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Exam Professional Machine Learning Engineer All Questions

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📄 **EXAM PROFESSIONAL MACHINE LEARNING ENGINEER TOPIC 1 QUESTION 139 DISCUSSI...**

Actual exam question from Google's Professional Machine Learning Engineer

Question #: 139

Topic #: 1

[All Professional Machine Learning Engineer Questions]

You work on a team in a data center that is responsible for server maintenance. Your management team wants you to build a predictive maintenance solution that uses monitoring data to detect potential server failures. Incident data has not been labeled yet. What should you do first?

A. Train a time-series model to predict the machines' performance values. Configure an alert if a machine's actual performance values significantly differ from the predicted performance values.

B. Develop a simple heuristic (e.g., based on z-score) to label the machines' historical performance data. Use this heuristic to monitor server performance in real time.

C. Develop a simple heuristic (e.g., based on z-score) to label the machines' historical performance data. Train a model to predict anomalies based on this labeled dataset.

D. Hire a team of qualified analysts to review and label the machines' historical performance data. Train a model based on this manually labeled dataset.

Show Suggested Answer

by 👤 mil_spyro at *Dec. 13, 2022, 6:49 p.m.*

Comments

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Mickey321 `Highly Voted` 11 months, 2 weeks ago

`Selected Answer: B`

Should be B

👍 ↩ 🚩 upvoted 5 times

Mickey321 11 months, 2 weeks ago

Compare to 94

👍 ↩ 🚩 upvoted 1 times

omermahgoub `Most Recent` 6 months, 1 week ago

`Selected Answer: C`

C. Develop a simple heuristic (e.g., based on z-score) to label the machines' historical performance data. Train a model to predict anomalies based on this labeled dataset.

Real-Time Heuristic Monitoring (Option B): Using a z-score based heuristic for real-time monitoring can be helpful as an initial step, but it might not capture complex anomaly patterns that a trained model could identify.

👍 ↩ 🚩 upvoted 1 times

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pinimichele01 5 months, 4 weeks ago

"What should you do first?"....

👍 ↩ 🚩 upvoted 2 times

ludovikush 7 months ago

`Selected Answer: C`

I go for C because is more practical and efficient

👍 ↩ 🚩 upvoted 1 times

pico 11 months, 1 week ago

`Selected Answer: D`

D: This approach involves creating a labeled dataset through human analysis, which serves as the ground truth for training a predictive maintenance model. Manual labeling allows you to identify instances of actual failures and non-failure states in the historical performance data. Once the dataset is labeled, you can train a machine learning model to detect patterns associated with potential server failures.

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pico 11 months, 1 week ago

why not B (or C): While heuristics can be quick to implement, they may lack accuracy and may not capture complex patterns associated with server failures. Additionally, using a heuristic alone might not provide the necessary foundation for a robust predictive maintenance model.

👍 ↩ 🚩 upvoted 1 times

Werner123 7 months, 3 weeks ago

Google Rules of ML: Rule #1: Don't be afraid to launch a product without machine learning. https://developers.google.com/machine-learning/guides/rules-of-ml#rule_1_don%E2%80%99t_be_afraid_to_launch_a_product_without_machine_learning

👍 ↩ 🚩 upvoted 3 times

pico 11 months, 2 weeks ago

`Selected Answer: C`

Option B also falls short as it focuses on real-time monitoring based on a heuristic but doesn't utilize historical data to create a predictive model. This approach might raise false alarms and lacks the ability to learn from the data over time.

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Krish6488 11 months, 2 weeks ago

`Selected Answer: C`

Clearly the ask is an approach to build an ML application to detect potential server failures. Using labelled data to monitor it in real time does not give a proactive solution rather it becomes a reactive solution. I will go with C

👍 ↩ 🚩 upvoted 2 times

Werner123 7 months, 3 weeks ago

It does not say use ML. It only says a predictive maintenance solution, that could be using a simple heuristic.

👍 ↩ 🚩 upvoted 2 times

☐ 📷 **M25** 1 year, 5 months ago

The goal / "your" task is to predict or "build a predictive maintenance solution", i.e., "Train a model to predict anomalies" [Option C]; not to perform monitoring or "to monitor server performance in real time" [Option B], there is a whole team "responsible for server maintenance".
The "do first" part refers to the use of a simple heuristic for initial labeling, not to what to do with the results of it.
The more sophisticated solution: https://cloud.google.com/blog/products/ai-machine-learning/event-monitoring-with-explanations-on-the-google-cloud.

👍 ↩ 🚩 upvoted 1 times

⊟ 👤 **M25** 1 year, 5 months ago

Changed to B, based on the comparison with #94, assuming that by "Use this heuristic to monitor server performance in real time" is meant to "first" test this heuristic for labelling in a Prod. environment, as a quick reality-check, before training a whole model on a roughly inaccurate labelled dataset.

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⊟ 👤 **pico** 11 months, 1 week ago

why do you assume that this needs to be done "quick" instead of "good"?

👍 ↩ 🚩 upvoted 1 times

⊟ 👤 **TNT87** 1 year, 7 months ago

ANSWER B

👍 ↩ 🚩 upvoted 2 times

⊟ 👤 **osaka_monkey** 1 year, 7 months ago

https://developers.google.com/machine-learning/guides/rules-of-ml

👍 ↩ 🚩 upvoted 3 times

⊟ 👤 **YushiSato** 2 months, 1 week ago

https://developers.google.com/machine-learning/guides/rules-of-ml#rule_1_don%E2%80%99t_be_afraid_to_launch_a_product_without_machine_learning
> Rule #1: Don't be afraid to launch a product without machine learning.
> Machine learning is cool, but it requires data. Theoretically, you can take data from a different problem and then tweak the model for a new product, but this will likely underperform basic heuristics. If you think that machine learning will give you a 100% boost, then a heuristic will get you 50% of the way there.

> For instance, if you are ranking apps in an app marketplace, you could use the install rate or number of installs as heuristics. If you are detecting spam, filter out publishers that have sent spam before. Don't be afraid to use human editing either. If you need to rank contacts, rank the most recently used highest (or even rank alphabetically). If machine learning is not absolutely required for your product, don't use it until you have data.

👍 ↩ 🚩 upvoted 1 times

⊟ 👤 **TNT87** 1 year, 7 months ago

D. Hire a team of qualified analysts to review and label the machines' historical performance data. Training a model based on this manually labeled dataset would be the most accurate and effective approach. Developing a simple heuristic to label the machines' historical performance data may not be accurate enough to detect all potential failures, and training a model without labeled data could result in poor performance. Additionally, it's important to ensure that the team of analysts is qualified and experienced in labeling this type of data accurately to ensure the model is trained with high-quality labeled data.

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⊟ 👤 **TNT87** 1 year, 7 months ago

Answer B

👍 ↩ 🚩 upvoted 1 times

⊟ 👤 **Scipione_** 1 year, 8 months ago

I like this question because it's helpful to remember that ML is used when needed.
In this case you have unlabeled target classes so you can use unsupervised learning techniques like clustering to identify patterns or just develop a heuristic method.
Answer 'B' in my opinion.

👍 ↩ 🚩 upvoted 1 times

⊟ 👤 **Scipione_** 1 year, 8 months ago

sorry I meant 'B'

👍 ↩ 🚩 upvoted 1 times

👤 **TNT87** 1 year, 10 months ago

Selected Answer: B

https://developers.
google.com/machine-
learning/
guides/rules-of-ml
Answer B

👍 ↩ ⚑ upvoted 2 times

👤 **hiromi** 1 year, 10 months ago

Selected Answer: B

B
- https://developers.google.com/machine-learning/guides/rules-of-ml

👍 ↩ ⚑ upvoted 2 times

👤 **mymy9418** 1 year, 10 months ago

Selected Answer: B

B should be first to do

👍 ↩ ⚑ upvoted 1 times

👤 **mil_spyro** 1 year, 10 months ago

Selected Answer: D

Vote D

👍 ↩ ⚑ upvoted 1 times

👤 **mil_spyro** 1 year, 10 months ago

Should be B

👍 ↩ ⚑ upvoted 2 times

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