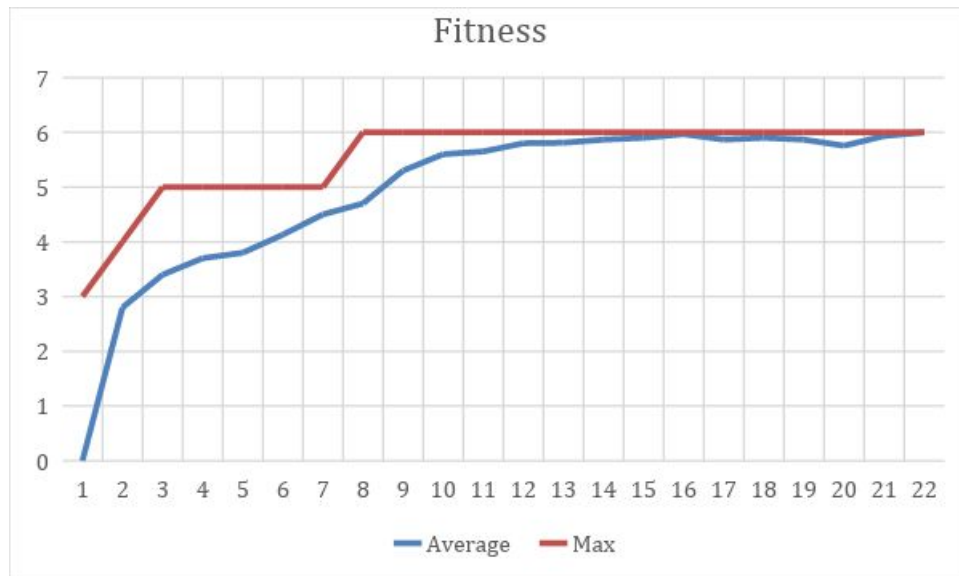2 equals 10 in binary system
3 equals 11 in binary system

The Second scenario:
Population: 30x2
Gen in chromosome: 6
Crossover: Multi-point

The first population / best chromosome
parent1: [0, 0, 1, 2, **3, 3, 1, 0, 0, 1**, 2, 1] after multi-point crossover [**3, 3, 1, 0, 0, 1**]
parent2: [1, 2, 0, 1, 3, 2, **1, 0, 1, 3, 2, 1**] after multi-point crossover [**1, 0, 1, 3, 2, 1**]
than create children (concat parent1 and parent2)
children: [3, 3, 1, 0, 0, 1, 1, 0, 1, 3, 2, 1]
Result: fitness 3

The intermediate population / best chromosome
parent1: [1, 0, **2, 2, 0, 2, 0, 1**, 3, 2, 0, 3] after multi-point crossover [**2, 2, 0, 2, 0, 1**]
parent2: [2, 2, **1, 0, 1, 3, 1, 2**, 0, 1, 3, 2] after multi-point crossover [**1, 0, 1, 3, 1, 2**]
than create children (concat parent1 and parent2)
children: [2, 2, 0, 2, 0, 1, 1, 0, 1, 3, 1, 2]
Result: fitness 5

The final population / best chromosome fitness
parent1: [1, 2, 0, 2, 3, 3, **1, 0, 0, 1, 3, 1**] after multi-point crossover [**1, 0, 0, 1, 3, 1**]
parent2: [**2, 0, 1, 0, 1, 3**, 1, 2, 1, 3, 2, 0] after multi-point crossover [**2, 0, 1, 0, 1, 3**]
than create children (concat parent1 and parent2)
children: [1, 0, 0, 1, 3, 1, 2, 0, 1, 0, 1, 3]
Result: fitness 6

0 equals 00 in binary system
1 equals 01 in binary system
2 equals 10 in binary system
3 equals 11 in binary system