



Amazon-Web-Services

Exam Questions MLS-C01

AWS Certified Machine Learning - Specialty

NEW QUESTION 1

A Machine Learning Specialist built an image classification deep learning model. However the Specialist ran into an overfitting problem in which the training and testing accuracies were 99% and 75% respectively.

How should the Specialist address this issue and what is the reason behind it?

- A. The learning rate should be increased because the optimization process was trapped at a local minimum.
- B. The dropout rate at the flatten layer should be increased because the model is not generalized enough.
- C. The dimensionality of dense layer next to the flatten layer should be increased because the model is not complex enough.
- D. The epoch number should be increased because the optimization process was terminated before it reached the global minimum.

Answer: D

NEW QUESTION 2

Example Corp has an annual sale event from October to December. The company has sequential sales data from the past 15 years and wants to use Amazon ML to predict the sales for this year's upcoming event. Which method should Example Corp use to split the data into a training dataset and evaluation dataset?

- A. Pre-split the data before uploading to Amazon S3
- B. Have Amazon ML split the data randomly.
- C. Have Amazon ML split the data sequentially.
- D. Perform custom cross-validation on the data

Answer: C

NEW QUESTION 3

A large JSON dataset for a project has been uploaded to a private Amazon S3 bucket. The Machine Learning Specialist wants to securely access and explore the data from an Amazon SageMaker notebook instance. A new VPC was created and assigned to the Specialist.

How can the privacy and integrity of the data stored in Amazon S3 be maintained while granting access to the Specialist for analysis?

- A. Launch the SageMaker notebook instance within the VPC with SageMaker-provided internet access enabled. Use an S3 ACL to open read privileges to the everyone group.
- B. Launch the SageMaker notebook instance within the VPC and create an S3 VPC endpoint for the notebook to access the data. Copy the JSON dataset from Amazon S3 into the ML storage volume on the SageMaker notebook instance and work against the local dataset.
- C. Launch the SageMaker notebook instance within the VPC and create an S3 VPC endpoint for the notebook to access the data. Define a custom S3 bucket policy to only allow requests from your VPC to access the S3 bucket.
- D. Launch the SageMaker notebook instance within the VPC with SageMaker-provided internet access enabled.
- E. Generate an S3 pre-signed URL for access to data in the bucket.

Answer: B

NEW QUESTION 4

A Data Science team is designing a dataset repository where it will store a large amount of training data commonly used in its machine learning models. As Data Scientists may create an arbitrary number of new datasets every day, the solution has to scale automatically and be cost-effective. Also, it must be possible to explore the data using SQL.

Which storage scheme is MOST adapted to this scenario?

- A. Store datasets as files in Amazon S3.
- B. Store datasets as files in an Amazon EBS volume attached to an Amazon EC2 instance.
- C. Store datasets as tables in a multi-node Amazon Redshift cluster.
- D. Store datasets as global tables in Amazon DynamoDB.

Answer: A

NEW QUESTION 5

A city wants to monitor its air quality to address the consequences of air pollution. A Machine Learning Specialist needs to forecast the air quality in parts per million of contaminants for the next 2 days in the city. As this is a prototype, only daily data from the last year is available.

Which model is MOST likely to provide the best results in Amazon SageMaker?

- A. Use the Amazon SageMaker k-Nearest-Neighbors (kNN) algorithm on the single time series consisting of the full year of data with a predictor_type of regressor.
- B. Use Amazon SageMaker Random Cut Forest (RCF) on the single time series consisting of the full year of data.
- C. Use the Amazon SageMaker Linear Learner algorithm on the single time series consisting of the full year of data with a predictor_type of regressor.
- D. Use the Amazon SageMaker Linear Learner algorithm on the single time series consisting of the full year of data with a predictor_type of classifier.

Answer: C

NEW QUESTION 6

A Machine Learning Specialist wants to determine the appropriate SageMakerVariant Invocations Per Instance setting for an endpoint automatic scaling configuration. The Specialist has performed a load test on a single instance and determined that peak requests per second (RPS) without service degradation is about 20 RPS. As this is the first deployment, the Specialist intends to set the invocation safety factor to 0.5.

Based on the stated parameters and given that the invocations per instance setting is measured on a per-minute basis, what should the Specialist set as the sageMakervariantinvocationsPerInstance setting?

- A. 10
- B. 30
- C. 600
- D. 2,400

Answer: C

NEW QUESTION 7

A Machine Learning Specialist deployed a model that provides product recommendations on a company's website. Initially, the model was performing very well and resulted in customers buying more products on average. However, within the past few months, the Specialist has noticed that the effect of product recommendations has diminished and customers are starting to return to their original habits of spending less. The Specialist is unsure of what happened, as the model has not changed from its initial deployment over a year ago.

Which method should the Specialist try to improve model performance?

- A. The model needs to be completely re-engineered because it is unable to handle product inventory changes.
- B. The model's hyperparameters should be periodically updated to prevent drift.
- C. The model should be periodically retrained from scratch using the original data while adding a regularization term to handle product inventory changes.
- D. The model should be periodically retrained using the original training data plus new data as product inventory changes.

Answer: D

NEW QUESTION 8

A Machine Learning Specialist is developing a recommendation engine for a photography blog. Given a picture, the recommendation engine should show a picture that captures similar objects. The Specialist would like to create a numerical representation feature to perform nearest-neighbor searches. What actions would allow the Specialist to get relevant numerical representations?

- A. Reduce image resolution and use reduced resolution pixel values as features.
- B. Use Amazon Mechanical Turk to label image content and create a one-hot representation indicating the presence of specific labels.
- C. Run images through a neural network pre-trained on ImageNet, and collect the feature vectors from the penultimate layer.
- D. Average colors by channel to obtain three-dimensional representations of images.

Answer: A

NEW QUESTION 9

A company's Machine Learning Specialist needs to improve the training speed of a time-series forecasting model using TensorFlow. The training is currently implemented on a single-GPU machine and takes approximately 23 hours to complete. The training needs to be run daily. The model accuracy is acceptable, but the company anticipates a continuous increase in the size of the training data and a need to update the model on an hourly, rather than a daily, basis. The company also wants to minimize coding effort and infrastructure changes. What should the Machine Learning Specialist do to the training solution to allow it to scale for future demand?

- A. Do not change the TensorFlow code.
- B. Change the machine to one with a more powerful GPU to speed up the training.
- C. Change the TensorFlow code to implement a Horovod distributed framework supported by Amazon SageMaker.
- D. Parallelize the training to as many machines as needed to achieve the business goals.
- E. Switch to using a built-in AWS SageMaker DeepAR mode.
- F. Parallelize the training to as many machines as needed to achieve the business goals.
- G. Move the training to Amazon EMR and distribute the workload to as many machines as needed to achieve the business goals.

Answer: B

NEW QUESTION 10

A Machine Learning Specialist observes several performance problems with the training portion of a machine learning solution on Amazon SageMaker. The solution uses a large training dataset (2 TB in size) and is using the SageMaker k-means algorithm. The observed issues include the unacceptable length of time it takes before the training job launches and poor I/O throughput while training the model. What should the Specialist do to address the performance issues with the current solution?

- A. Use the SageMaker batch transform feature.
- B. Compress the training data into Apache Parquet format.
- C. Ensure that the input mode for the training job is set to Pipe.
- D. Copy the training dataset to an Amazon EFS volume mounted on the SageMaker instance.

Answer: B

NEW QUESTION 10

The Chief Editor for a product catalog wants the Research and Development team to build a machine learning system that can be used to detect whether or not individuals in a collection of images are wearing the company's retail brand. The team has a set of training data. Which machine learning algorithm should the researchers use that BEST meets their requirements?

- A. Latent Dirichlet Allocation (LDA)
- B. Recurrent neural network (RNN)
- C. K-means
- D. Convolutional neural network (CNN)

Answer: C

NEW QUESTION 12

An agency collects census information within a country to determine healthcare and social program needs by province and city. The census form collects responses for approximately 500 questions from each citizen. Which combination of algorithms would provide the appropriate insights? (Select TWO)

- A. The factorization machines (FM) algorithm
- B. The Latent Dirichlet Allocation (LDA) algorithm

- C. The principal component analysis (PCA) algorithm
- D. The k-means algorithm
- E. The Random Cut Forest (RCF) algorithm

Answer: CD

Explanation:

The PCA and K-means algorithms are useful in collection of data using census form.

NEW QUESTION 15

A Machine Learning Specialist working for an online fashion company wants to build a data ingestion solution for the company's Amazon S3-based data lake. The Specialist wants to create a set of ingestion mechanisms that will enable future capabilities comprised of:

- Real-time analytics
- Interactive analytics of historical data
- Clickstream analytics
- Product recommendations

Which services should the Specialist use?

- A. AWS Glue as the data catalog; Amazon Kinesis Data Streams and Amazon Kinesis Data Analytics for real-time data insights; Amazon Kinesis Data Firehose for delivery to Amazon ES for clickstream analytics; Amazon EMR to generate personalized product recommendations
- B. Amazon Athena as the data catalog; Amazon Kinesis Data Streams and Amazon Kinesis Data Analytics for near-realtime data insights; Amazon Kinesis Data Firehose for clickstream analytics; AWS Glue to generate personalized product recommendations
- C. AWS Glue as the data catalog; Amazon Kinesis Data Streams and Amazon Kinesis Data Analytics for historical data insights; Amazon Kinesis Data Firehose for delivery to Amazon ES for clickstream analytics; Amazon EMR to generate personalized product recommendations
- D. Amazon Athena as the data catalog; Amazon Kinesis Data Streams and Amazon Kinesis Data Analytics for historical data insights; Amazon DynamoDB streams for clickstream analytics; AWS Glue to generate personalized product recommendations

Answer: A

NEW QUESTION 18

A Machine Learning Specialist is working with a large company to leverage machine learning within its products. The company wants to group its customers into categories based on which customers will and will not churn within the next 6 months. The company has labeled the data available to the Specialist.

Which machine learning model type should the Specialist use to accomplish this task?

- A. Linear regression
- B. Classification
- C. Clustering
- D. Reinforcement learning

Answer: B

Explanation:

The goal of classification is to determine to which class or category a data point (customer in our case) belongs to. For classification problems, data scientists would use historical data with predefined target variables AKA labels (churner/non-churner) – answers that need to be predicted – to train an algorithm. With classification,

businesses can answer the following questions:

- > Will this customer churn or not?
- > Will a customer renew their subscription?
- > Will a user downgrade a pricing plan?
- > Are there any signs of unusual customer behavior?

NEW QUESTION 21

A Machine Learning Specialist is designing a system for improving sales for a company. The objective is to use the large amount of information the company has on users' behavior and product preferences to predict which products users would like based on the users' similarity to other users.

What should the Specialist do to meet this objective?

- A. Build a content-based filtering recommendation engine with Apache Spark ML on Amazon EMR.
- B. Build a collaborative filtering recommendation engine with Apache Spark ML on Amazon EMR.
- C. Build a model-based filtering recommendation engine with Apache Spark ML on Amazon EMR.
- D. Build a combinative filtering recommendation engine with Apache Spark ML on Amazon EMR.

Answer: B

Explanation:

Many developers want to implement the famous Amazon model that was used to power the “People who bought this also bought these items” feature on Amazon.com. This model is based on a method called Collaborative Filtering. It takes items such as movies, books, and products that were rated highly by a set of users and recommending them to other users who also gave them high ratings. This method works well in domains where explicit ratings or implicit user actions can be gathered and analyzed.

NEW QUESTION 22

A Machine Learning Specialist is packaging a custom ResNet model into a Docker container so the company can leverage Amazon SageMaker for training. The Specialist is using Amazon EC2 P3 instances to train the model and needs to properly configure the Docker container to leverage the NVIDIA GPUs.

What does the Specialist need to do?

- A. Bundle the NVIDIA drivers with the Docker image
- B. Build the Docker container to be NVIDIA-Docker compatible
- C. Organize the Docker container's file structure to execute on GPU instances.
- D. Set the GPU flag in the Amazon SageMaker Create TrainingJob request body

Answer: A

NEW QUESTION 25

A Machine Learning Specialist is using Apache Spark for pre-processing training data. As part of the Spark pipeline, the Specialist wants to use Amazon SageMaker for training a model and hosting it. Which of the following would the Specialist do to integrate the Spark application with SageMaker? (Select THREE)

- A. Download the AWS SDK for the Spark environment
- B. Install the SageMaker Spark library in the Spark environment.
- C. Use the appropriate estimator from the SageMaker Spark Library to train a model.
- D. Compress the training data into a ZIP file and upload it to a pre-defined Amazon S3 bucket.
- E. Use the `sageMakerMode`
- F. transform method to get inferences from the model hosted in SageMaker
- G. Convert the DataFrame object to a CSV file, and use the CSV file as input for obtaining inferences from SageMaker.

Answer: DEF

NEW QUESTION 30

A Machine Learning Specialist is configuring automatic model tuning in Amazon SageMaker.

When using the hyperparameter optimization feature, which of the following guidelines should be followed to improve optimization? Choose the maximum number of hyperparameters supported by

- A. Amazon SageMaker to search the largest number of combinations possible
- B. Specify a very large hyperparameter range to allow Amazon SageMaker to cover every possible value.
- C. Use log-scaled hyperparameters to allow the hyperparameter space to be searched as quickly as possible
- D. Execute only one hyperparameter tuning job at a time and improve tuning through successive rounds of experiments

Answer: C

NEW QUESTION 33

A monitoring service generates 1 TB of scale metrics record data every minute. A Research team performs queries on this data using Amazon Athena. The queries run slowly due to the large volume of data, and the team requires better performance. How should the records be stored in Amazon S3 to improve query performance?

- A. CSV files
- B. Parquet files
- C. Compressed JSON
- D. RecordIO

Answer: B

NEW QUESTION 38

A company is running an Amazon SageMaker training job that will access data stored in its Amazon S3 bucket. A compliance policy requires that the data never be transmitted across the internet. How should the company set up the job?

- A. Launch the notebook instances in a public subnet and access the data through the public S3 endpoint
- B. Launch the notebook instances in a private subnet and access the data through a NAT gateway
- C. Launch the notebook instances in a public subnet and access the data through a NAT gateway
- D. Launch the notebook instances in a private subnet and access the data through an S3 VPC endpoint.

Answer: D

NEW QUESTION 43

A Machine Learning Specialist is developing a custom video recommendation model for an application. The dataset used to train this model is very large with millions of data points and is hosted in an Amazon S3 bucket. The Specialist wants to avoid loading all of this data onto an Amazon SageMaker notebook instance because it would take hours to move and will exceed the attached 5 GB Amazon EBS volume on the notebook instance. Which approach allows the Specialist to use all the data to train the model?

- A. Load a smaller subset of the data into the SageMaker notebook and train locally
- B. Confirm that the training code is executing and the model parameters seem reasonable
- C. Initiate a SageMaker training job using the full dataset from the S3 bucket using Pipe input mode.
- D. Launch an Amazon EC2 instance with an AWS Deep Learning AMI and attach the S3 bucket to the instance
- E. Train on a small amount of the data to verify the training code and hyperparameter
- F. Go back to Amazon SageMaker and train using the full dataset
- G. Use AWS Glue to train a model using a small subset of the data to confirm that the data will be compatible with Amazon SageMaker
- H. Initiate a SageMaker training job using the full dataset from the S3 bucket using Pipe input mode.
- I. Load a smaller subset of the data into the SageMaker notebook and train locally
- J. Confirm that the training code is executing and the model parameters seem reasonable
- K. Launch an Amazon EC2 instance with an AWS Deep Learning AMI and attach the S3 bucket to train the full dataset.

Answer: A

NEW QUESTION 47

A retail chain has been ingesting purchasing records from its network of 20,000 stores to Amazon S3 using Amazon Kinesis Data Firehose. To support training an improved machine learning model, training records will require new but simple transformations, and some attributes will be combined. The model needs to be retrained daily. Given the large number of stores and the legacy data ingestion, which change will require the LEAST amount of development effort?

- A. Require that the stores to switch to capturing their data locally on AWS Storage Gateway for loading into Amazon S3 then use AWS Glue to do the transformation
- B. Deploy an Amazon EMR cluster running Apache Spark with the transformation logic, and have the cluster run each day on the accumulating records in Amazon S3, outputting new/transformed records to Amazon S3
- C. Spin up a fleet of Amazon EC2 instances with the transformation logic, have them transform the data records accumulating on Amazon S3, and output the transformed records to Amazon S3.
- D. Insert an Amazon Kinesis Data Analytics stream downstream of the Kinesis Data Firehouse stream that transforms raw record attributes into simple transformed values using SQL.

Answer: D

NEW QUESTION 50

A manufacturing company has structured and unstructured data stored in an Amazon S3 bucket. A Machine Learning Specialist wants to use SQL to run queries on this data.

Which solution requires the LEAST effort to be able to query this data?

- A. Use AWS Data Pipeline to transform the data and Amazon RDS to run queries.
- B. Use AWS Glue to catalogue the data and Amazon Athena to run queries.
- C. Use AWS Batch to run ETL on the data and Amazon Aurora to run the queries.
- D. Use AWS Lambda to transform the data and Amazon Kinesis Data Analytics to run queries.

Answer: B

NEW QUESTION 53

A Machine Learning Specialist has completed a proof of concept for a company using a small data sample and now the Specialist is ready to implement an end-to-end solution in AWS using Amazon SageMaker The historical training data is stored in Amazon RDS

Which approach should the Specialist use for training a model using that data?

- A. Write a direct connection to the SQL database within the notebook and pull data in
- B. Push the data from Microsoft SQL Server to Amazon S3 using an AWS Data Pipeline and provide the S3 location within the notebook.
- C. Move the data to Amazon DynamoDB and set up a connection to DynamoDB within the notebook to pull data in
- D. Move the data to Amazon ElastiCache using AWS DMS and set up a connection within the notebook to pull data in for fast access.

Answer: B

NEW QUESTION 58

A Machine Learning Specialist is building a supervised model that will evaluate customers' satisfaction with their mobile phone service based on recent usage The model's output should infer whether or not a customer is likely to switch to a competitor in the next 30 days

Which of the following modeling techniques should the Specialist use?

- A. Time-series prediction
- B. Anomaly detection
- C. Binary classification
- D. Regression

Answer: D

NEW QUESTION 63

A Machine Learning Specialist is developing a daily ETL workflow containing multiple ETL jobs The workflow consists of the following processes

- * Start the workflow as soon as data is uploaded to Amazon S3
- * When all the datasets are available in Amazon S3, start an ETL job to join the uploaded datasets with multiple terabyte-sized datasets already stored in Amazon S3
- * Store the results of joining datasets in Amazon S3
- * If one of the jobs fails, send a notification to the Administrator Which configuration will meet these requirements?

- A. Use AWS Lambda to trigger an AWS Step Functions workflow to wait for dataset uploads to complete in Amazon S3. Use AWS Glue to join the datasets Use an Amazon CloudWatch alarm to send an SNS notification to the Administrator in the case of a failure
- B. Develop the ETL workflow using AWS Lambda to start an Amazon SageMaker notebook instance Use a lifecycle configuration script to join the datasets and persist the results in Amazon S3 Use an Amazon CloudWatch alarm to send an SNS notification to the Administrator in the case of a failure
- C. Develop the ETL workflow using AWS Batch to trigger the start of ETL jobs when data is uploaded to Amazon S3 Use AWS Glue to join the datasets in Amazon S3 Use an Amazon CloudWatch alarm to send an SNS notification to the Administrator in the case of a failure
- D. Use AWS Lambda to chain other Lambda functions to read and join the datasets in Amazon S3 as soon as the data is uploaded to Amazon S3 Use an Amazon CloudWatch alarm to send an SNS notification to the Administrator in the case of a failure

Answer: A

NEW QUESTION 65

A company has raw user and transaction data stored in AmazonS3 a MySQL database, and Amazon RedShift A Data Scientist needs to perform an analysis by joining the three datasets from Amazon S3, MySQL, and Amazon RedShift, and then calculating the average-of a few selected columns from the joined data Which AWS service should the Data Scientist use?

- A. Amazon Athena
- B. Amazon Redshift Spectrum
- C. AWS Glue
- D. Amazon QuickSight

Answer: A

NEW QUESTION 68

A Data Scientist is developing a machine learning model to classify whether a financial transaction is fraudulent. The labeled data available for training consists of 100,000 non-fraudulent observations and 1,000 fraudulent observations.

The Data Scientist applies the XGBoost algorithm to the data, resulting in the following confusion matrix when the trained model is applied to a previously unseen validation dataset. The accuracy of the model is 99.1%, but the Data Scientist has been asked to reduce the number of false negatives.

Predicted	0	1
Actual	0 99,966	1 34
	1 877	1 123

Which combination of steps should the Data Scientist take to reduce the number of false positive predictions by the model? (Select TWO.)

- A. Change the XGBoost eval_metric parameter to optimize based on rmse instead of error.
- B. Increase the XGBoost scale_pos_weight parameter to adjust the balance of positive and negative weights.
- C. Increase the XGBoost max_depth parameter because the model is currently underfitting the data.
- D. Change the XGBoost eval_metric parameter to optimize based on AUC instead of error.
- E. Decrease the XGBoost max_depth parameter because the model is currently overfitting the data.

Answer: DE

NEW QUESTION 69

When submitting Amazon SageMaker training jobs using one of the built-in algorithms, which common parameters MUST be specified? (Select THREE.)

- A. The training channel identifying the location of training data on an Amazon S3 bucket.
- B. The validation channel identifying the location of validation data on an Amazon S3 bucket.
- C. The IAM role that Amazon SageMaker can assume to perform tasks on behalf of the users.
- D. Hyperparameters in a JSON array as documented for the algorithm used.
- E. The Amazon EC2 instance class specifying whether training will be run using CPU or GPU.
- F. The output path specifying where on an Amazon S3 bucket the trained model will persist.

Answer: AEF

NEW QUESTION 74

A Data Scientist is working on an application that performs sentiment analysis. The validation accuracy is poor and the Data Scientist thinks that the cause may be a rich vocabulary and a low average frequency of words in the dataset.

Which tool should be used to improve the validation accuracy?

- A. Amazon Comprehend syntax analysts and entity detection
- B. Amazon SageMaker BlazingText allow mode
- C. Natural Language Toolkit (NLTK) stemming and stop word removal
- D. Scikit-learn term frequency-inverse document frequency (TF-IDF) vectorizers

Answer: D

NEW QUESTION 77

An employee found a video clip with audio on a company's social media feed. The language used in the video is Spanish. English is the employee's first language, and they do not understand Spanish. The employee wants to do a sentiment analysis.

What combination of services is the MOST efficient to accomplish the task?

- A. Amazon Transcribe, Amazon Translate, and Amazon Comprehend
- B. Amazon Transcribe, Amazon Comprehend, and Amazon SageMaker seq2seq
- C. Amazon Transcribe, Amazon Translate, and Amazon SageMaker Neural Topic Model (NTM)
- D. Amazon Transcribe, Amazon Translate, and Amazon SageMaker BlazingText

Answer: C

NEW QUESTION 81

A Machine Learning Specialist is building a model that will perform time series forecasting using Amazon SageMaker. The Specialist has finished training the model and is now planning to perform load testing on the endpoint so they can configure Auto Scaling for the model variant.

Which approach will allow the Specialist to review the latency, memory utilization, and CPU utilization during the load test?

- A. Review SageMaker logs that have been written to Amazon S3 by leveraging Amazon Athena and Amazon QuickSight to visualize logs as they are being produced.
- B. Generate an Amazon CloudWatch dashboard to create a single view for the latency, memory utilization, and CPU utilization metrics that are outputted by Amazon SageMaker.
- C. Build custom Amazon CloudWatch Logs and then leverage Amazon ES and Kibana to query and visualize the data as it is generated by Amazon SageMaker.
- D. Send Amazon CloudWatch Logs that were generated by Amazon SageMaker to Amazon ES and use Kibana to query and visualize the log data.

Answer: B

NEW QUESTION 84

A financial services company is building a robust serverless data lake on Amazon S3. The data lake should be flexible and meet the following requirements:

- * Support querying old and new data on Amazon S3 through Amazon Athena and Amazon Redshift Spectrum.
- * Support event-driven ETL pipelines.
- * Provide a quick and easy way to understand metadata. Which approach meets these requirements?

- A. Use an AWS Glue crawler to crawl S3 data, an AWS Lambda function to trigger an AWS Glue ETL job, and an AWS Glue Data catalog to search and discover metadata.
- B. Use an AWS Glue crawler to crawl S3 data, an AWS Lambda function to trigger an AWS Batch job, and an external Apache Hive metastore to search and discover metadata.
- C. Use an AWS Glue crawler to crawl S3 data, an Amazon CloudWatch alarm to trigger an AWS Batch job, and an AWS Glue Data Catalog to search and discover metadata.
- D. Use an AWS Glue crawler to crawl S3 data, an Amazon CloudWatch alarm to trigger an AWS Glue ETL job, and an external Apache Hive metastore to search and discover metadata.

Answer: B

NEW QUESTION 86

A Machine Learning Specialist is using Amazon SageMaker to host a model for a highly available customer-facing application . The Specialist has trained a new version of the model, validated it with historical data, and now wants to deploy it to production To limit any risk of a negative customer experience, the Specialist wants to be able to monitor the model and roll it back, if needed What is the SIMPLEST approach with the LEAST risk to deploy the model and roll it back, if needed?

- A. Create a SageMaker endpoint and configuration for the new model versio
- B. Redirect production traffic to the new endpoint by updating the client configuratio
- C. Revert traffic to the last version if the model does not perform as expected.
- D. Create a SageMaker endpoint and configuration for the new model versio
- E. Redirect production traffic to the new endpoint by using a load balancer Revert traffic to the last version if the model does not perform as expected.
- F. Update the existing SageMaker endpoint to use a new configuration that is weighted to send 5% of the traffic to the new varian
- G. Revert traffic to the last version by resetting the weights if the model does not perform as expected.
- H. Update the existing SageMaker endpoint to use a new configuration that is weighted to send 100% of the traffic to the new variant Revert traffic to the last version by resetting the weights if the model does not perform as expected.

Answer: A

NEW QUESTION 87

A manufacturing company asks its Machine Learning Specialist to develop a model that classifies defective parts into one of eight defect types. The company has provided roughly 100000 images per defect type for training During the injial training of the image classification model the Specialist notices that the validation accuracy is 80%, while the training accuracy is 90% It is known that human-level performance for this type of image classification is around 90% What should the Specialist consider to fix this issue1?

- A. A longer training time
- B. Making the network larger
- C. Using a different optimizer
- D. Using some form of regularization

Answer: D

NEW QUESTION 91

A Machine Learning Specialist must build out a process to query a dataset on Amazon S3 using Amazon Athena The dataset contains more than 800.000 records stored as plaintext CSV files Each record contains 200 columns and is approximately 1 5 MB in size Most queries will span 5 to 10 columns only How should the Machine Learning Specialist transform the dataset to minimize query runtime?

- A. Convert the records to Apache Parquet format
- B. Convert the records to JSON format
- C. Convert the records to GZIP CSV format
- D. Convert the records to XML format

Answer: A

NEW QUESTION 93

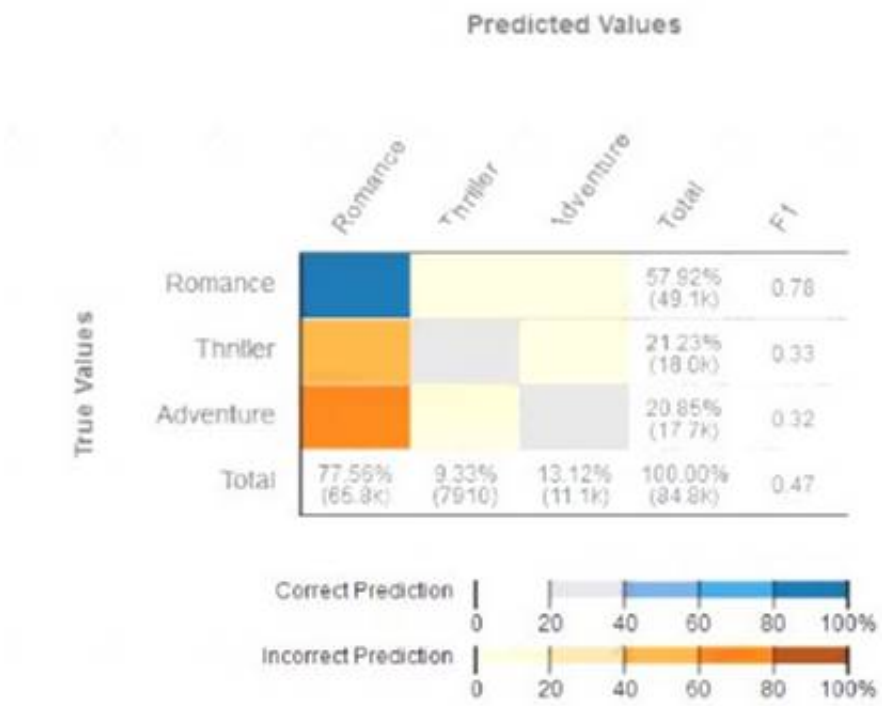
An e-commerce company needs a customized training model to classify images of its shirts and pants products The company needs a proof of concept in 2 to 3 days with good accuracy Which compute choice should the Machine Learning Specialist select to train and achieve good accuracy on the model quickly?

- A. . m5 4xlarge (general purpose)
- B. r5.2xlarge (memory optimized)
- C. p3.2xlarge (GPU accelerated computing)
- D. p3 8xlarge (GPU accelerated computing)

Answer: C

NEW QUESTION 97

Given the following confusion matrix for a movie classification model, what is the true class frequency for Romance and the predicted class frequency for Adventure?



- A. The true class frequency for Romance is 77.56% and the predicted class frequency for Adventure is 20.85%
- B. The true class frequency for Romance is 57.92% and the predicted class frequency for Adventure is 13.12%
- C. The true class frequency for Romance is 0.78 and the predicted class frequency for Adventure is (0.47 - 0.32).
- D. The true class frequency for Romance is 77.56% * 0.78 and the predicted class frequency for Adventure is 20.85% * 0.32

Answer: A

NEW QUESTION 100

A Machine Learning Specialist trained a regression model, but the first iteration needs optimizing. The Specialist needs to understand whether the model is more frequently overestimating or underestimating the target.

What option can the Specialist use to determine whether it is overestimating or underestimating the target value?

- A. Root Mean Square Error (RMSE)
- B. Residual plots
- C. Area under the curve
- D. Confusion matrix

Answer: C

NEW QUESTION 102

A Machine Learning Specialist is working with a media company to perform classification on popular articles from the company's website. The company is using random forests to classify how popular an article will be before it is published. A sample of the data being used is below.

Given the dataset, the Specialist wants to convert the Day-Of-Week column to binary values. What technique should be used to convert this column to binary values.

Article Title	Author	Top Keywords	Day_Of_Week	URL_of_Article	Page_Views
Building a Big Data Platform	Jane Doe	Big Data, Spark, Hadoop	Tuesday	http://examplecorp.com/data_platform.html	1300456
Getting Started with Deep Learning	John Doe	Deep Learning, Machine Learning, Spark	Tuesday	http://examplecorp.com/started_deep_learning.html	1230661
MXNet ML Guide	Jane Doe	Machine Learning, MXNet, Logistic Regression	Thursday	http://examplecorp.com/mxnet_guide.html	937291
Intro to NoSQL Databases	Mary Major	NoSQL, Operations, Database	Monday	http://examplecorp.com/nosql_intro_guide.html	407812

- A. Binarization
- B. One-hot encoding
- C. Tokenization
- D. Normalization transformation

Answer: B

NEW QUESTION 107

A Machine Learning Specialist is configuring Amazon SageMaker so multiple Data Scientists can access notebooks, train models, and deploy endpoints. To ensure the best operational performance, the Specialist needs to be able to track how often the Scientists are deploying models, GPU and CPU utilization on the deployed SageMaker endpoints, and all errors that are generated when an endpoint is invoked.

Which services are integrated with Amazon SageMaker to track this information? (Select TWO.)

- A. AWS CloudTrail
- B. AWS Health
- C. AWS Trusted Advisor
- D. Amazon CloudWatch
- E. AWS Config

Answer: AD

NEW QUESTION 111

A Data Scientist needs to create a serverless ingestion and analytics solution for high-velocity, real-time streaming data.

The ingestion process must buffer and convert incoming records from JSON to a query-optimized, columnar format without data loss. The output datastore must be highly available, and Analysts must be able to run SQL queries against the data and connect to existing business intelligence dashboards.

Which solution should the Data Scientist build to satisfy the requirements?

- A. Create a schema in the AWS Glue Data Catalog of the incoming data format
- B. Use an Amazon Kinesis Data Firehose delivery stream to stream the data and transform the data to Apache Parquet or ORC format using the AWS Glue Data Catalog before delivering to Amazon S3. Have the Analysts query the data directly from Amazon S3 using Amazon Athena, and connect to BI tools using the Athena Java Database Connectivity (JDBC) connector.
- C. Write each JSON record to a staging location in Amazon S3. Use the S3 Put event to trigger an AWS Lambda function that transforms the data into Apache Parquet or ORC format and writes the data to a processed data location in Amazon S3. Have the Analysts query the data directly from Amazon S3 using Amazon Athena, and connect to BI tools using the Athena Java Database Connectivity (JDBC) connector.
- D. Write each JSON record to a staging location in Amazon S3. Use the S3 Put event to trigger an AWS Lambda function that transforms the data into Apache Parquet or ORC format and inserts it into an Amazon RDS PostgreSQL database
- E. Have the Analysts query and run dashboards from the RDS database.
- F. Use Amazon Kinesis Data Analytics to ingest the streaming data and perform real-time SQL queries to convert the records to Apache Parquet before delivering to Amazon S3. Have the Analysts query the data directly from Amazon S3 using Amazon Athena and connect to BI tools using the Athena Java Database Connectivity (JDBC) connector.

Answer: A

NEW QUESTION 114

A Machine Learning Specialist is using an Amazon SageMaker notebook instance in a private subnet of a corporate VPC. The ML Specialist has important data stored on the Amazon SageMaker notebook instance's Amazon EBS volume, and needs to take a snapshot of that EBS volume. However the ML Specialist cannot find the Amazon SageMaker notebook instance's EBS volume or Amazon EC2 instance within the VPC.

Why is the ML Specialist not seeing the instance visible in the VPC?

- A. Amazon SageMaker notebook instances are based on the EC2 instances within the customer account, but they run outside of VPCs.
- B. Amazon SageMaker notebook instances are based on the Amazon ECS service within customer accounts.
- C. Amazon SageMaker notebook instances are based on EC2 instances running within AWS service accounts.
- D. Amazon SageMaker notebook instances are based on AWS ECS instances running within AWS service accounts.

Answer: C

NEW QUESTION 118

A bank's Machine Learning team is developing an approach for credit card fraud detection. The company has a large dataset of historical data labeled as fraudulent. The goal is to build a model to take the information from new transactions and predict whether each transaction is fraudulent or not.

Which built-in Amazon SageMaker machine learning algorithm should be used for modeling this problem?

- A. Seq2seq
- B. XGBoost
- C. K-means
- D. Random Cut Forest (RCF)

Answer: C

NEW QUESTION 123

A manufacturer of car engines collects data from cars as they are being driven. The data collected includes timestamp, engine temperature, rotations per minute (RPM), and other sensor readings. The company wants to predict when an engine is going to have a problem so it can notify drivers in advance to get engine maintenance. The engine data is loaded into a data lake for training.

Which is the MOST suitable predictive model that can be deployed into production?

- A. Add labels over time to indicate which engine faults occur at what time in the future to turn this into a supervised learning problem. Use a recurrent neural network (RNN) to train the model to recognize when an engine might need maintenance for a certain fault.
- B. This data requires an unsupervised learning algorithm. Use Amazon SageMaker k-means to cluster the data.
- C. Add labels over time to indicate which engine faults occur at what time in the future to turn this into a supervised learning problem. Use a convolutional neural network (CNN) to train the model to recognize when an engine might need maintenance for a certain fault.
- D. This data is already formulated as a time series. Use Amazon SageMaker seq2seq to model the time series.

Answer: B

NEW QUESTION 124

A Machine Learning Specialist has built a model using Amazon SageMaker built-in algorithms and is not getting expected accurate results. The Specialist wants to use hyperparameter optimization to increase the model's accuracy.

Which method is the MOST repeatable and requires the LEAST amount of effort to achieve this?

- A. Launch multiple training jobs in parallel with different hyperparameters
- B. Create an AWS Step Functions workflow that monitors the accuracy in Amazon CloudWatch Logs and relaunches the training job with a defined list of hyperparameters

- C. Create a hyperparameter tuning job and set the accuracy as an objective metric.
- D. Create a random walk in the parameter space to iterate through a range of values that should be used for each individual hyperparameter

Answer: B

NEW QUESTION 127

A Data Engineer needs to build a model using a dataset containing customer credit card information.

How can the Data Engineer ensure the data remains encrypted and the credit card information is secure? Use a custom encryption algorithm to encrypt the data and store the data on an Amazon SageMaker instance in a VPC. Use the SageMaker DeepAR algorithm to randomize the credit card numbers.

- A. Use an IAM policy to encrypt the data on the Amazon S3 bucket and Amazon Kinesis to automatically discard credit card numbers and insert fake credit card numbers.
- B. Use an Amazon SageMaker launch configuration to encrypt the data once it is copied to the SageMaker instance in a VP
- C. Use the SageMaker principal component analysis (PCA) algorithm to reduce the length of the credit card numbers.
- D. Use AWS KMS to encrypt the data on Amazon S3

Answer: C

NEW QUESTION 129

A Machine Learning Specialist is assigned a TensorFlow project using Amazon SageMaker for training, and needs to continue working for an extended period with no Wi-Fi access.

Which approach should the Specialist use to continue working?

- A. Install Python 3 and boto3 on their laptop and continue the code development using that environment.
- B. Download the TensorFlow Docker container used in Amazon SageMaker from GitHub to their local environment, and use the Amazon SageMaker Python SDK to test the code.
- C. Download TensorFlow from tensorflow.org to emulate the TensorFlow kernel in the SageMaker environment.
- D. Download the SageMaker notebook to their local environment then install Jupyter Notebooks on their laptop and continue the development in a local notebook.

Answer: A

NEW QUESTION 133

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