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Exam Professional Machine Learning Engineer All Questions

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EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 169 DISCUSSI...

Actual exam question from Google's Professional Machine Learning Engineer

Question #: 169

Topic #: 1

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You are developing a model to detect fraudulent credit card transactions. You need to prioritize detection, because missing even one fraudulent transaction could severely impact the credit card holder. You used AutoML to train a model on users' profile information and credit card transaction data. After training the initial model, you notice that the model is failing to detect many fraudulent transactions. How should you adjust the training parameters in AutoML to improve model performance? (Choose two.)

- A. Increase the score threshold
- B. Decrease the score threshold.
- C. Add more positive examples to the training set
- D. Add more negative examples to the training set
- E. Reduce the maximum number of node hours for training


Show Suggested Answer

by [b1a8fae](#) at Jan. 8, 2024, 4:13 p.m.

Comments

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  **tardigradum** 2 months, 1 week ago


Selected Answer: B

B&C

If we want to increase the detection rate of fraudulent transactions, we can lower the classification threshold. By doing so, the model becomes less strict and classifies more transactions as potentially fraudulent. This implies including a higher number of false positives in our results.

To improve the performance, we can also add more fraudulent transactions examples to the dataset (fraudulent transactions are the positives, in this case)

   upvoted 1 times

  **fitri001** 6 months ago

Selected Answer: B

B & D

D. Add more negative examples to the training set: Fraudulent transactions are typically a minority compared to legitimate transactions. By increasing the number of negative examples (fraudulent transactions) in your training data, you provide AutoML with more information about the patterns of fraudulent activity. This can help the model better distinguish between legitimate and fraudulent transactions.

B. Decrease the score threshold: The score threshold determines the level of suspicion assigned to a transaction by the model. A lower threshold means the model flags more transactions as suspicious, potentially catching more fraudulent activities. However, this might also lead to an increase in false positives (flagging legitimate transactions). You'll need to find a balance between fraud detection and acceptable false positive rates based on your business needs.

   upvoted 2 times

  **tardigradum** 2 months, 1 week ago

Positive is fraudulent in this case, so B & C

   upvoted 1 times

  **pinimichele01** 6 months ago

positive is fraudulent.. aka minority class

   upvoted 3 times

  **fitri001** 6 months ago

A. Increase the score threshold: This would make the model more conservative and less likely to flag fraudulent transactions, potentially missing actual fraud.

C. Add more positive examples (legitimate transactions): While having a balanced dataset is important, in this case, prioritizing fraud detection suggests focusing on improving the model's ability to identify fraudulent transactions (negative examples) rather than adding more legitimate ones.

E. Reduce the maximum number of node hours for training: Reducing training time might limit the model's ability to learn complex patterns, potentially hindering its performance.

   upvoted 1 times

  **shadz10** 9 months, 1 week ago

B&C - Fraudulent transactions are often rare events, so the model might not have enough exposure to learn their patterns effectively.

   upvoted 2 times

  **36bdc1e** 9 months, 1 week ago

B & C

They are the options

   upvoted 2 times

  **BlehMaks** 9 months, 2 weeks ago

Selected Answer: C

BC

B. More suspicious transactions are marked as fraudulent

C. Usually real fraudulent transactions are rare in datasets so we need to add more examples to make our model focus more on them

   upvoted 3 times

  **pikachu007** 9 months, 2 weeks ago

Selected Answer: B

B & D

B. Decrease the score threshold: This adjustment could make the model more sensitive, potentially reducing the chance of missing fraudulent transactions, but might increase false positives.

D. Add more negative examples to the training set: Providing more examples of non-fraudulent transactions could help the model better distinguish between legitimate and fraudulent transactions, improving its overall performance.

👍 ↩ 🚩 upvoted 2 times

🗒️ 👤 **tavva_prudhvi** 5 months, 3 weeks ago

Option D's approach could be beneficial in a scenario where the model is overfitting to the fraudulent (positive) cases due to an imbalance in the training data favoring fraudulent examples. But, as per the question "model is failing to detect many fraudulent transactions"

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🗒️ 👤 **b1a8fae** 9 months, 2 weeks ago

Selected Answer: C

Regarding the 2nd choice (did not notice), I would choose C: adding more positive examples to the training set. It did not sound like a change of parameter to me, but apparently AutoML allows parametrization of data split: <https://cloud.google.com/vertex-ai/docs/general/ml-use>. I am not entirely convinced but it seems more likely than any other option (reducing max number of hours per node for training can only affect performance negatively I reckon?)

👍 ↩ 🚩 upvoted 2 times

🗒️ 👤 **b1a8fae** 9 months, 2 weeks ago

Selected Answer: B

B. Decreasing the score threshold will cause the model to make more positive predictions and potentially decrease the number of false negatives (non detected fraudulent transactions)

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