

LuckyDog

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Code(Python3):

```
import random
import math
def calculate_points(chromosomes):
    chromosome_points = []
    for chromosome in chromosomes:
        x = 500
        y = 500
        for gen in chromosome:
            if gen == 1:
                y += 1
            if gen == 2:
                y -= 1
            if gen == 3:
                x += 1
            if gen == 4:
                x -= 1
        chromosome_points.append([x, y])
    return chromosome_points
def calculate_min_distance(chromosomes_points, sausages_points):
    fitness = []
    for chrom_point in chromosomes_points:
        min_x = 1000
        min_y = 1000
        for saus_point in sausages_points:
            tmp_x = math.fabs(chrom_point[0] - saus_point[0])
            tmp_y = math.fabs(chrom_point[1] - saus_point[1])
            min_x = min(tmp_x, min_x)
            min_y = min(tmp_y, min_y)
        fitness.append(min_x + min_y)
    return fitness
def calculate_share_fitness(fitness, chromosomes_points):
    # for chrom_point in chromosomes_points:
    return 0
def sorting(chromosomes, key):
    for i in range(len(key)):
        for j in range(len(key) - 1):
            if key[j] > key[j + 1]:
                tmp = key[j]
                key[j] = key[j + 1]
                key[j + 1] = tmp
                tmp = chromosomes[j]
                chromosomes[j] = chromosomes[j + 1]
                chromosomes[j + 1] = tmp
    return [chromosomes, key]
def main():
    chromosomes = [[random.randint(1, 4) for _ in range(1000)] for _ in range(20)]
    sausages_points = [[200, 200], [200, 800], [800, 200], [800, 800]]
    chromosomes_points = calculate_points(chromosomes)
    fitness = calculate_min_distance(chromosomes_points, sausages_points)
    chromosomes, fitness = sorting(chromosomes, fitness)

    print(fitnesss)
    # print(chromosomes_points)
    # print(fitness)
main()
```