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QUESTION 1

You started working on a classification problem with time series data and achieved an area under the receiver operating characteristic curve (AUC ROC) value of 99% for training data after just a few experiments. You haven\\'t explored using any sophisticated algorithms or spent any time on hyperparameter tuning. What should your next step be to identify and fix the problem?

A. Address the model overfitting by using a less complex algorithm.

B. Address data leakage by applying nested cross-validation during model training.

C. Address data leakage by removing features highly correlated with the target value.

D. Address the model overfitting by tuning the hyperparameters to reduce the AUC ROC value.

Correct Answer: B

https://towardsdatascience.com/time-series-nested-cross-validation-76adba623eb9

QUESTION 2

You are an ML engineer responsible for designing and implementing training pipelines for ML models. You need to create an end-to-end training pipeline for a TensorFlow model. The TensorFlow model will be trained on several terabytes of structured data. You need the pipeline to include data quality checks before training and model quality checks after training but prior to deployment. You want to minimize development time and the need for infrastructure maintenance. How should you build and orchestrate your training pipeline?

A. Create the pipeline using Kubeflow Pipelines domain-specific language (DSL) and predefined Google Cloud components. Orchestrate the pipeline using Vertex AI Pipelines.

B. Create the pipeline using TensorFlow Extended (TFX) and standard TFX components. Orchestrate the pipeline using Vertex AI Pipelines.

C. Create the pipeline using Kubeflow Pipelines domain-specific language (DSL) and predefined Google Cloud components. Orchestrate the pipeline using Kubeflow Pipelines deployed on Google Kubernetes Engine.

D. Create the pipeline using TensorFlow Extended (TFX) and standard TFX components. Orchestrate the pipeline using Kubeflow Pipelines deployed on Google Kubernetes Engine.

Correct Answer: B

https://cloud.google.com/vertex-ai/docs/pipelines/build-pipeline#sdk

QUESTION 3

While running a model training pipeline on Vertex AI, you discover that the evaluation step is failing because of an out-of-memory error. You are currently using TensorFlow Model Analysis (TFMA) with a standard Evaluator TensorFlow Extended (TFX) pipeline component for the evaluation step. You want to stabilize the pipeline without downgrading the evaluation quality while minimizing infrastructure overhead. What should you do?

A. Include the flag -runner=DataflowRunner in beam_pipeline_args to run the evaluation step on Dataflow.

B. Move the evaluation step out of your pipeline and run it on custom Compute Engine VMs with sufficient memory.

C. Migrate your pipeline to Kubeflow hosted on Google Kubernetes Engine, and specify the appropriate node parameters for the evaluation step.

D. Add tfma.MetricsSpec () to limit the number of metrics in the evaluation step.

Correct Answer: A

https://blog.tensorflow.org/2020/03/tensorflow-extended-tfx-using-apache-beam-large-scale-data-processing.html

QUESTION 4

You are working on a Neural Network-based project. The dataset provided to you has columns with different ranges. While preparing the data for model training, you discover that gradient optimization is having difficulty moving weights to a good solution. What should you do?

A. Use feature construction to combine the strongest features.

B. Use the representation transformation (normalization) technique.

C. Improve the data cleaning step by removing features with missing values.

D. Change the partitioning step to reduce the dimension of the test set and have a larger training set.

Correct Answer: B

https://developers.google.com/machine-learning/data-prep/transform/transform-numeric

QUESTION 5

You are an ML engineer on an agricultural research team working on a crop disease detection tool to detect leaf rust spots in images of crops to determine the presence of a disease. These spots, which can vary in shape and size, are correlated to the severity of the disease. You want to develop a solution that predicts the presence and severity of the disease with high accuracy. What should you do?

A. Create an object detection model that can localize the rust spots.

B. Develop an image segmentation ML model to locate the boundaries of the rust spots.

C. Develop a template matching algorithm using traditional computer vision libraries.

D. Develop an image classification ML model to predict the presence of the disease.

Correct Answer: B

An image segmentation model is well-suited for this task because it can identify the exact location and shape of the rust spots in the image, which is critical for determining the severity of the disease. Once the rust spots have been identified, other algorithms can be used to analyze the data and predict the severity of the disease. Object detection models are another option, but they may not be as accurate as image segmentation models when it comes to identifying the exact boundaries of the rust spots. Template matching algorithms using traditional computer vision libraries are generally not as accurate as ML models when it comes to image analysis.

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