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Probability & Statistics	141

1. Which of the following types of bias emerges when the same data is sampled over and over again, limiting a model's perspective? **1 / 1 point**

- ○ Implicit bias
- ○ Temporal bias
- ○ Confirmation bias
- ◉ Reinforcement bias

Correct
Reinforcement bias occurs when data is sampled many times in training, which can skew the model's decisions.

2. Why is a model that has been overfitted to its training data a source of fairness risk? **1 / 1 point**

- ◉ Because the model won't generalize to the entire population.
- ○ Because the model includes too much noise.
- ○ Because the model has a temporal bias.
- ○ Because the model is too complex.

Correct

If the training data was biased, an overfit model won't be accurate for the general population.

3. Which type of edge case is caused by data outside the normal distribution? **1 / 1 point**

- ○ Overfitting
- ○ Errors
- ◉ Outliers
- ○ Noise

Correct
An outlier is a type of edge case data point outside the data boundaries, often caused by mistakes in data measurement or processing.

4. Which of the following is a function of exploratory data analysis (EDA)? **1 / 1 point**

- ○ To evaluate the organization's project management structure for the AI project.
- ○ To evaluate the decisions made by the model after training on the data.
- ○ To evaluate the methods used to collect the data.
- ◉ To evaluate the quality of data before it is used to train a model.

Correct
EDA is used to assess the usefulness of data before it is fed to a model so that flaws can be revealed early.

5. How can persona modeling be used to identify potential biases in a machine learning model? **1 / 1 point**

- ◉ The persona may represent groups of people that could be susceptible to bias.
- ○ The persona may show that specific users are a source of bias.
- ○ The persona may identify noise and other edge cases that lead to bias.
- ○ The persona may reveal overfitting issues in a model that result from bias.

Correct
Because personas represent segments of a user base, they can help you identify the protected groups that could be exposed to bias in your AI products.

6. In a classification model that determines whether or not a customer qualifies for a coupon, a significantly lower percentage of males qualified than females. Which of the following types of discrimination does this outcome potentially represent? **1 / 1 point**

- ○ Disparate non-impact
- ◉ Disparate impact
- ○ Disparate treatment
- ○ Disparate mistreatment

Correct
This type of discrimination focuses on the difference between the outcomes of each group. The outcomes for males differed from the outcomes for females.

7. Which of the following describes the purpose of a STEEPV analysis? **1 / 1 point**

- ○ To perform a strategic analysis of user needs and behaviors.
- ○ To perform a strategic analysis of how bias can manifest in AI products.
- ◉ To perform a strategic analysis of how external environments impact business operations.
- ○ To perform a strategic analysis of how internal office politics impact business operations.

Correct
A STEEPV analysis helps an organization identify how multiple external factors can impact the business.

8. Which of the following are best practices for incorporating inclusive design in AI projects? (Select two.) **1 / 1 point**

- ☐ Keep machines and humans separate.
- ☑ Leverage customer input to reduce bias.

Correct
Customers can provide a great deal of useful feedback based on their experiences.

- ☑ Consider bias a spectrum.

Correct
Bias is often subtle and not necessarily a case of good vs. evil. Considering bias as a spectrum is necessary for spotting this subtlety.

- ☐ Solve for many, extend to one.

9. Which of the following describes the AI Fairness 360 project? **1 / 1 point**

- ○ A global initiative that promotes fairness in AI through seminars, conferences, and other community-driven activities.
- ◉ An open source library that evaluates models for bias and provides mitigation tactics to reduce that bias.
- ○ A checklist for machine learning practitioners to follow when training fair AI models.
- ○ An AI product that represents a completely fair model for AI practitioners to use as a benchmark.

Correct
AI Fairness 360 is a Python library that uses various evaluation metrics to detect bias in models, and various mitigation algorithms to reduce any detected bias.

10. What is the primary advantage of radioactive data tracing over past techniques that modify input in order to determine whether or not that input was used in training? **1 / 1 point**

- ○ Radioactive data tracing can be used to modify the label.
- ○ Radioactive data tracing targets language-based input.
- ◉ Radioactive data tracing doesn't impact a model's performance.
- ○ Radioactive data tracing makes the modification perceptible to human beings.

Correct
Older techniques "poison" a model, affecting its performance. Radioactive data tracing is able to work without affecting model performance.