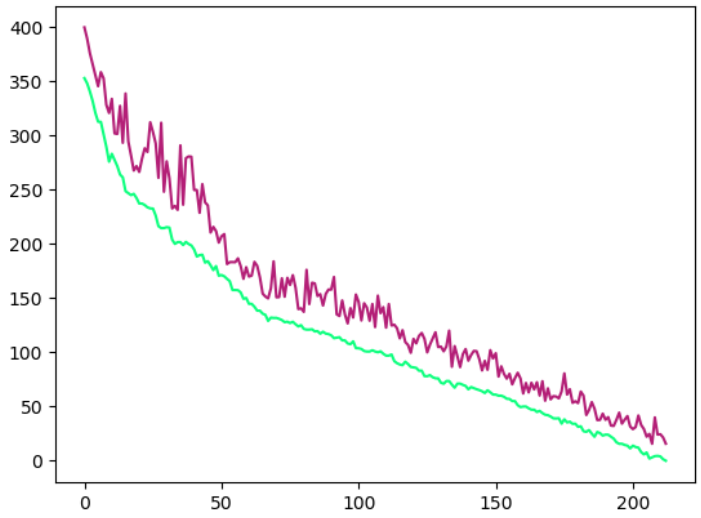
1. Simulate 100 dogs in the gridworld (0,0)-(1000,1000) with sausage at (800,800) where all dogs start from (500,500) looking for the sausage by:
(1) assuming all dog has a chromosome whose each of 1000 genes are 1, 2, 3 or 4,
(2) moving step by step according to his/her chromosome,
(3) with 1, 2, 3, 4 meaning a movement toward up, down, right, left, respectively.
2. Show the result with:
(1) the best and average fitness vs. generation of the 5 best dogs in the 1st, an intermediate, and final generation.
(2) the route of the 5 best dogs in the 1st, an intermediate, and final generation.

1st scenario: with no mutation

Best and average fitness in generations:

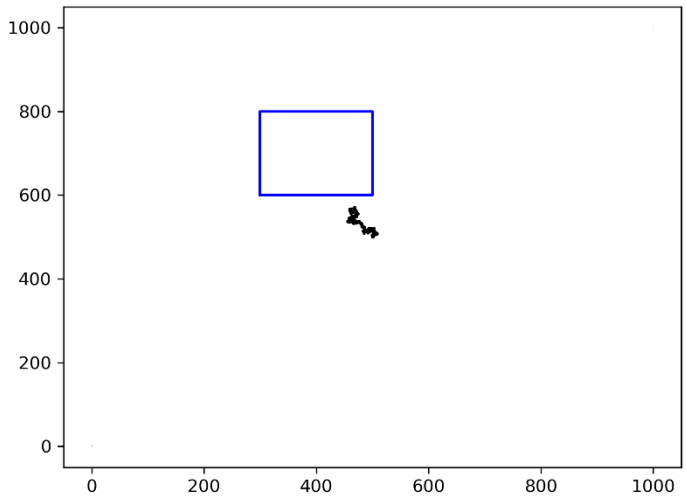
Red line – average fitness

Green line –best fitness

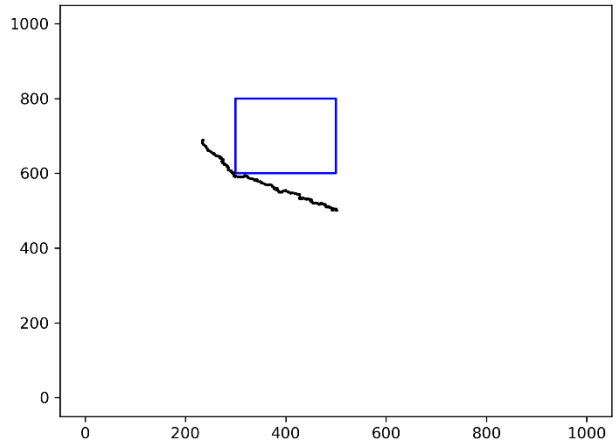


Best fitness dog's route in:

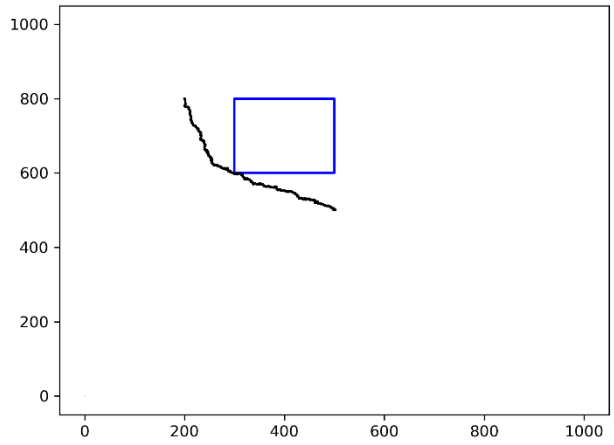
First generation:



intermediate generation:



last generation:

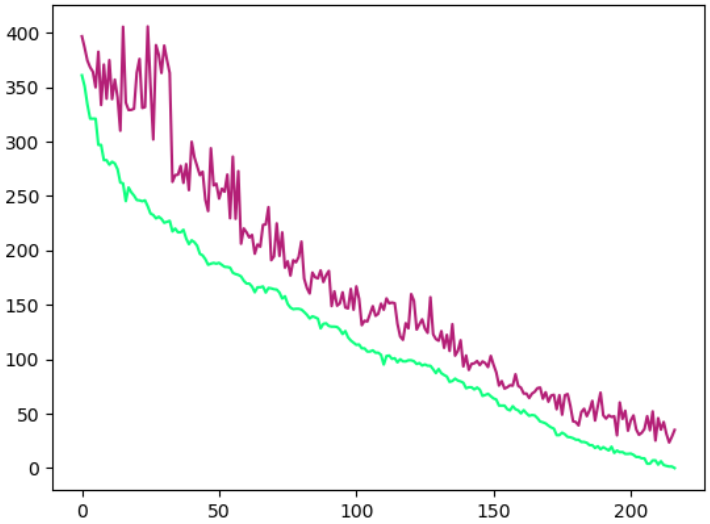


2st scenario multi point crossover with 5 % mutation

Best and average fitness in generations:

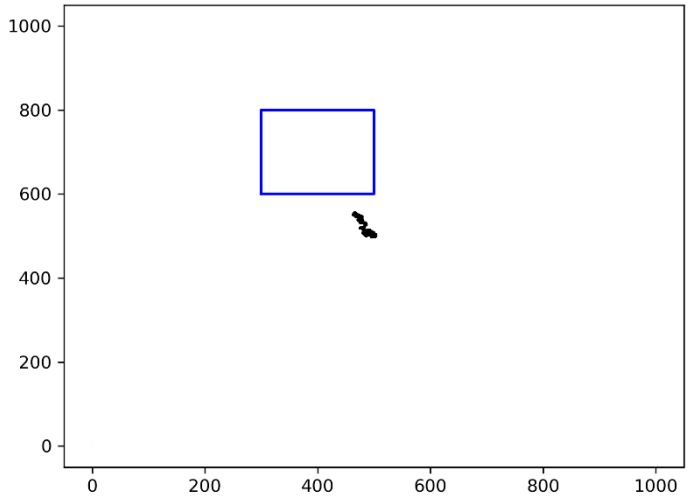
Red line – average fitness

Green line – best fitness

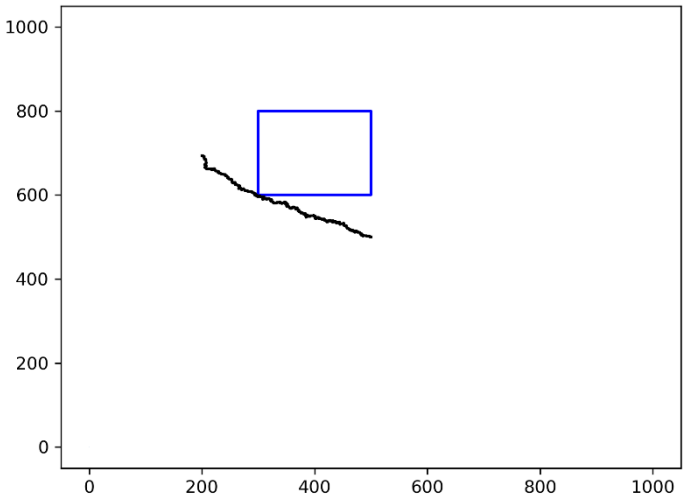


Best fitness dog's route in:

First generation:



Intermediate generation:



Last generation: