

Genetic Algorithm MALIS

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1 Chromosome genetic operators

MUTATION TEST

Mutation test 0:

Chromosome: fitness= 0.00, cities:	3	5	4	2	0	1
Chromosome: fitness= 0.00, cities:	3	5	4	0	2	1
				^	^	

Mutation test 1:

Chromosome: fitness= 0.00, cities:	3	2	4	1	5	0
Chromosome: fitness= 0.00, cities:	3	2	4	0	5	1
				^		^

Mutation test 2:

Chromosome: fitness= 0.00, cities:	3	4	0	2	5	1
Chromosome: fitness= 0.00, cities:	3	4	0	1	5	2
				^		^

Mutation test 3:

Chromosome: fitness= 0.00, cities:	3	4	5	1	2	0
Chromosome: fitness= 0.00, cities:	3	4	5	1	0	2
					^	^

CROSSOVER TEST

Crossover test 0:

Chromosome: fitness= 0.00, cities:	2	0	3	5	1	4
Chromosome: fitness= 0.00, cities:	2	5	0	3	4	1
Chromosome: fitness= 0.00, cities:	2	0	3	5	4	1
	^			^		

Crossover test 1:

Chromosome: fitness= 0.00, cities:	3	5	2	4	1	0
Chromosome: fitness= 0.00, cities:	2	0	3	1	4	5
Chromosome: fitness= 0.00, cities:	0	5	2	4	1	3
		^			^	

Crossover test 2:

Chromosome: fitness= 0.00, cities:	4	1	2	0	3	5
Chromosome: fitness= 0.00, cities:	3	0	4	1	2	5
Chromosome: fitness= 0.00, cities:	4	1	2	0	3	5
		^				^

Crossover test 3:

Chromosome: fitness= 0.00, cities:	3	1	2	0	4	5
Chromosome: fitness= 0.00, cities:	3	2	0	5	4	1
Chromosome: fitness= 0.00, cities:	3	1	2	0	5	4
		^			^	

2 Population evolution on a circle

Mutation rate: 0.100, Population size: 100

Generation:	0,	length:	4400.545,	best	4400.545
Generation:	1,	length:	3858.581,	best	3858.581
Generation:	6,	length:	3285.575,	best	3285.575
Generation:	9,	length:	3250.057,	best	3250.057
Generation:	21,	length:	3245.444,	best	3245.444
Generation:	26,	length:	3147.703,	best	3147.703
Generation:	28,	length:	2938.125,	best	2938.125
Generation:	36,	length:	2930.445,	best	2930.445
Generation:	42,	length:	2593.538,	best	2593.538
Generation:	214,	length:	2549.924,	best	2549.924
Generation:	2188,	length:	2469.794,	best	2469.794
Generation:	2886,	length:	2465.225,	best	2465.225
Generation:	3035,	length:	2459.436,	best	2459.436
Generation:	3040,	length:	2160.005,	best	2160.005
Generation:	3047,	length:	2150.879,	best	2150.879
Generation:	9724,	length:	2138.629,	best	2138.629
Generation:	12340,	length:	2017.892,	best	2017.892
Generation:	53563,	length:	1939.148,	best	1939.148
Generation:	91516,	length:	1936.308,	best	1936.308
Generation:	96079,	length:	1820.814,	best	1820.814

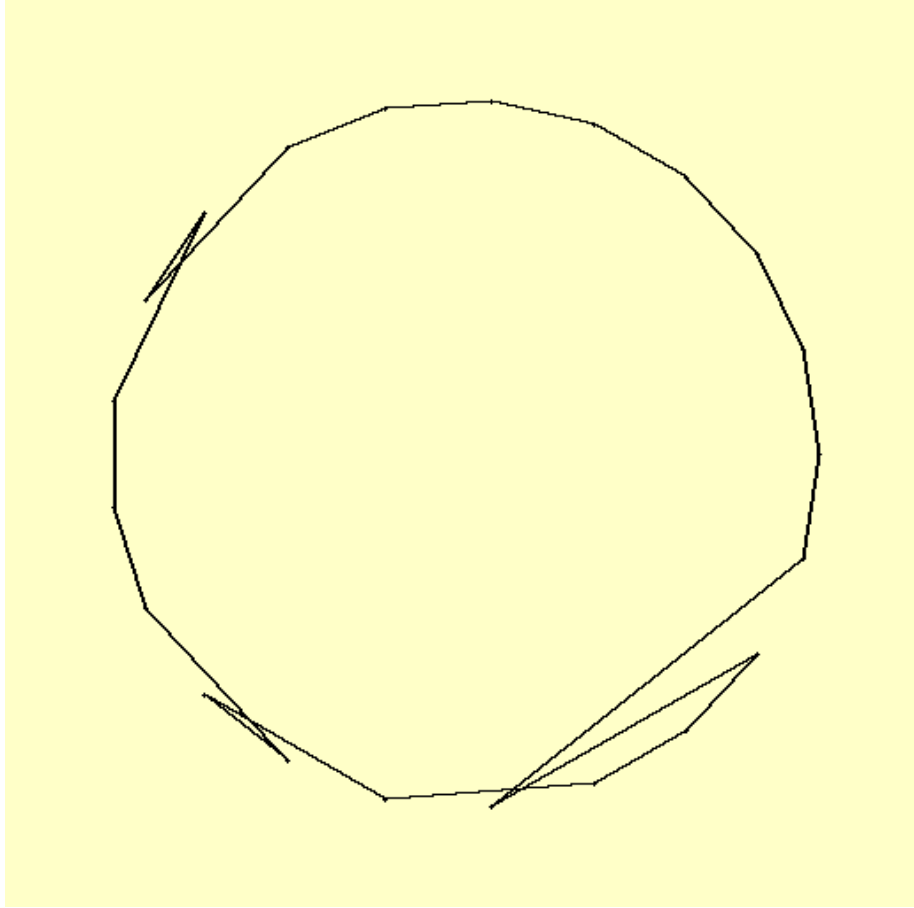


Figure 1: Best result after 96079 generations

3 Population evolution on cities in France

In the next table, we will report the best result of every combinations between mutation rate and population size.

Table 1: Results using different combinations of mutation rate (columns) and population size (rows)

	10	50	100	500
0.01				
0.1				
0.5				