```
/Users/meijiaojiao/opt/anaconda3/envs/RunToEnd/bin/python "/Users/meijiaojiao/Desktop/New Evolution/data_mining.py"
     iterations  mutation_rate  ...  range_mutation  crossover_probability
0         10000            5.0  ...            0.01                    0.4
1         10000            5.0  ...            0.01                    1.0
2         10000            5.0  ...            0.25                    0.4
3         10000            5.0  ...            0.25                    1.0
4         10000            5.0  ...            0.55                    0.4
..          ...            ...  ...             ...                    ...
571       10000           10.0  ...            0.25                    1.0
572       10000           10.0  ...            0.55                    0.4
573       10000           10.0  ...            0.55                    1.0
574       10000           10.0  ...            0.90                    0.4
575       10000           10.0  ...            0.90                    1.0

[576 rows x 7 columns]


This is the result for Badlwin(F1)
             Lamarck1   Lamarck2  Lamarck3  ...  Lamarck574  Lamarck575  Lamarck576
F22 Times1  -2.765463  -1.837588 -1.818335  ...   -9.065013   -2.434682   -4.974778
    Times2  -2.765746  -5.087638 -4.198410  ...   -9.740266   -3.470111   -6.690302
    Times3  -1.837447  -3.724295 -2.609408  ...   -7.721557   -4.087527   -9.662816
    Times4  -3.724206  -2.751914 -5.154236  ...   -4.683832   -6.035122   -8.004059
    Times5  -3.723736  -2.751929 -4.787147  ...   -6.974120   -3.788424   -6.834994
    Times6 -10.399370 -10.402755 -9.306710  ...   -4.857097   -5.674850   -7.229791
    Times7  -5.087182  -1.837588 -9.678433  ...   -9.077880   -2.372965   -8.221279

[7 rows x 576 columns]


This is the result:max_min_std_mean for Badlwin(F1)
            0          1         2    ...       573       574       575
Max   -1.837447  -1.837588 -1.818335  ... -4.683832 -2.372965 -4.974778
Min  -10.399370 -10.402755 -9.678433  ... -9.740266 -6.035122 -9.662816
Std    3.370582   3.500124  3.301018  ...  2.180801  1.547509  1.727793
Mean  -3.916938  -3.713392 -4.574843  ... -6.436306 -3.472426 -6.452782

[4 rows x 576 columns]
```

```
This is min index for the four rows
Max     514
Min     449
Std     514
Mean    271
dtype: int64


This is min value for the four rows
Max     -8.483470
Min    -10.402907
Std      0.388858
Mean    -8.021173
dtype: float64


This is min combiantion for the four rows
['iterations', 'mutation_rate', 'local_search', 'num_individuals', 'm_range', 'range_mutation', 'crossover_probability']
[10000.0, 10.0, 5.0, 400.0, 0.05, 0.25, 0.4]
[10000.0, 10.0, 1.0, 800.0, 0.05, 0.01, 1.0]
[10000.0, 10.0, 5.0, 400.0, 0.05, 0.25, 0.4]
[10000.0, 5.0, 5.0, 800.0, 0.35, 0.9, 1.0]


This is max index for the four rows
Max     502
Min     216
Std      23
Mean    216
dtype: int64


This is max value for the four rows
Max    -1.192879
Min    -3.154075
Std     4.164062
```

the optimal is -10.4028, it is pretty close.

```
Mean   -1.996986
dtype: float64


This is max combiantion for the four rows
[10000.0, 10.0, 5.0, 50.0, 0.8, 0.9, 0.4]
[10000.0, 5.0, 5.0, 50.0, 1.2, 0.01, 0.4]
[10000.0, 5.0, 0.01, 50.0, 0.8, 0.9, 1.0]
[10000.0, 5.0, 5.0, 50.0, 1.2, 0.01, 0.4]

Process finished with exit code 0
```