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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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