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1 /System/Volumes/Data/Users/liangwenlong/envs/ml_env
  /bin/python3.12 /Users/liangwenlong/study/bme/3/
  ml_usage/project/solutionv5.2.py
2 正在读取数据...
3 正在构建特征 (V6 - 00F Target Encoding)...
4   正在执行 00F Target Encoding (防止泄露): ['
  driver_name_and_id', 'vehicle_type', '
  vehicle_motortype', 'deviceuniquecode']
5 最终特征数: 66
6 开始训练 LightGBM (V6 - Robust)...
7 Training until validation scores don't improve for
  300 rounds
8 [1000]  valid_0's l1: 19.4314
9 [2000]  valid_0's l1: 19.2187
10 [3000]  valid_0's l1: 19.1285
11 [4000]  valid_0's l1: 19.0799
12 [5000]  valid_0's l1: 19.0382
13 [6000]  valid_0's l1: 19.0221
14 [7000]  valid_0's l1: 18.9985
15 [8000]  valid_0's l1: 18.9801
16 [9000]  valid_0's l1: 18.962
17 [10000] valid_0's l1: 18.9526
18 Did not meet early stopping. Best iteration is:
19 [9960]  valid_0's l1: 18.9523
20 Fold 1 MAE: 18.9523
21 Training until validation scores don't improve for
  300 rounds
22 [1000]  valid_0's l1: 19.6654
23 [2000]  valid_0's l1: 19.4837
24 [3000]  valid_0's l1: 19.4014
25 [4000]  valid_0's l1: 19.3497
26 [5000]  valid_0's l1: 19.3124
27 [6000]  valid_0's l1: 19.2845
28 [7000]  valid_0's l1: 19.2643
29 [8000]  valid_0's l1: 19.2492
30 [9000]  valid_0's l1: 19.2317
31 [10000] valid_0's l1: 19.2233
32 Did not meet early stopping. Best iteration is:
33 [9999]  valid_0's l1: 19.2233
34 Fold 2 MAE: 19.2233
35 Training until validation scores don't improve for
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35 300 rounds
36 [1000] valid_0's l1: 19.6985
37 [2000] valid_0's l1: 19.4802
38 [3000] valid_0's l1: 19.3909
39 [4000] valid_0's l1: 19.3316
40 [5000] valid_0's l1: 19.2913
41 [6000] valid_0's l1: 19.2604
42 [7000] valid_0's l1: 19.2458
43 [8000] valid_0's l1: 19.2268
44 [9000] valid_0's l1: 19.2143
45 [10000] valid_0's l1: 19.2014
46 Did not meet early stopping. Best iteration is:
47 [9997] valid_0's l1: 19.2014
48 Fold 3 MAE: 19.2014
49 Training until validation scores don't improve for
   300 rounds
50 [1000] valid_0's l1: 19.6951
51 [2000] valid_0's l1: 19.4921
52 [3000] valid_0's l1: 19.3926
53 [4000] valid_0's l1: 19.3305
54 [5000] valid_0's l1: 19.2885
55 [6000] valid_0's l1: 19.2581
56 [7000] valid_0's l1: 19.2358
57 [8000] valid_0's l1: 19.2189
58 [9000] valid_0's l1: 19.198
59 [10000] valid_0's l1: 19.1855
60 Did not meet early stopping. Best iteration is:
61 [10000] valid_0's l1: 19.1855
62 Fold 4 MAE: 19.1855
63 Training until validation scores don't improve for
   300 rounds
64 [1000] valid_0's l1: 19.6485
65 [2000] valid_0's l1: 19.4866
66 [3000] valid_0's l1: 19.3826
67 [4000] valid_0's l1: 19.331
68 [5000] valid_0's l1: 19.2913
69 [6000] valid_0's l1: 19.2679
70 [7000] valid_0's l1: 19.2552
71 [8000] valid_0's l1: 19.238
72 [9000] valid_0's l1: 19.2282
73 [10000] valid_0's l1: 19.2177
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74 Did not meet early stopping. Best iteration is:
75 [9996] valid_0's l1: 19.2176
76 Fold 5 MAE: 19.2176
77
78 =====
79     V6版本（无泄露）平均 MAE: 19.1560
80 =====
81     最稳健的提交文件已生成: submission_v6_robust_mae_19
      .1560.csv
82
83 进程已结束, 退出代码为 0
84
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