Part 3: Ethical Reflection

Although the Breast Cancer dataset is medical in nature, when repurposed to simulate issue prioritization in a company, several biases could emerge:

- Representation Bias: If the simulated labels (e.g., high/low priority) are derived solely from diagnosis (Malignant or Benign), they may not reflect real-world business issue complexity, urgency, or team-specific workflows.
- Underrepresented Teams or Cases: If the dataset were extended to include synthetic team labels (e.g., Engineering, Support), some teams might be over- or underrepresented, causing the model to favor frequent patterns and ignore outliers.
- Historical Bias: If the dataset were based on historical decisions (e.g., which team's issues were typically marked "high priority"), it might reinforce past inequalities in resource allocation.

How IBM AI Fairness 360 Could Help

- IBM AI Fairness 360 (AIF360) is an open-source toolkit designed to assess and mitigate bias in AI systems. It could help in the following ways:
- Bias Detection: AIF360 can measure bias using fairness metrics like disparate impact, equal opportunity, and statistical parity across sensitive attributes (e.g., team, gender, severity).
- Bias Mitigation: It provides pre-processing (reweighing), in-processing and post-processing (equalized odds) algorithms to reduce unfair outcomes.
- Transparency: With explainable fairness reports, stakeholders can understand how decisions are made and whether all teams or groups are being treated fairly.