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1 /System/Volumes/Data/Users/liangwenlong/envs/ml_env
  /bin/python3.12 /Users/liangwenlong/study/bme/3/
  ml_usage/project/solutionv3.py
2 正在读取数据...
3 正在清洗数据类型...
4 正在进行特征工程 V3...
5 使用的特征数量: 62
6 真正的类别特征: ['deviceuniquecode', '
  driver_name_and_id']
7 开始训练 LightGBM (V3 - Fixed Types)...
8 Training until validation scores don't improve for
  100 rounds
9 [1000]  valid_0's rmse: 30.0015
10 [2000]  valid_0's rmse: 29.5518
11 [3000]  valid_0's rmse: 29.3765
12 [4000]  valid_0's rmse: 29.2794
13 Early stopping, best iteration is:
14 [4574]  valid_0's rmse: 29.2389
15 Fold 1 RMSE: 29.2389
16 Training until validation scores don't improve for
  100 rounds
17 [1000]  valid_0's rmse: 30.7632
18 [2000]  valid_0's rmse: 30.3376
19 [3000]  valid_0's rmse: 30.1736
20 [4000]  valid_0's rmse: 30.0642
21 Early stopping, best iteration is:
22 [4259]  valid_0's rmse: 30.0422
23 Fold 2 RMSE: 30.0422
24 Training until validation scores don't improve for
  100 rounds
25 [1000]  valid_0's rmse: 29.7203
26 [2000]  valid_0's rmse: 29.2933
27 [3000]  valid_0's rmse: 29.157
28 [4000]  valid_0's rmse: 29.0697
29 [5000]  valid_0's rmse: 29.0171
30 Did not meet early stopping. Best iteration is:
31 [4966]  valid_0's rmse: 29.0145
32 Fold 3 RMSE: 29.0145
33 Training until validation scores don't improve for
  100 rounds
34 [1000]  valid_0's rmse: 31.0685
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35 [2000] valid_0's rmse: 30.6342
36 [3000] valid_0's rmse: 30.4662
37 [4000] valid_0's rmse: 30.3535
38 Early stopping, best iteration is:
39 [4271] valid_0's rmse: 30.33
40 Fold 4 RMSE: 30.3300
41 Training until validation scores don't improve for
  100 rounds
42 [1000] valid_0's rmse: 30.4242
43 [2000] valid_0's rmse: 29.9924
44 [3000] valid_0's rmse: 29.8124
45 [4000] valid_0's rmse: 29.7102
46 Early stopping, best iteration is:
47 [4391] valid_0's rmse: 29.6893
48 Fold 5 RMSE: 29.6893
49
50 =====
51      V3版本（类型修复）平均 RMSE: 29.6630
52 =====
53 提交文件已生成: submission_v3_fixed_rmse_29.6630.csv
54
55 进程已结束，退出代码为 0
56
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