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1 /System/Volumes/Data/Users/liangwenlong/envs/ml_env
  /bin/python3.12 /Users/liangwenlong/study/bme/3/
  ml_usage/project/solutionv7.py
2 正在读取数据...
3 正在构建特征 (V7 - CatBoost)...
4     CatBoost 将自动处理以下类别特征: []
5 开始训练 CatBoost (V7)...
6 0:  learn: 124.1725687  test: 124.2605820  best:
    124.2605820 (0) total: 80ms remaining: 4m
7 500:  learn: 19.4116182  test: 20.1930274
    best: 20.1930274 (500) total: 6.36s  remaining:
    31.7s
8 1000:  learn: 18.0990401  test: 19.5780699
    best: 19.5780699 (1000) total: 13s  remaining: 26s
9 1500:  learn: 17.2746005  test: 19.3446715
    best: 19.3446715 (1500) total: 19.7s  remaining:
    19.7s
10 2000:  learn: 16.6634131  test: 19.2240099
    best: 19.2237564 (1999) total: 26.6s  remaining:
    13.3s
11 2500:  learn: 16.1839249  test: 19.1359615
    best: 19.1359615 (2500) total: 33s  remaining: 6.
    58s
12 2999:  learn: 15.8128670  test: 19.0861850
    best: 19.0861850 (2999) total: 39.4s  remaining:
    0us
13
14 bestTest = 19.08618497
15 bestIteration = 2999
16
17 Fold 1 MAE: 19.0862
18 0:  learn: 124.3012418  test: 123.7130010  best:
    123.7130010 (0) total: 17.9ms  remaining: 53.6s
19 500:  learn: 19.3876760  test: 20.2055468
    best: 20.2055468 (500) total: 6.46s  remaining:
    32.2s
20 1000:  learn: 18.0788666  test: 19.6388438
    best: 19.6388438 (1000) total: 12.8s  remaining:
    25.6s
21 1500:  learn: 17.2629276  test: 19.4138271
    best: 19.4138271 (1500) total: 19.1s  remaining:
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21 19.1s
22 2000:   learn: 16.6458651   test: 19.2922179
    best: 19.2922179 (2000) total: 25.6s   remaining:
    12.8s
23 2500:   learn: 16.1395131   test: 19.2163751
    best: 19.2163339 (2499) total: 32s   remaining: 6.
    38s
24 2999:   learn: 15.7441618   test: 19.1741264
    best: 19.1741264 (2999) total: 38.5s   remaining:
    0us
25
26 bestTest = 19.17412639
27 bestIteration = 2999
28
29 Fold 2 MAE: 19.1741
30 0:   learn: 124.1719723   test: 124.2408855   best:
    124.2408855 (0) total: 14.3ms   remaining: 42.8s
31 500:   learn: 19.4640665   test: 19.9159969
    best: 19.9159969 (500) total: 6.47s   remaining:
    32.3s
32 1000:   learn: 18.1144448   test: 19.3615109
    best: 19.3615109 (1000) total: 13.6s   remaining:
    27.1s
33 1500:   learn: 17.2845321   test: 19.1372694
    best: 19.1372694 (1500) total: 20.1s   remaining:
    20.1s
34 2000:   learn: 16.7079492   test: 19.0194636
    best: 19.0193359 (1999) total: 26.6s   remaining:
    13.3s
35 2500:   learn: 16.2182261   test: 18.9384013
    best: 18.9383585 (2498) total: 33.1s   remaining:
    6.61s
36 2999:   learn: 15.8684564   test: 18.8907861
    best: 18.8907861 (2999) total: 39.5s   remaining:
    0us
37
38 bestTest = 18.89078608
39 bestIteration = 2999
40
41 Fold 3 MAE: 18.8908
42 0:   learn: 124.2244613   test: 125.0789309   best:
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42 125.0789309 (0) total: 17.1ms    remaining: 51.3s
43 500:    learn: 19.4026381    test: 20.1488056
    best: 20.1488056 (500) total: 6.46s    remaining:
    32.2s
44 1000:   learn: 18.0538831    test: 19.5248682
    best: 19.5248682 (1000) total: 12.9s    remaining:
    25.8s
45 1500:   learn: 17.2442610    test: 19.3229656
    best: 19.3229656 (1500) total: 20s    remaining: 19.
    9s
46 2000:   learn: 16.6583677    test: 19.1992911
    best: 19.1992911 (2000) total: 26.5s    remaining:
    13.2s
47 2500:   learn: 16.1965282    test: 19.1281413
    best: 19.1278938 (2488) total: 32.9s    remaining:
    6.57s
48 2999:   learn: 15.8195667    test: 19.0784609
    best: 19.0784609 (2999) total: 39.4s    remaining:
    0us
49
50 bestTest = 19.07846088
51 bestIteration = 2999
52
53 Fold 4 MAE: 19.0785
54 0:    learn: 124.2623796    test: 123.8678070    best:
    123.8678070 (0) total: 18ms remaining: 53.9s
55 500:   learn: 19.4141785    test: 20.2241501
    best: 20.2241501 (500) total: 6.58s    remaining:
    32.8s
56 1000:   learn: 18.0576266    test: 19.6002838
    best: 19.6002838 (1000) total: 13.2s    remaining:
    26.3s
57 1500:   learn: 17.2308831    test: 19.3845475
    best: 19.3845475 (1500) total: 19.9s    remaining:
    19.8s
58 2000:   learn: 16.6168686    test: 19.2639378
    best: 19.2639378 (2000) total: 26.6s    remaining:
    13.3s
59 2500:   learn: 16.1367314    test: 19.1755445
    best: 19.1755445 (2500) total: 33.2s    remaining:
    6.62s
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60 2999:   learn: 15.7518158   test: 19.1310285
    best: 19.1310285 (2999) total: 39.8s   remaining
    : 0us
61
62 bestTest = 19.13102847
63 bestIteration = 2999
64
65 Fold 5 MAE: 19.1310
66
67 =====
68     V7版本 (CatBoost) 平均 MAE: 19.0721
69 =====
70     提交文件已生成: submission_v7_catboost_mae_19.0721
    .csv
71
72 进程已结束, 退出代码为 0
73
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