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Exam Professional Machine Learning Engineer All Questions

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EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 149 DISCUSSI...

Actual exam question from Google's Professional Machine Learning Engineer

Question #: 149

Topic #: 1

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You recently deployed an ML model. Three months after deployment, you notice that your model is underperforming on certain subgroups, thus potentially leading to biased results. You suspect that the inequitable performance is due to class imbalances in the training data, but you cannot collect more data. What should you do? (Choose two.)

- A. Remove training examples of high-performing subgroups, and retrain the model.
- B. Add an additional objective to penalize the model more for errors made on the minority class, and retrain the model
- C. Remove the features that have the highest correlations with the majority class.
- D. Upsample or reweight your existing training data, and retrain the model
- E. Redeploy the model, and provide a label explaining the model's behavior to users.



Show Suggested Answer

by [John_Pongthorn](#) at Feb. 15, 2023, 7:48 a.m.

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  **fitri001** 6 months, 2 weeks ago



Selected Answer: BD

Penalizing Errors on Minority Class (B): This technique, also known as cost-sensitive learning, modifies the loss function during training. Assigning a higher penalty to misclassifications of the minority class steers the model to prioritize learning from those examples.

Upsampling/Reweight Training Data (D):

Upsampling increases the representation of the minority class in the training data by duplicating existing data points. Reweighting assigns higher weights to data points from the minority class during training, making their influence more significant.

   upvoted 3 times

  **fitri001** 6 months, 2 weeks ago

A. Removing High-Performing Subgroup Examples: This removes valuable data and can worsen overall model performance.

C. Removing High-Correlation Features: This might eliminate informative features and could negatively impact model accuracy.

E. Redeploying with Explanation: While transparency is essential, it doesn't address the underlying performance disparity

   upvoted 2 times

  **Carlose2108** 8 months, 1 week ago

Selected Answer: BD

I went B & D.

   upvoted 1 times

  **PST21** 1 year, 3 months ago

D. Upsample or reweight your existing training data, and retrain the model.

E. Redeploy the model, and provide a label explaining the model's behavior to users.

Option D: Upsampling or reweighting your existing training data and retraining the model can help address the class imbalance issue and improve the performance on certain subgroups. By duplicating or adjusting the weights of samples from the minority class, the model will receive more exposure to these samples during training, leading to better learning and performance on the underrepresented subgroups.

Option E: Redeploying the model and providing a label explaining the model's behavior to users is essential for transparency and accountability. If the model exhibits biased behavior or inequitable performance on certain subgroups, informing users about this issue can help them interpret the model's predictions more effectively and make informed decisions based on the model's output.

   upvoted 1 times

  **M25** 1 year, 5 months ago

Selected Answer: BD

Went with B, D

   upvoted 2 times

  **hakook** 1 year, 8 months ago

Selected Answer: BD

should be B,D

   upvoted 2 times

  **TNT87** 1 year, 8 months ago

Selected Answer: BD

Option B and D could be good approaches to address the issue.

B. Adding an additional objective to penalize the model more for errors made on the minority class can help the model to focus more on correctly classifying the underrepresented class.

D. Upsampling or reweighting the existing training data can help balance the class distribution and increase the model's sensitivity to the underrepresented class.

   upvoted 4 times

  **TNT87** 1 year, 8 months ago

<https://machinelearningmastery.com/tactics-to-combat-imbalanced-classes-in-your-machine-learning-dataset/>

   upvoted 2 times

  **TNT87** 1 year, 8 months ago

<https://www.analyticsvidhya.com/blog/2020/07/10-techniques-to-deal-with-class-imbalance-in-machine-learning/>



upvoted 2 times



John_Pongthorn 1 year, 8 months ago

Selected Answer: BD

<https://machinelearningmastery.com/tactics-to-combat-imbalanced-classes-in-your-machine-learning-dataset/>



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