# AI Bias and Fairness — Student Worksheet

Notes for SHS · Data Science · Topic 62 · Original synthetic demonstration

Every exercise uses fictional figures and is intended for independent practice. Do not infer findings about real students or protected groups.

## Short questions

1. Define algorithmic bias. (Write your answer before opening the solutions.)

2. Distinguish representation from measurement bias. (Write your answer before opening the solutions.)

3. Identify a possible proxy variable. (Write your answer before opening the solutions.)

4. Calculate selection rate if a model selects 32 of 80 cases. (Write your answer before opening the solutions.)

5. Calculate FPR with 8 false positives and 32 true negatives. (Write your answer before opening the solutions.)

6. Calculate TPR with 42 true positives and 18 false negatives. (Write your answer before opening the solutions.)

7. Interpret the fictional baseline group selection rates. (Write your answer before opening the solutions.)

8. Why do unequal group outcomes need investigation? (Write your answer before opening the solutions.)

9. Propose a mitigation and limitation. (Write your answer before opening the solutions.)

10. Write a responsible audit conclusion. (Write your answer before opening the solutions.)

## Calculation facts

Selection rate = selected / all; FPR = FP / (FP + TN); FNR = FN / (FN + TP); TPR = TP / (TP + FN). If a denominator is zero, the rate is undefined, not automatically zero.