13.7 Fairness and limitations

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS error disparity

Objective

Audit per-group error and write the limitation statement.

1 Key knowledge and worked examples

■ The audit

City recall $27/30 = 0.90$; rural $9/12 = 0.75$ – a 15-point disparity; rural lates are 13% of the region vs city 29% ✓.

■ Worked example: the card

Overnight is synthetic, 200 records, two regions, one season – the card states intended use, the gap, out-of-scope uses ✓.

2 Practice

2.1 Why does overall accuracy hide the gap? [3]

2.2 Where does the disparity most likely start? [3]

2.3 Name two fairness criteria that can conflict. [3]

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3 Exam-style questions

3.1 A second audit adds a third region: mountain, with 6 lates of 40 records, recall 3/6 = 0.50.

Recompute the per-region recall table and the worst disparity in points. State the cause-level explanation for mountain and the data-side fix. Give the class-weighting alternative and its risk. State what the model card must now record. [8]

3.2 The owner proposes fixing all disparity by moving each region's threshold until recalls match.

State what parity criterion this implements. Give one reason it can be the right call and one reason it can mislead. Propose the evaluation that would justify (or veto) the move. State the limitation-statement duty the owner retains either way. [7]

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