



In [3]:

```

import qhea
import benchmark
problems = benchmark.get_names()
population_size = 24
generation_count = 48
executions = 1000
params = [
    qhea.Parameters(
        population_size=population_size,
        generation_count=generation_count,
        local_strategy=qhea.LocalOptimization.OptimizationNone
    ),
    qhea.Parameters(
        population_size=population_size,
        generation_count=generation_count,
        local_strategy=qhea.LocalOptimization.OptimizationNone,
        selection_strategy=qhea.Selection.Ranking,
        selection_pressure=1.9
    ),
    qhea.Parameters(
        population_size=population_size,
        generation_count=generation_count,
        local_strategy=qhea.LocalOptimization.OptimizationNone,
        selection_strategy=qhea.Selection.Ranking,
        selection_pressure=1.5,
    ),
    qhea.Parameters(
        population_size=population_size,
        generation_count=generation_count,
        local_strategy=qhea.LocalOptimization.OptimizationNone,
        selection_strategy=qhea.Selection.Ranking,
        selection_pressure=1.1,
    ),
]
names = ['Fittest', 'Ranking high pressure', 'Ranking medium pressure', 'Ranking low pressure']
benchmark.analyze_and_display(params, executions, problems, names)

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Algorithm was tested with 4 different parameter configurations
 For each parameter configuration, the algorithm was tested against these problems:

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['random-30', 'tsp-5-25-10-20', 'tsp-5-25-10-100', 'tsp-5-25-1-5']
```

For each problem, the algorithm was executed 1000 times to collect data.

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Tested Parameter Configuration: Fittest

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Population Size:      24
Generation Count:     48
Mutation Rate:        0.05
Crossover Rate:       1
Selection Pressure:   1.9
Optimization Rate:    1
Adjust Parameters:    False
Annealing Size:       5
Sub Problems:         [[]]

```

Init Strategy: Random
Selection Strategy: Fittest
Local Optimization: LocalOptimization.OptimizationNone
Replacement Strategy: Replacement.ParentAndOffSpring

Tested Parameter Configuration: Ranking high pressure

Population Size: 24
Generation Count: 48
Mutation Rate: 0.05
Crossover Rate: 1
Selection Pressure: 1.9
Optimization Rate: 1
Adjust Parameters: False
Annealing Size: 5
Sub Problems: [[]]
Init Strategy: Random
Selection Strategy: Ranking
Local Optimization: LocalOptimization.OptimizationNone
Replacement Strategy: Replacement.ParentAndOffSpring

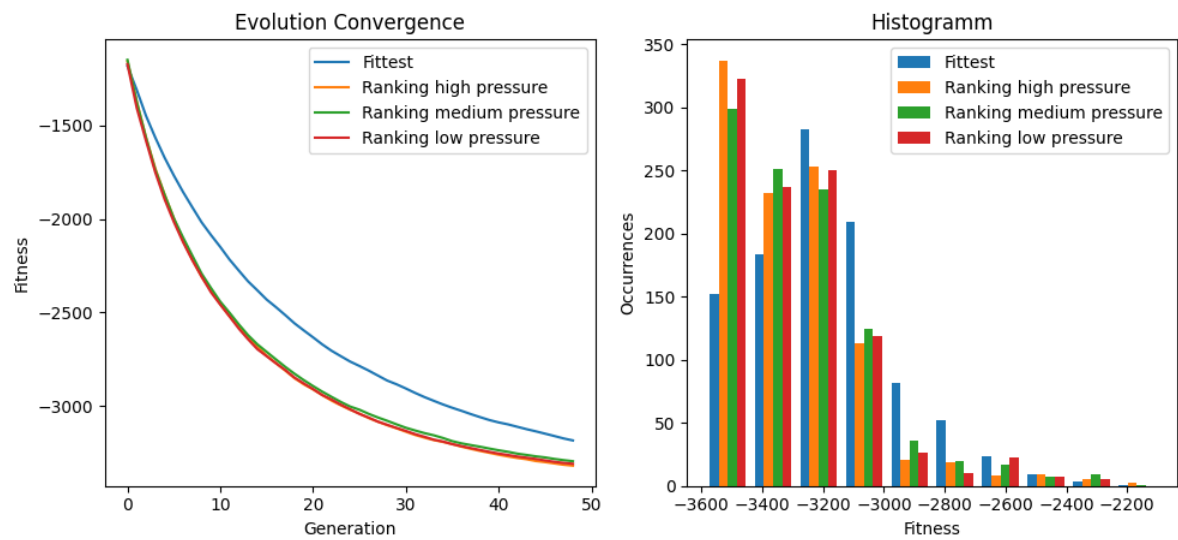
Tested Parameter Configuration: Ranking medium pressure

Population Size: 24
Generation Count: 48
Mutation Rate: 0.05
Crossover Rate: 1
Selection Pressure: 1.5
Optimization Rate: 1
Adjust Parameters: False
Annealing Size: 5
Sub Problems: [[]]
Init Strategy: Random
Selection Strategy: Ranking
Local Optimization: LocalOptimization.OptimizationNone
Replacement Strategy: Replacement.ParentAndOffSpring

Tested Parameter Configuration: Ranking low pressure

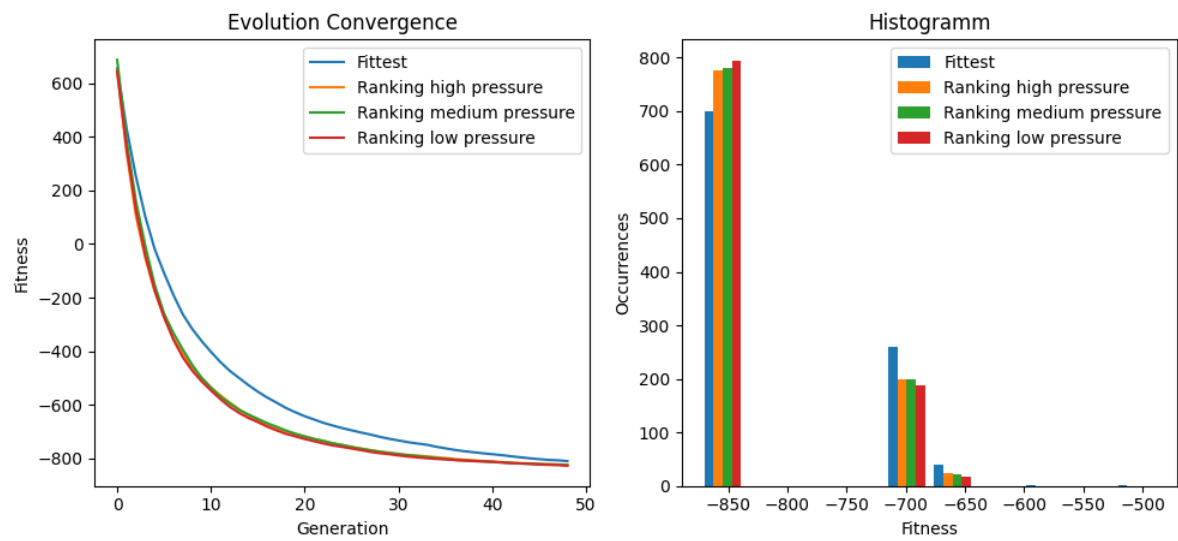
Population Size: 24
Generation Count: 48
Mutation Rate: 0.05
Crossover Rate: 1
Selection Pressure: 1.1
Optimization Rate: 1
Adjust Parameters: False
Annealing Size: 5
Sub Problems: [[]]
Init Strategy: Random
Selection Strategy: Ranking
Local Optimization: LocalOptimization.OptimizationNone
Replacement Strategy: Replacement.ParentAndOffSpring

Problem random-30



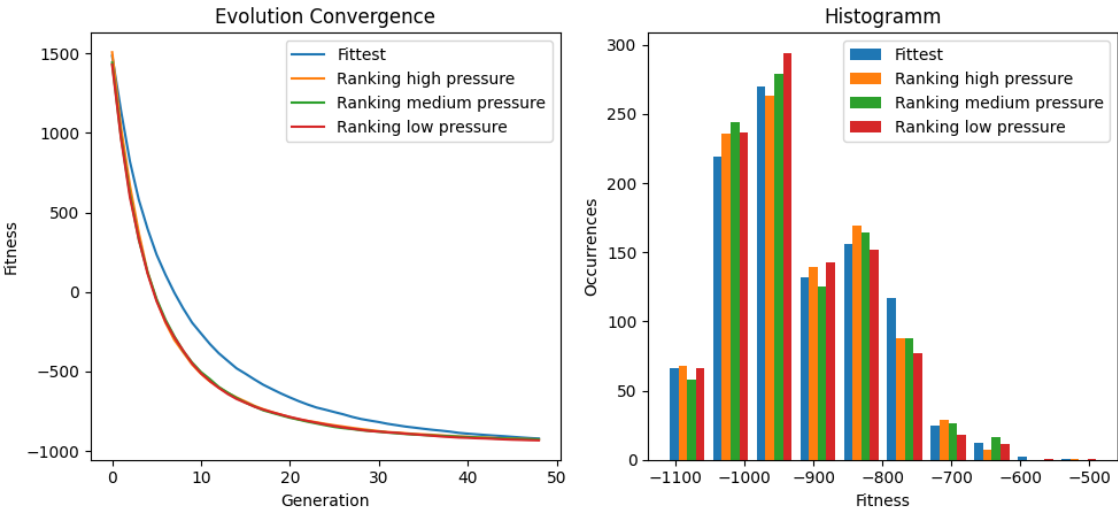
	Parameters	Accuracy	Average	Best Result	Worst
0	Fittest	6.5	-3183.793	-3588	-2094
1	Ranking high pressure	26.2	-3318.528	-3588	-2200
2	Ranking medium pressure	22.1	-3294.872	-3588	-2213
3	Ranking low pressure	22.4	-3308.456	-3588	-2296

Problem tsp-5-25-10-20



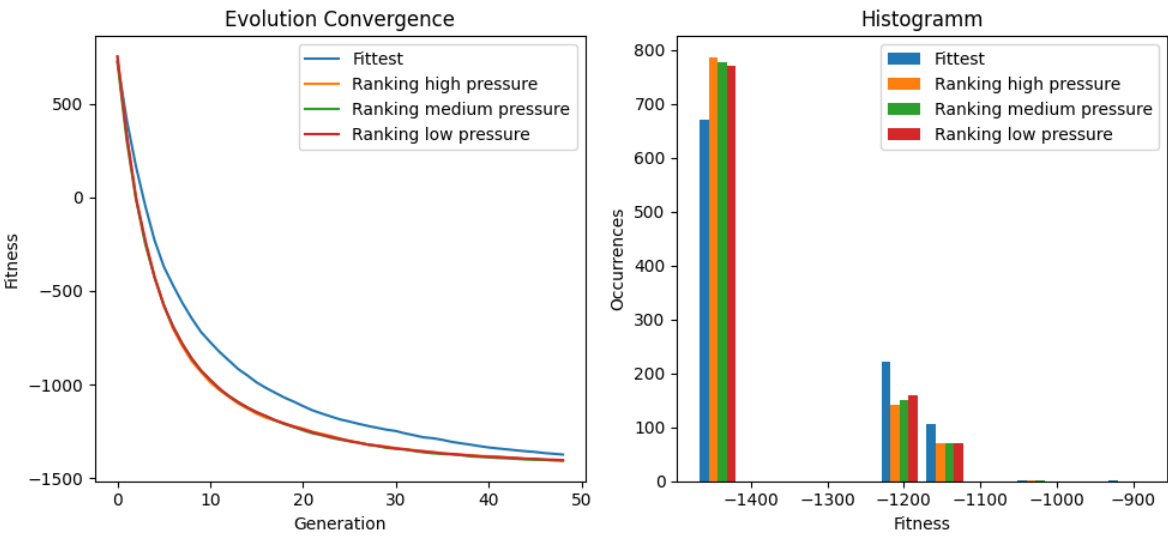
	Parameters	Accuracy	Average	Best Result	Worst
0	Fittest	8.4	-810.067	-874	-486
1	Ranking high pressure	11.4	-824.217	-874	-658
2	Ranking medium pressure	11.9	-824.915	-874	-658
3	Ranking low pressure	11.1	-827.055	-874	-673

Problem tsp-5-25-10-100



	Parameters	Accuracy	Average	Best Result	Worst
0	Fittest	6.6	-922.057	-1115	-542
1	Ranking high pressure	6.8	-927.697	-1115	-483
2	Ranking medium pressure	5.8	-926.809	-1115	-612
3	Ranking low pressure	6.6	-933.438	-1115	-495

Problem tsp-5-25-1-5



	Parameters	Accuracy	Average	Best Result	Worst
0	Fittest	8.8	-1373.403	-1473	-879
1	Ranking high pressure	8.4	-1407.524	-1473	-1027
2	Ranking medium pressure	9.2	-1405.080	-1473	-1026
3	Ranking low pressure	9.5	-1402.858	-1473	-1169

In []:

