

Amazon-Web-Services

Exam Questions MLS-C01

AWS Certified Machine Learning - Specialty



NEW QUESTION 1

A Machine Learning Specialist is implementing a full Bayesian network on a dataset that describes public transit in New York City. One of the random variables is discrete, and represents the number of minutes New Yorkers wait for a bus given that the buses cycle every 10 minutes, with a mean of 3 minutes. Which prior probability distribution should the ML Specialist use for this variable?

- A. Poisson distribution ,
- B. Uniform distribution
- C. Normal distribution
- D. Binomial distribution

Answer: D

NEW QUESTION 2

A Machine Learning Specialist needs to move and transform data in preparation for training. Some of the data needs to be processed in near-real time and other data can be moved hourly. There are existing Amazon EMR MapReduce jobs to clean and feature engineering to perform on the data. Which of the following services can feed data to the MapReduce jobs? (Select TWO)

- A. AWS DMS
- B. Amazon Kinesis
- C. AWS Data Pipeline
- D. Amazon Athena
- E. Amazon ES

Answer: BD

NEW QUESTION 3

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 4

A Machine Learning team uses Amazon SageMaker to train an Apache MXNet handwritten digit classifier model using a research dataset. The team wants to receive a notification when the model is overfitting. Auditors want to view the Amazon SageMaker log activity report to ensure there are no unauthorized API calls. What should the Machine Learning team do to address the requirements with the least amount of code and fewest steps?

- A. Implement an AWS Lambda function to log Amazon SageMaker API calls to Amazon S3. Add code to push a custom metric to Amazon CloudWatch.
- B. Create an alarm in CloudWatch with Amazon SNS to receive a notification when the model is overfitting.
- C. Use AWS CloudTrail to log Amazon SageMaker API calls to Amazon S3. Add code to push a custom metric to Amazon CloudWatch.
- D. Create an alarm in CloudWatch with Amazon SNS to receive a notification when the model is overfitting.
- E. Implement an AWS Lambda function to log Amazon SageMaker API calls to AWS CloudTrail.
- F. Add code to push a custom metric to Amazon CloudWatch.
- G. Create an alarm in CloudWatch with Amazon SNS to receive a notification when the model is overfitting.
- H. Use AWS CloudTrail to log Amazon SageMaker API calls to Amazon S3. Set up Amazon SNS to receive a notification when the model is overfitting.

Answer: C

NEW QUESTION 5

A Machine Learning Specialist was given a dataset consisting of unlabeled data. The Specialist must create a model that can help the team classify the data into different buckets. What model should be used to complete this work?

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

Answer: A

NEW QUESTION 6

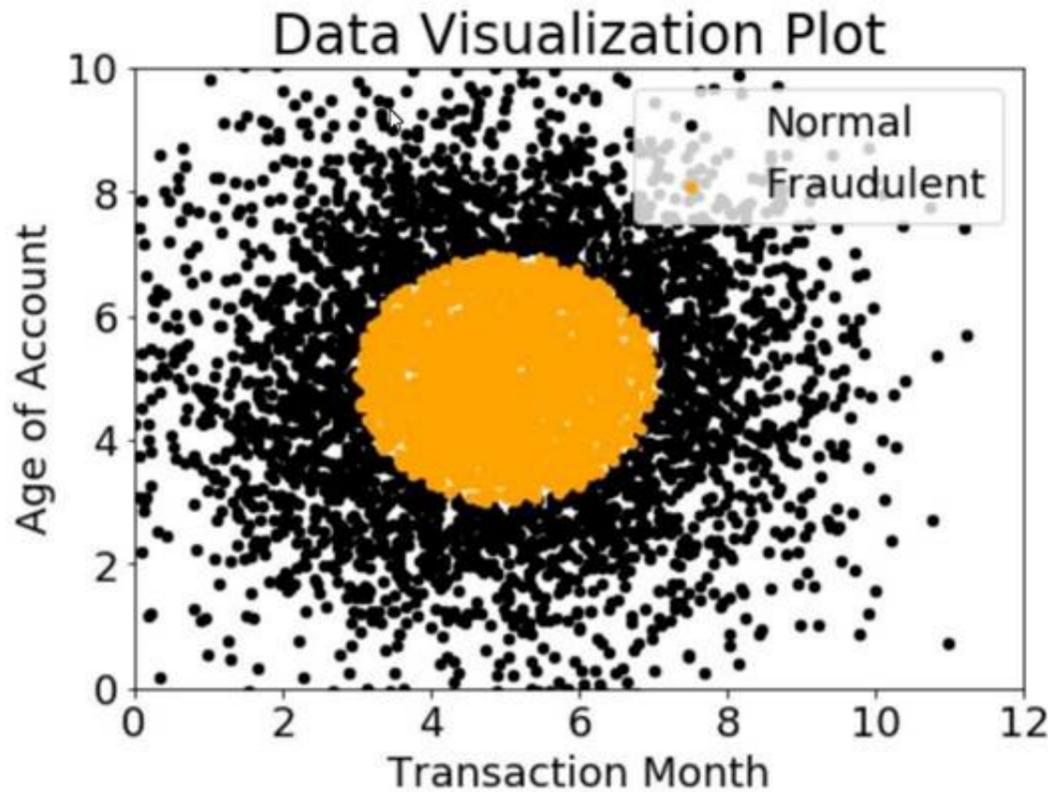
A Machine Learning Specialist is developing a recommendation engine for a photography blog. Given a picture, the recommendation engine should show a picture that captures similar objects. The Specialist would like to create a numerical representation feature to perform nearest-neighbor searches. What 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 7

A company wants to classify user behavior as either fraudulent or normal. Based on internal research, a Machine Learning Specialist would like to build a binary classifier based on two features: age of account and transaction month. The class distribution for these features is illustrated in the figure provided.



Based on this information which model would have the HIGHEST accuracy?

- A. Long short-term memory (LSTM) model with scaled exponential linear unit (SELL)
- B. Logistic regression
- C. Support vector machine (SVM) with non-linear kernel
- D. Single perceptron with tanh activation function

Answer: B

NEW QUESTION 8

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 9

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 10

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 10

A Machine Learning Specialist is creating a new natural language processing application that processes a dataset comprised of 1 million sentences. The aim is to then run Word2Vec to generate embeddings of the sentences and enable different types of predictions.

Here is an example from the dataset:

"The quck BROWN FOX jumps over the lazy dog "

Which of the following are the operations the Specialist needs to perform to correctly sanitize and prepare the data in a repeatable manner? (Select THREE)

- A. Perform part-of-speech tagging and keep the action verb and the nouns only
- B. Normalize all words by making the sentence lowercase
- C. Remove stop words using an English stopword dictionary.
- D. Correct the typography on "quck" to "quick."
- E. One-hot encode all words in the sentence
- F. Tokenize the sentence into words.

Answer: ABD

NEW QUESTION 11

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 15

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 16

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 19

An insurance company is developing a new device for vehicles that uses a camera to observe drivers' behavior and alert them when they appear distracted. The company created approximately 10,000 training images in a controlled environment that a Machine Learning Specialist will use to train and evaluate machine learning models.

During the model evaluation, the Specialist notices that the training error rate diminishes faster as the number of epochs increases and the model is not accurately inferring on the unseen test images.

Which of the following should be used to resolve this issue? (Select TWO)

- A. Add vanishing gradient to the model
- B. Perform data augmentation on the training data
- C. Make the neural network architecture complex.
- D. Use gradient checking in the model
- E. Add L2 regularization to the model

Answer: BD

NEW QUESTION 24

A large mobile network operating company is building a machine learning model to predict customers who are likely to unsubscribe from the service. The company plans to offer an incentive for these customers as the cost of churn is far greater than the cost of the incentive.

The model produces the following confusion matrix after evaluating on a test dataset of 100 customers: Based on the model evaluation results, why is this a viable model for production?

n = 100	ACTUAL CHURN		PREDICTED CHURN	
	Yes	No	Yes	No
ACTUAL Churn Yes	10	90	10	80
Actual No	10	90	4	76

- A. The model is 86% accurate and the cost incurred by the company as a result of false negatives is less than the false positives.
- B. The precision of the model is 86%, which is less than the accuracy of the model.
- C. The model is 86% accurate and the cost incurred by the company as a result of false positives is less than the false negatives.
- D. The precision of the model is 86%, which is greater than the accuracy of the model.

Answer: B

NEW QUESTION 28

A company is setting up an Amazon SageMaker environment. The corporate data security policy does not allow communication over the internet. How can the company enable the Amazon SageMaker service without enabling direct internet access to Amazon SageMaker notebook instances?

- A. Create a NAT gateway within the corporate VPC.
- B. Route Amazon SageMaker traffic through an on-premises network.
- C. Create Amazon SageMaker VPC interface endpoints within the corporate VPC.
- D. Create VPC peering with Amazon VPC hosting Amazon SageMaker.

Answer: A

NEW QUESTION 33

An office security agency conducted a successful pilot using 100 cameras installed at key locations within the main office. Images from the cameras were uploaded to Amazon S3 and tagged using Amazon Rekognition, and the results were stored in Amazon ES. The agency is now looking to expand the pilot into a full production system using thousands of video cameras in its office locations globally. The goal is to identify activities performed by non-employees in real time. Which solution should the agency consider?

- A. Use a proxy server at each local office and for each camera, and stream the RTSP feed to a unique Amazon Kinesis Video Streams video stream.
- B. On each stream, use Amazon Rekognition Video and create a stream processor to detect faces from a collection of known employees, and alert when non-employees are detected.
- C. Use a proxy server at each local office and for each camera, and stream the RTSP feed to a unique Amazon Kinesis Video Streams video stream.
- D. On each stream, use Amazon Rekognition Image to detect faces from a collection of known employees and alert when non-employees are detected.
- E. Install AWS DeepLens cameras and use the DeepLens_Kinesis_Video module to stream video to Amazon Kinesis Video Streams for each camera.
- F. On each stream, use Amazon Rekognition Video and create a stream processor to detect faces from a collection on each stream, and alert when non-employees are detected.
- G. Install AWS DeepLens cameras and use the DeepLens_Kinesis_Video module to stream video to Amazon Kinesis Video Streams for each camera.
- H. On each stream, run an AWS Lambda function to capture image fragments and then call Amazon Rekognition Image to detect faces from a collection of known employees, and alert when non-employees are detected.

Answer: D

NEW QUESTION 36

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 40

A Machine Learning Specialist is building a logistic regression model that will predict whether or not a person will order a pizza. The Specialist is trying to build the optimal model with an ideal classification threshold.

What model evaluation technique should the Specialist use to understand how different classification thresholds will impact the model's performance?

- A. Receiver operating characteristic (ROC) curve
- B. Misclassification rate
- C. Root Mean Square Error (RMSE)
- D. L1 norm

Answer: A

NEW QUESTION 42

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 47

A Machine Learning Specialist is building a model to predict future employment rates based on a wide range of economic factors. While exploring the data, the Specialist notices that the magnitude of the input features vary greatly. The Specialist does not want variables with a larger magnitude to dominate the model. What should the Specialist do to prepare the data for model training?

- A. Apply quantile binning to group the data into categorical bins to keep any relationships in the data by replacing the magnitude with distribution
- B. Apply the Cartesian product transformation to create new combinations of fields that are independent of the magnitude
- C. Apply normalization to ensure each field will have a mean of 0 and a variance of 1 to remove any significant magnitude
- D. Apply the orthogonal sparse Diagram (OSD) transformation to apply a fixed-size sliding window to generate new features of a similar magnitude.

Answer: C

NEW QUESTION 51

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 56

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 60

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 62

A company has raw user and transaction data stored in Amazon S3 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 64

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	34
	1	877 123

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 67

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 68

A Machine Learning Specialist is working with multiple data sources containing billions of records that need to be joined. What feature engineering and model development approach should the Specialist take with a dataset this large?

- A. Use an Amazon SageMaker notebook for both feature engineering and model development
- B. Use an Amazon SageMaker notebook for feature engineering and Amazon ML for model development
- C. Use Amazon EMR for feature engineering and Amazon SageMaker SDK for model development
- D. Use Amazon ML for both feature engineering and model development.

Answer: B

NEW QUESTION 72

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 73

A Data Scientist wants to gain real-time insights into a data stream of GZIP files. Which solution would allow the use of SQL to query the stream with the LEAST latency?

- A. Amazon Kinesis Data Analytics with an AWS Lambda function to transform the data.
- B. AWS Glue with a custom ETL script to transform the data.
- C. An Amazon Kinesis Client Library to transform the data and save it to an Amazon ES cluster.
- D. Amazon Kinesis Data Firehose to transform the data and put it into an Amazon S3 bucket.

Answer: A

NEW QUESTION 75

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 77

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 79

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?

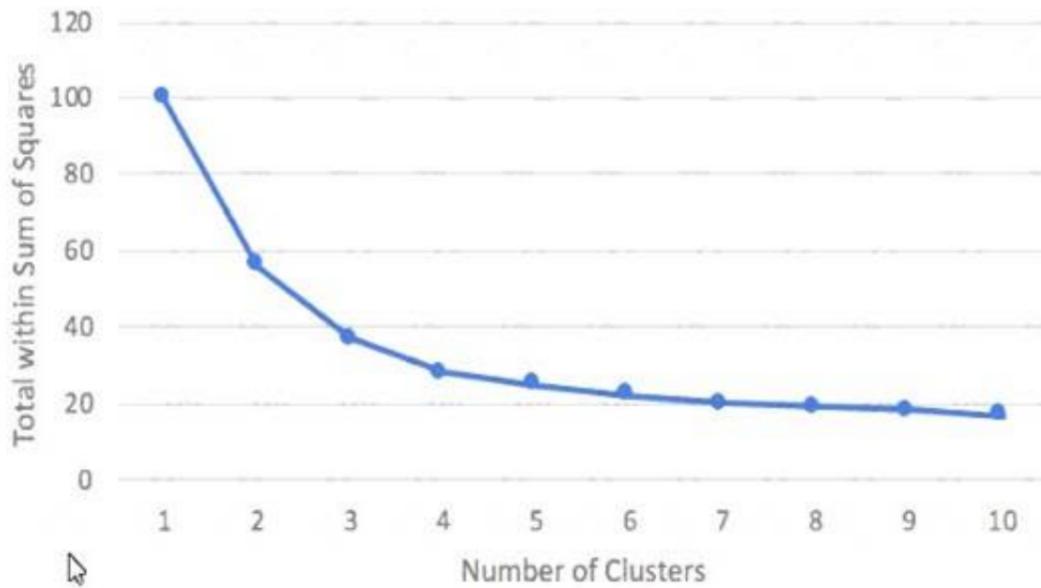
- A. A longer training time
- B. Making the network larger
- C. Using a different optimizer
- D. Using some form of regularization

Answer: D

NEW QUESTION 81

A Machine Learning Specialist prepared the following graph displaying the results of k-means for k = [1:10]

Optimal Number of Clusters



Considering the graph, what is a reasonable selection for the optimal choice of k?

- A. 1
- B. 4
- C. 7
- D. 10

Answer: C

NEW QUESTION 86

A company is observing low accuracy while training on the default built-in image classification algorithm in Amazon SageMaker. The Data Science team wants to use an Inception neural network architecture instead of a ResNet architecture. Which of the following will accomplish this? (Select TWO.)

- A. Customize the built-in image classification algorithm to use Inception and use this for model training.
- B. Create a support case with the SageMaker team to change the default image classification algorithm to Inception.
- C. Bundle a Docker container with TensorFlow Estimator loaded with an Inception network and use this for model training.
- D. Use custom code in Amazon SageMaker with TensorFlow Estimator to load the model with an Inception network and use this for model training.
- E. Download and apt-get install the inception network code into an Amazon EC2 instance and use this instance as a Jupyter notebook in Amazon SageMaker.

Answer: AD

NEW QUESTION 89

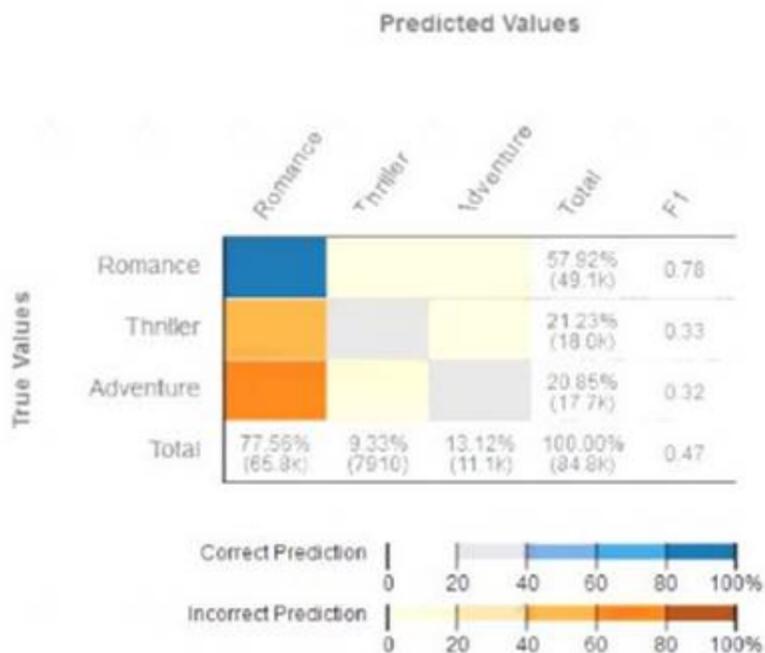
An e-commerce company needs a customized training model to classify images of its shirts and pants products. The company needs a proof of concept in 2 to 3 days with good accuracy. Which compute choice should the Machine Learning Specialist select to train and achieve good accuracy on the model quickly?

- 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 93

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 97

A web-based company wants to improve its conversion rate on its landing page. Using a large historical dataset of customer visits, the company has repeatedly trained a multi-class deep learning network algorithm on Amazon SageMaker. However, there is an overfitting problem: training data shows 90% accuracy in predictions, while test data shows 70% accuracy only.

The company needs to boost the generalization of its model before deploying it into production to maximize conversions of visits to purchases. Which action is recommended to provide the HIGHEST accuracy model for the company's test and validation data?

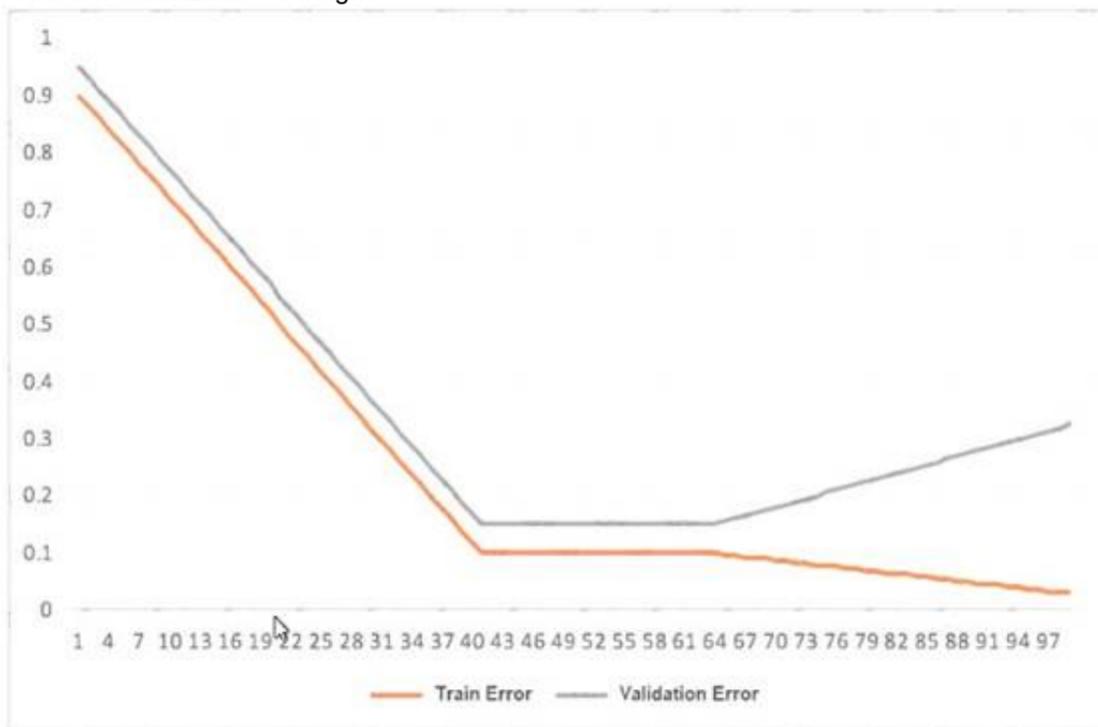
- A. Increase the randomization of training data in the mini-batches used in training.
- B. Allocate a higher proportion of the overall data to the training dataset.
- C. Apply L1 or L2 regularization and dropouts to the training.
- D. Reduce the number of layers and units (or neurons) from the deep learning network.

Answer: A

NEW QUESTION 102

This graph shows the training and validation loss against the epochs for a neural network. The network being trained is as follows:

- Two dense layers, one output neuron
- 100 neurons in each layer
- 100 epochs
- Random initialization of weights



Which technique can be used to improve model performance in terms of accuracy in the validation set?

- A. Early stopping
- B. Random initialization of weights with appropriate seed
- C. Increasing the number of epochs
- D. Adding another layer with the 100 neurons

Answer: D

NEW QUESTION 104

During mini-batch training of a neural network for a classification problem, a Data Scientist notices that training accuracy oscillates. What is the MOST likely cause of this issue?

- A. The class distribution in the dataset is imbalanced
- B. Dataset shuffling is disabled
- C. The batch size is too big
- D. The learning rate is very high

Answer: D

NEW QUESTION 108

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 113

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 116

A Machine Learning Specialist is working with a large cybersecurity company that manages security events in real time for companies around the world. The cybersecurity company wants to design a solution that will allow it to use machine learning to score malicious events as anomalies on the data as it is being ingested. The company also wants to be able to save the results in its data lake for later processing and analysis. What is the MOST efficient way to accomplish these tasks?

- A. Ingest the data using Amazon Kinesis Data Firehose, and use Amazon Kinesis Data Analytics Random Cut Forest (RCF) for anomaly detection. Then use Kinesis Data Firehose to stream the results to Amazon S3.
- B. Ingest the data into Apache Spark Streaming using Amazon EMR.
- C. Use Spark MLlib with k-means to perform anomaly detection. Then store the results in an Apache Hadoop Distributed File System (HDFS) using Amazon EMR with a replication factor of three as the data lake.
- D. Ingest the data and store it in Amazon S3. Use AWS Batch along with the AWS Deep Learning AMIs to train a k-means model using TensorFlow on the data in Amazon S3.
- E. Ingest the data and store it in Amazon S3. Have an AWS Glue job that is triggered on demand transform the new data. Then use the built-in Random Cut Forest (RCF) model within Amazon SageMaker to detect anomalies in the data.

Answer: B

NEW QUESTION 121

An Amazon SageMaker notebook instance is launched into an Amazon VPC. The SageMaker notebook references data contained in an Amazon S3 bucket in another account. The bucket is encrypted using SSE-KMS. The instance returns an access denied error when trying to access data in Amazon S3. Which of the following are required to access the bucket and avoid the access denied error? (Select THREE)

- A. An AWS KMS key policy that allows access to the customer master key (CMK)
- B. A SageMaker notebook security group that allows access to Amazon S3
- C. An IAM role that allows access to the specific S3 bucket
- D. A permissive S3 bucket policy
- E. An S3 bucket owner that matches the notebook owner
- F. A SageMaker notebook subnet ACL that allows traffic to Amazon S3.

Answer: ACF

NEW QUESTION 125

For the given confusion matrix, what is the recall and precision of the model?

		Actual	
		Yes	No
Predicted	Yes	12	3
	No	1	9

- A. Recall = 0.92 Precision = 0.84
- B. Recall = 0.84 Precision = 0.8
- C. Recall = 0.92 Precision = 0.8
- D. Recall = 0.8 Precision = 0.92

Answer: A

NEW QUESTION 129

A company is using Amazon Polly to translate plaintext documents to speech for automated company announcements. However, company acronyms are being mispronounced in the current documents. How should a Machine Learning Specialist address this issue for future documents'?

- A. Convert current documents to SSML with pronunciation tags
- B. Create an appropriate pronunciation lexicon.
- C. Output speech marks to guide in pronunciation
- D. Use Amazon Lex to preprocess the text files for pronunciation

Answer: A

NEW QUESTION 131

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