

Amazon

Exam Questions AWS-Certified-Machine-Learning-Specialty

AWS Certified Machine Learning - Specialty



NEW QUESTION 1

A retail company wants to update its customer support system. The company wants to implement automatic routing of customer claims to different queues to prioritize the claims by category.

Currently, an operator manually performs the category assignment and routing. After the operator classifies and routes the claim, the company stores the claim's record in a central database. The claim's record includes the claim's category.

The company has no data science team or experience in the field of machine learning (ML). The company's small development team needs a solution that requires no ML expertise.

Which solution meets these requirements?

- A. Export the database to a .csv file with two columns: claim_label and claim_text
- B. Use the Amazon SageMaker Object2Vec algorithm and the .csv file to train a model
- C. Use SageMaker to deploy the model to an inference endpoint
- D. Develop a service in the application to use the inference endpoint to process incoming claims, predict the labels, and route the claims to the appropriate queue.
- E. Export the database to a .csv file with one column: claim_text
- F. Use the Amazon SageMaker Latent Dirichlet Allocation (LDA) algorithm and the .csv file to train a model
- G. Use the LDA algorithm to detect labels automatically
- H. Use SageMaker to deploy the model to an inference endpoint
- I. Develop a service in the application to use the inference endpoint to process incoming claims, predict the labels, and route the claims to the appropriate queue.
- J. Use Amazon Textract to process the database and automatically detect two columns: claim_label and claim_text
- K. Use Amazon Comprehend custom classification and the extracted information to train the custom classifier
- L. Develop a service in the application to use the Amazon Comprehend API to process incoming claims, predict the labels, and route the claims to the appropriate queue.
- M. Export the database to a .csv file with two columns: claim_label and claim_text
- N. Use Amazon Comprehend custom classification and the .csv file to train the custom classifier
- O. Develop a service in the application to use the Amazon Comprehend API to process incoming claims, predict the labels, and route the claims to the appropriate queue.

Answer: C

NEW QUESTION 2

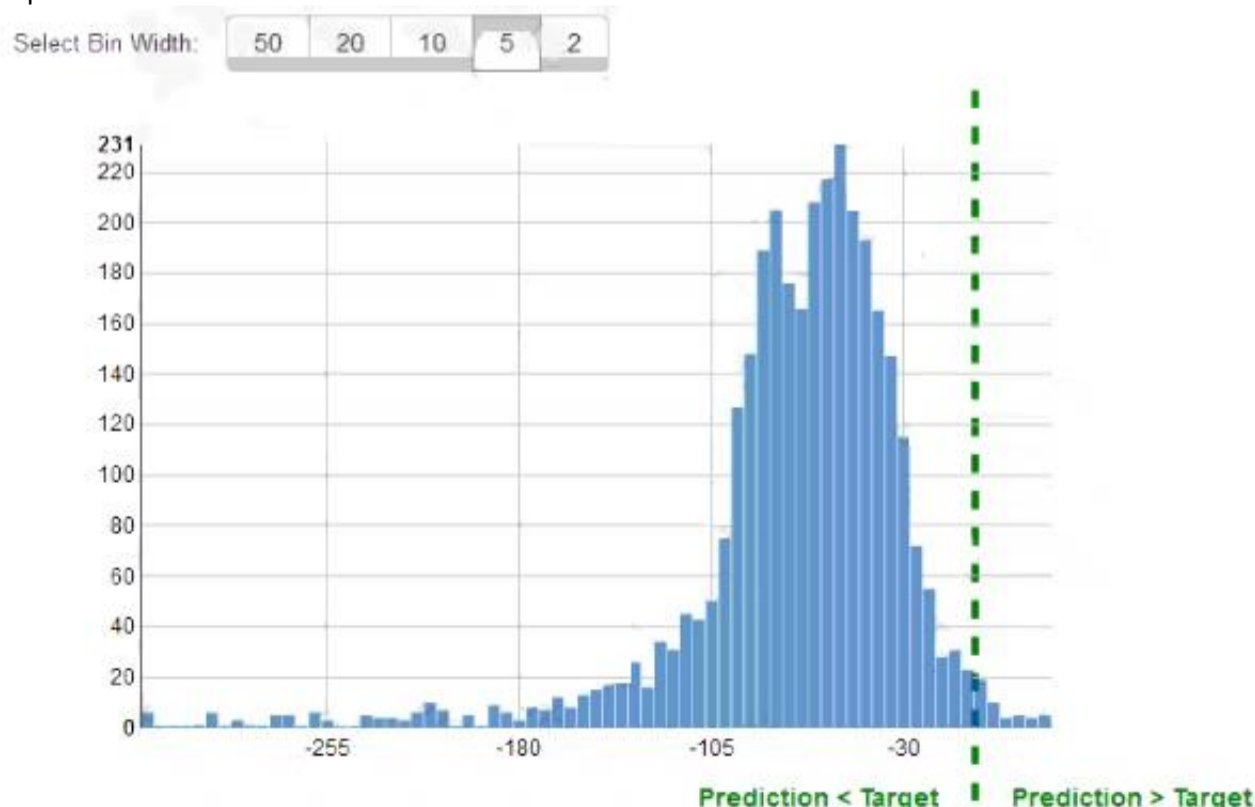
An office security agency conducted a successful pilot using 100 cameras installed at key locations within the main office. Images from the cameras were uploaded to Amazon S3 and tagged using Amazon Rekognition, and the results were stored in Amazon ES. The agency is now looking to expand the pilot into 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: C

NEW QUESTION 3

While reviewing the histogram for residuals on regression evaluation data a Machine Learning Specialist notices that the residuals do not form a zero-centered bell shape as shown. What does this mean?



- A. The model might have prediction errors over a range of target values.

- B. The dataset cannot be accurately represented using the regression model
- C. There are too many variables in the model
- D. The model is predicting its target values perfectly.

Answer: D

NEW QUESTION 4

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 5

A bank wants to launch a low-rate credit promotion. The bank is located in a town that recently experienced economic hardship. Only some of the bank's customers were affected by the crisis, so the bank's credit team must identify which customers to target with the promotion. However, the credit team wants to make sure that loyal customers' full credit history is considered when the decision is made. The bank's data science team developed a model that classifies account transactions and understands credit eligibility. The data science team used the XGBoost algorithm to train the model. The team used 7 years of bank transaction historical data for training and hyperparameter tuning over the course of several days. The accuracy of the model is sufficient, but the credit team is struggling to explain accurately why the model denies credit to some customers. The credit team has almost no skill in data science. What should the data science team do to address this issue in the MOST operationally efficient manner?

- A. Use Amazon SageMaker Studio to rebuild the mode
- B. Create a notebook that uses the XGBoost training container to perform model trainin
- C. Deploy the model at an endpoint
- D. Enable Amazon SageMaker Model Monitor to store inference
- E. Use the inferences to create Shapley values that help explain model behavior
- F. Create a chart that shows features and SHapley Additive explanation (SHAP) values to explain to the credit team how the features affect the model outcomes.
- G. Use Amazon SageMaker Studio to rebuild the mode
- H. Create a notebook that uses the XGBoost training container to perform model trainin
- I. Activate Amazon SageMaker Debugger, and configure it to calculate and collect Shapley value
- J. Create a chart that shows features and SHapley Additive explanation (SHAP) values to explain to the credit team how the features affect the model outcomes.
- K. Create an Amazon SageMaker notebook instanc
- L. Use the notebook instance and the XGBoost library to locally retrain the mode
- M. Use the `plot_importance()` method in the Python XGBoost interface to create a feature importance char
- N. Use that chart to explain to the credit team how the features affect the model outcomes.
- O. Use Amazon SageMaker Studio to rebuild the mode
- P. Create a notebook that uses the XGBoost training container to perform model trainin
- Q. Deploy the model at an endpoint
- R. Use Amazon SageMakerProcessing to post-analyze the model and create a feature importance explainability chart automatically for the credit team.

Answer: C

NEW QUESTION 6

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 7

An Machine Learning Specialist discover the following statistics while experimenting on a model.

Experiment 1
Baseline model
Train error = 5%
Test error = 16%

Experiment 2
The Specialist added more layers and neurons to the model and received the following results:
Train error = 5.2%
Test error = 15.7%

Experiment 3
The Specialist reverted back to the original number of neurons from Experiment 1 and implemented regularization in the neural network, which yielded the following results:
Train error = 4.7%
Test error = 9.5%

What can the Specialist learn from the experiments?

- A. The model in Experiment 1 had a high variance error that was reduced in Experiment 3 by regularization Experiment 2 shows that there is minimal bias error in Experiment 1
- B. The model in Experiment 1 had a high bias error that was reduced in Experiment 3 by regularization Experiment 2 shows that there is minimal variance error in Experiment 1
- C. The model in Experiment 1 had a high bias error and a high variance error that were reduced in Experiment 3 by regularization Experiment 2 shows that high bias cannot be reduced by increasing layers and neurons in the model
- D. The model in Experiment 1 had a high random noise error that was reduced in Experiment 3 by regularization Experiment 2 shows that random noise cannot be reduced by increasing layers and neurons in the model

Answer: C

NEW QUESTION 8

A power company wants to forecast future energy consumption for its customers in residential properties and commercial business properties. Historical power consumption data for the last 10 years is available. A team of data scientists who performed the initial data analysis and feature selection will include the historical power consumption data and data such as weather, number of individuals on the property, and public holidays.

The data scientists are using Amazon Forecast to generate the forecasts.

Which algorithm in Forecast should the data scientists use to meet these requirements?

- A. Autoregressive Integrated Moving Average (AIRMA)
- B. Exponential Smoothing (ETS)
- C. Convolutional Neural Network - Quantile Regression (CNN-QR)
- D. Prophet

Answer: B

NEW QUESTION 9

A Machine Learning team runs its own training algorithm on Amazon SageMaker. The training algorithm requires external assets. The team needs to submit both its own algorithm code and algorithm-specific parameters to Amazon SageMaker.

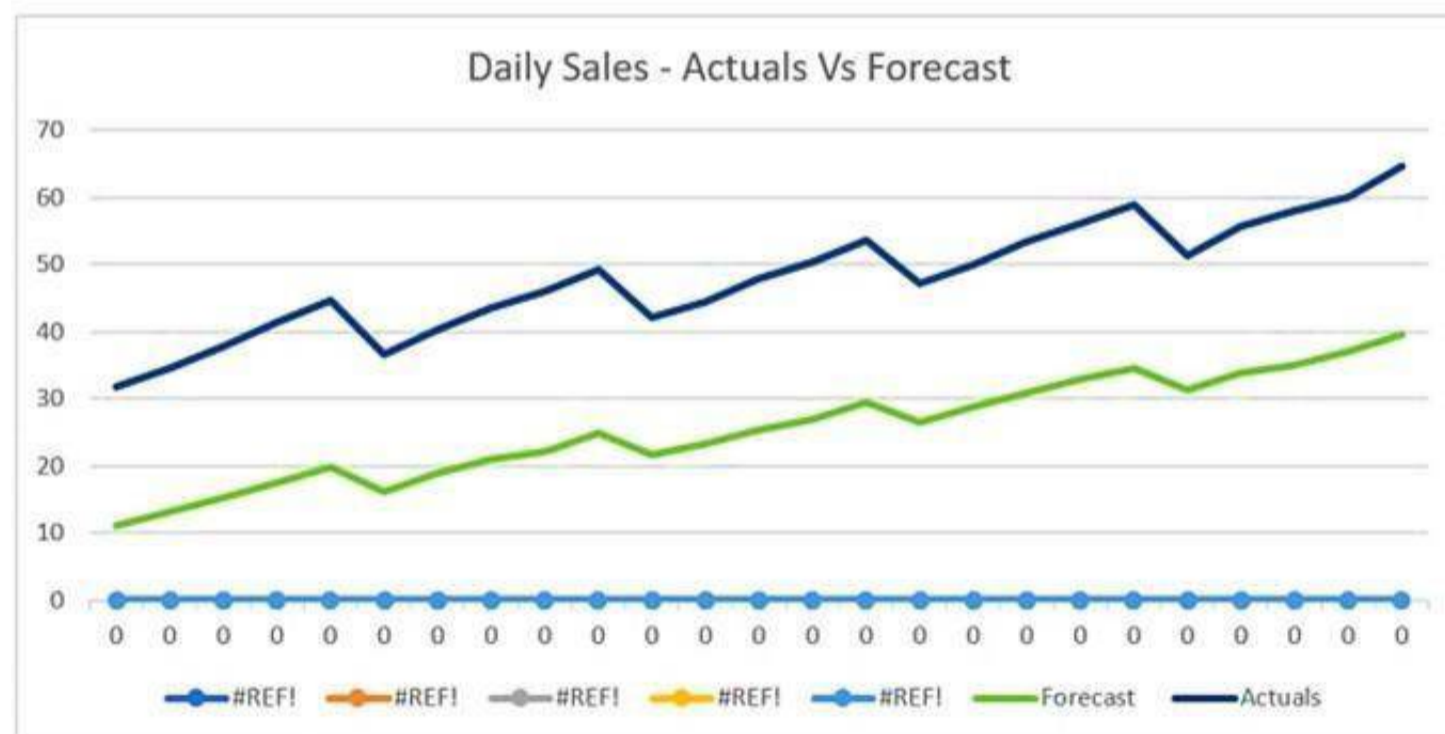
What combination of services should the team use to build a custom algorithm in Amazon SageMaker? (Choose two.)

- A. AWS Secrets Manager
- B. AWS CodeStar
- C. Amazon ECR
- D. Amazon ECS
- E. Amazon S3

Answer: CE

NEW QUESTION 10

The displayed graph is from a forecasting model for testing a time series.



Considering the graph only, which conclusion should a Machine Learning Specialist make about the behavior of the model?

- A. The model predicts both the trend and the seasonality well.
- B. The model predicts the trend well, but not the seasonality.
- C. The model predicts the seasonality well, but not the trend.
- D. The model does not predict the trend or the seasonality well.

Answer: D

NEW QUESTION 10

A large company has developed a B1 application that generates reports and dashboards using data collected from various operational metrics. The company wants to provide executives with an enhanced experience so they can use natural language to get data from the reports. The company wants the executives to be able to ask questions using written and spoken interfaces.

Which combination of services can be used to build this conversational interface? (Select THREE)

- A. Alexa for Business
- B. Amazon Connect

- C. Amazon Lex
- D. Amazon Poly
- E. Amazon Comprehend
- F. Amazon Transcribe

Answer: BEF

NEW QUESTION 14

A data scientist is developing a pipeline to ingest streaming web traffic data. The data scientist needs to implement a process to identify unusual web traffic patterns as part of the pipeline. The patterns will be used downstream for alerting and incident response. The data scientist has access to unlabeled historic data to use, if needed.

The solution needs to do the following:

- Calculate an anomaly score for each web traffic entry.
- Adapt unusual event identification to changing web patterns over time. Which approach should the data scientist implement to meet these requirements?

- A. Use historic web traffic data to train an anomaly detection model using the Amazon SageMaker Random Cut Forest (RCF) built-in mode
- B. Use an Amazon Kinesis Data Stream to process the incoming webtrafficdat
- C. Attach a preprocessing AWS Lambda function to perform data enrichment by calling the RCF modelto calculate the anomaly score for each record.
- D. Use historic web traffic data to train an anomaly detection model using the Amazon SageMaker built-inXGBoost mode
- E. Use an Amazon Kinesis Data Stream to process the incoming web traffic dat
- F. Attach apreprocessing AWS Lambda function to perform data enrichment by calling the XGBoost model to calculate the anomaly score for each record.
- G. Collect the streaming data using Amazon Kinesis Data Firehos
- H. Map the delivery stream as an inputsource for Amazon Kinesis Data Analytic
- I. Write a SQL query to run in real time against the streaming datawith the k-Nearest Neighbors (kNN) SQL extension to calculate anomaly scores for each record using a tumbling window.
- J. Collect the streaming data using Amazon Kinesis Data Firehos
- K. Map the delivery stream as an inputsource for Amazon Kinesis Data Analytic
- L. Write a SQL query to run in real time against the streaming datawith the Amazon Random Cut Forest (RCF) SQL extension to calculate anomaly scores for each record using a sliding window.

Answer: D

NEW QUESTION 18

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 23

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 do1?

- 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 28

A machine learning (ML) specialist wants to secure calls to the Amazon SageMaker Service API. The specialist has configured Amazon VPC with a VPC interface endpoint for the Amazon SageMaker Service API and is attempting to secure traffic from specific sets of instances and IAM users. The VPC is configured with a single public subnet.

Which combination of steps should the ML specialist take to secure the traffic? (Choose two.)

- A. Add a VPC endpoint policy to allow access to the IAM users.
- B. Modify the users' IAM policy to allow access to Amazon SageMaker Service API calls only.
- C. Modify the security group on the endpoint network interface to restrict access to the instances.
- D. Modify the ACL on the endpoint network interface to restrict access to the instances.
- E. Add a SageMaker Runtime VPC endpoint interface to the VPC.

Answer: AC

NEW QUESTION 32

A Data Scientist received a set of insurance records, each consisting of a record ID, the final outcome among 200 categories, and the date of the final outcome. Some partial information on claim contents is also provided, but only for a few of the 200 categories. For each outcome category, there are hundreds of records distributed over the past 3 years. The Data Scientist wants to predict how many claims to expect in each category from month to month, a few months in advance. What type of machine learning model should be used?

- A. Classification month-to-month using supervised learning of the 200 categories based on claim contents.

- B. Reinforcement learning using claim IDs and timestamps where the agent will identify how many claims in each category to expect from month to month.
- C. Forecasting using claim IDs and timestamps to identify how many claims in each category to expect from month to month.
- D. Classification with supervised learning of the categories for which partial information on claim contents is provided, and forecasting using claim IDs and timestamps for all other categories.

Answer: C

NEW QUESTION 36

A Machine Learning Specialist wants to bring a custom algorithm to Amazon SageMaker. The Specialist implements the algorithm in a Docker container supported by Amazon SageMaker.

How should the Specialist package the Docker container so that Amazon SageMaker can launch the training correctly?

- A. Modify the `bash_profile` file in the container and add a bash command to start the training program
- B. Use `CMD` config in the Dockerfile to add the training program as a CMD of the image
- C. Configure the training program as an ENTRYPOINT named `train`
- D. Copy the training program to directory `/opt/ml/train`

Answer: B

NEW QUESTION 37

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 42

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: A

NEW QUESTION 46

A global financial company is using machine learning to automate its loan approval process. The company has a dataset of customer information. The dataset contains some categorical fields, such as customer location by city and housing status. The dataset also includes financial fields in different units, such as account balances in US dollars and monthly interest in US cents.

The company's data scientists are using a gradient boosting regression model to infer the credit score for each customer. The model has a training accuracy of 99% and a testing accuracy of 75%. The data scientists want to improve the model's testing accuracy.

Which process will improve the testing accuracy the MOST?

- A. Use a one-hot encoder for the categorical fields in the dataset
- B. Perform standardization on the financial fields in the dataset
- C. Apply L1 regularization to the data.
- D. Use tokenization of the categorical fields in the dataset
- E. Perform binning on the financial fields in the dataset
- F. Remove the outliers in the data by using the z-score.
- G. Use a label encoder for the categorical fields in the dataset
- H. Perform L1 regularization on the financial fields in the dataset
- I. Apply L2 regularization to the data.
- J. Use a logarithm transformation on the categorical fields in the dataset
- K. Perform binning on the financial fields in the dataset
- L. Use imputation to populate missing values in the dataset.

Answer: B

NEW QUESTION 47

A Machine Learning Specialist is building a convolutional neural network (CNN) that will classify 10 types of animals. The Specialist has built a series of layers in a neural network that will take an input image of an animal, pass it through a series of convolutional and pooling layers, and then finally pass it through a dense and fully connected layer with 10 nodes. The Specialist would like to get an output from the neural network that is a probability distribution of how likely it is that the input image belongs to each of the 10 classes.

Which function will produce the desired output?

- A. Dropout
- B. Smooth L1 loss
- C. Softmax
- D. Rectified linear units (ReLU)

Answer: C

NEW QUESTION 51

A machine learning (ML) specialist must develop a classification model for a financial services company. A domain expert provides the dataset, which is tabular with 10,000 rows and 1,020 features. During exploratory data analysis, the specialist finds no missing values and a small percentage of duplicate rows. There are correlation scores of > 0.9 for 200 feature pairs. The mean value of each feature is similar to its 50th percentile. Which feature engineering strategy should the ML specialist use with Amazon SageMaker?

- A. Apply dimensionality reduction by using the principal component analysis (PCA) algorithm.
- B. Drop the features with low correlation scores by using a Jupyter notebook.
- C. Apply anomaly detection by using the Random Cut Forest (RCF) algorithm.
- D. Concatenate the features with high correlation scores by using a Jupyter notebook.

Answer: C

NEW QUESTION 52

A real-estate company is launching a new product that predicts the prices of new houses. The historical data for the properties and prices is stored in .csv format in an Amazon S3 bucket. The data has a header, some categorical fields, and some missing values. The company's data scientists have used Python with a common open-source library to fill the missing values with zeros. The data scientists have dropped all of the categorical fields and have trained a model by using the open-source linear regression algorithm with the default parameters.

The accuracy of the predictions with the current model is below 50%. The company wants to improve the model performance and launch the new product as soon as possible.

Which solution will meet these requirements with the LEAST operational overhead?

- A. Create a service-linked role for Amazon Elastic Container Service (Amazon ECS) with access to the S3 bucket
- B. Create an ECS cluster that is based on an AWS Deep Learning Containers image
- C. Write the code to perform the feature engineering
- D. Train a logistic regression model for predicting the price, pointing to the bucket with the dataset
- E. Wait for the training job to complete
- F. Perform the inferences.
- G. Create an Amazon SageMaker notebook with a new IAM role that is associated with the notebook
- H. Pull the dataset from the S3 bucket
- I. Explore different combinations of feature engineering transformations, regression algorithms, and hyperparameters
- J. Compare all the results in the notebook, and deploy the most accurate configuration in an endpoint for predictions.
- K. Create an IAM role with access to Amazon S3, Amazon SageMaker, and AWS Lambda
- L. Create a training job with the SageMaker built-in XGBoost model pointing to the bucket with the dataset
- M. Specify the price as the target feature
- N. Wait for the job to complete
- O. Load the model artifact to a Lambda function for inference on prices of new houses.
- P. Create an IAM role for Amazon SageMaker with access to the S3 bucket
- Q. Create a SageMaker AutoML job with SageMaker Autopilot pointing to the bucket with the dataset
- R. Specify the price as the target attribute
- S. Wait for the job to complete
- T. Deploy the best model for predictions.

Answer: A

NEW QUESTION 53

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 56

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 60

A Machine Learning Specialist is deciding between building a naive Bayesian model or a full Bayesian network for a classification problem. The Specialist computes the Pearson correlation coefficients between each feature and finds that their absolute values range between 0.1 to 0.95. Which model describes the underlying data in this situation?

- A. A naive Bayesian model, since the features are all conditionally independent.

- B. A full Bayesian network, since the features are all conditionally independent.
- C. A naive Bayesian model, since some of the features are statistically dependent.
- D. A full Bayesian network, since some of the features are statistically dependent.

Answer: C

NEW QUESTION 65

A company is running a machine learning prediction service that generates 100 TB of predictions every day. A Machine Learning Specialist must generate a visualization of the daily precision-recall curve from the predictions, and forward a read-only version to the Business team. Which solution requires the LEAST coding effort?

- A. Run a daily Amazon EMR workflow to generate precision-recall data, and save the results in Amazon S3. Give the Business team read-only access to S3.
- B. Generate daily precision-recall data in Amazon QuickSight, and publish the results in a dashboard shared with the Business team.
- C. Run a daily Amazon EMR workflow to generate precision-recall data, and save the results in Amazon S3. Visualize the arrays in Amazon QuickSight, and publish them in a dashboard shared with the Business team.
- D. Generate daily precision-recall data in Amazon ES, and publish the results in a dashboard shared with the Business team.

Answer: C

NEW QUESTION 67

A Machine Learning Specialist needs to create a data repository to hold a large amount of time-based training data for a new model. In the source system, new files are added every hour. Throughout a single 24-hour period, the volume of hourly updates will change significantly. The Specialist always wants to train on the last 24 hours of the data. Which type of data repository is the MOST cost-effective solution?

- A. An Amazon EBS-backed Amazon EC2 instance with hourly directories.
- B. An Amazon RDS database with hourly table partitions.
- C. An Amazon S3 data lake with hourly object prefixes.
- D. An Amazon EMR cluster with hourly hive partitions on Amazon EBS volumes.

Answer: C

NEW QUESTION 72

A machine learning (ML) specialist needs to extract embedding vectors from a text series. The goal is to provide a ready-to-ingest feature space for a data scientist to develop downstream ML predictive models. The text consists of curated sentences in English. Many sentences use similar words but in different contexts. There are questions and answers among the sentences, and the embedding space must differentiate between them.

Which options can produce the required embedding vectors that capture word context and sequential QA information? (Choose two.)

- A. Amazon SageMaker seq2seq algorithm
- B. Amazon SageMaker BlazingText algorithm in Skip-gram mode
- C. Amazon SageMaker Object2Vec algorithm
- D. Amazon SageMaker BlazingText algorithm in continuous bag-of-words (CBOW) mode
- E. Combination of the Amazon SageMaker BlazingText algorithm in Batch Skip-gram mode with a custom recurrent neural network (RNN)

Answer: AC

NEW QUESTION 73

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: D

NEW QUESTION 76

A machine learning (ML) specialist wants to create a data preparation job that uses a PySpark script with complex window aggregation operations to create data for training and testing. The ML specialist needs to evaluate the impact of the number of features and the sample count on model performance.

Which approach should the ML specialist use to determine the ideal data transformations for the model?

- A. Add an Amazon SageMaker Debugger hook to the script to capture key metric.
- B. Run the script as an AWS Glue job.
- C. Add an Amazon SageMaker Experiments tracker to the script to capture key metric.
- D. Run the script as an AWS Glue job.
- E. Add an Amazon SageMaker Debugger hook to the script to capture key parameter.
- F. Run the script as a SageMaker processing job.
- G. Add an Amazon SageMaker Experiments tracker to the script to capture key parameter.
- H. Run the script as a SageMaker processing job.

Answer: B

NEW QUESTION 77

Amazon Connect has recently been tolled out across a company as a contact call center. The solution has been configured to store voice call recordings on Amazon S3.

The content of the voice calls are being analyzed for the incidents being discussed by the call operators. Amazon Transcribe is being used to convert the audio to

text, and the output is stored on Amazon S3

Which approach will provide the information required for further analysis?

- A. Use Amazon Comprehend with the transcribed files to build the key topics
- B. Use Amazon Translate with the transcribed files to train and build a model for the key topics
- C. Use the AWS Deep Learning AMI with Gluon Semantic Segmentation on the transcribed files to train and build a model for the key topics
- D. Use the Amazon SageMaker k-Nearest-Neighbors (kNN) algorithm on the transcribed files to generate a word embeddings dictionary for the key topics

Answer: B

NEW QUESTION 79

A financial company is trying to detect credit card fraud. The company observed that, on average, 2% of credit card transactions were fraudulent. A data scientist trained a classifier on a year's worth of credit card transactions data. The model needs to identify the fraudulent transactions (positives) from the regular ones (negatives). The company's goal is to accurately capture as many positives as possible.

Which metrics should the data scientist use to optimize the model? (Choose two.)

- A. Specificity
- B. False positive rate
- C. Accuracy
- D. Area under the precision-recall curve
- E. True positive rate

Answer: DE

NEW QUESTION 80

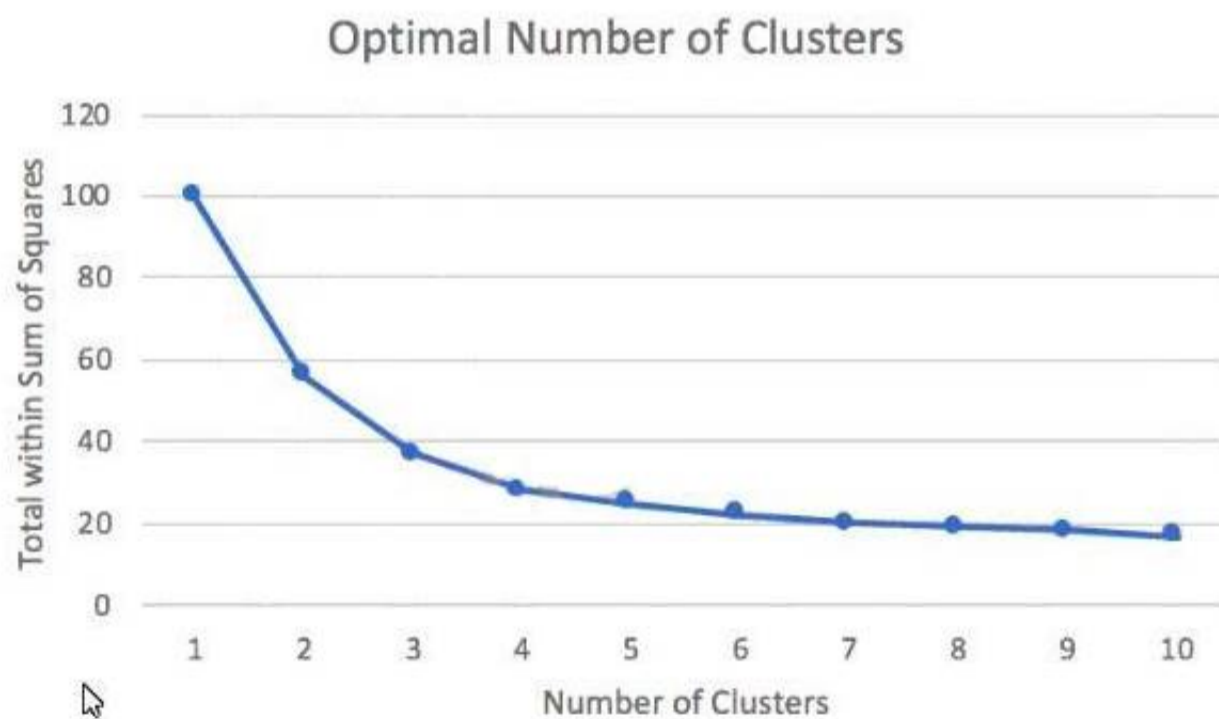
A Data Scientist wants to gain real-time insights into a data stream of GZIP files. Which solution would allow the use of SQL to query the stream with the LEAST latency?

- 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 84

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



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 87

A company is building a demand forecasting model based on machine learning (ML). In the development stage, an ML specialist uses an Amazon SageMaker notebook to perform feature engineering during work hours that consumes low amounts of CPU and memory resources. A data engineer uses the same notebook to perform data preprocessing once a day on average that requires very high memory and completes in only 2 hours. The data preprocessing is not configured to use GPU. All the processes are running well on an ml.m5.4xlarge notebook instance.

The company receives an AWS Budgets alert that the billing for this month exceeds the allocated budget. Which solution will result in the MOST cost savings?

- A. Change the notebook instance type to a memory optimized instance with the same vCPU number as the ml.m5.4xlarge instance ha
- B. Stop the notebook when it is not in us
- C. Run both data preprocessing and feature engineering development on that instance.
- D. Keep the notebook instance type and size the sam
- E. Stop the notebook when it is not in us
- F. Run data preprocessing on a P3 instance type with the same memory as the ml.m5.4xlarge instance by using Amazon SageMaker Processing.
- G. Change the notebook instance type to a smaller general purpose instanc
- H. Stop the notebook when it is not in us
- I. Run data preprocessing on an ml.r5 instance with the same memory size as the ml.m5.4xlarge instance by using Amazon SageMaker Processing.
- J. Change the notebook instance type to a smaller general purpose instanc
- K. Stop the notebook when it is not in us
- L. Run data preprocessing on an R5 instance with the same memory size as the ml.m5.4xlarge instance by using the Reserved Instance option.

Answer: B

NEW QUESTION 92

A technology startup is using complex deep neural networks and GPU compute to recommend the company's products to its existing customers based upon each customer's habits and interactions. The solution currently pulls each dataset from an Amazon S3 bucket before loading the data into a TensorFlow model pulled from the company's Git repository that runs locally. This job then runs for several hours while continually outputting its progress to the same S3 bucket. The job can be paused, restarted, and continued at any time in the event of a failure, and is run from a central queue.

Senior managers are concerned about the complexity of the solution's resource management and the costs involved in repeating the process regularly. They ask for the workload to be automated so it runs once a week, starting Monday and completing by the close of business Friday.

Which architecture should be used to scale the solution at the lowest cost?

- A. Implement the solution using AWS Deep Learning Containers and run the container as a job using AWS Batch on a GPU-compatible Spot Instance
- B. Implement the solution using a low-cost GPU-compatible Amazon EC2 instance and use the AWS Instance Scheduler to schedule the task
- C. Implement the solution using AWS Deep Learning Containers, run the workload using AWS Fargate running on Spot Instances, and then schedule the task using the built-in task scheduler
- D. Implement the solution using Amazon ECS running on Spot Instances and schedule the task using the ECS service scheduler

Answer: C

NEW QUESTION 95

A library is developing an automatic book-borrowing system that uses Amazon Rekognition. Images of library members' faces are stored in an Amazon S3 bucket. When members borrow books, the Amazon Rekognition CompareFaces API operation compares real faces against the stored faces in Amazon S3.

The library needs to improve security by making sure that images are encrypted at rest. Also, when the images are used with Amazon Rekognition. they need to be encrypted in transit. The library also must ensure that the images are not used to improve Amazon Rekognition as a service.

How should a machine learning specialist architect the solution to satisfy these requirements?

- A. Enable server-side encryption on the S3 bucke
- B. Submit an AWS Support ticket to opt out of allowing images to be used for improving the service, and follow the process provided by AWS Support.
- C. Switch to using an Amazon Rekognition collection to store the image
- D. Use the IndexFaces and SearchFacesByImage API operations instead of the CompareFaces API operation.
- E. Switch to using the AWS GovCloud (US) Region for Amazon S3 to store images and for Amazon Rekognition to compare face
- F. Set up a VPN connection and only call the Amazon Rekognition API operations through the VPN.
- G. Enable client-side encryption on the S3 bucke
- H. Set up a VPN connection and only call the Amazon Rekognition API operations through the VPN.

Answer: B

NEW QUESTION 99

A Data Scientist is developing a binary classifier to predict whether a patient has a particular disease on a series of test results. The Data Scientist has data on 400 patients randomly selected from the population. The disease is seen in 3% of the population.

Which cross-validation strategy should the Data Scientist adopt?

- A. A k-fold cross-validation strategy with k=5
- B. A stratified k-fold cross-validation strategy with k=5
- C. A k-fold cross-validation strategy with k=5 and 3 repeats
- D. An 80/20 stratified split between training and validation

Answer: B

NEW QUESTION 101

A Machine Learning Specialist is attempting to build a linear regression model.

Given the displayed residual plot only, what is the MOST likely problem with the model?

- A. Linear regression is inappropriat
- B. The residuals do not have constant variance.
- C. Linear regression is inappropriat
- D. The underlying data has outliers.
- E. Linear regression is appropriat
- F. The residuals have a zero mean.
- G. Linear regression is appropriat
- H. The residuals have constant variance.

Answer: D

NEW QUESTION 104

A Data Science team within a large company uses Amazon SageMaker notebooks to access data stored in Amazon S3 buckets. The IT Security team is concerned that internet-enabled notebook instances create a security vulnerability where malicious code running on the instances could compromise data privacy. The company mandates that all instances stay within a secured VPC with no internet access, and data communication traffic must stay within the AWS network. How should the Data Science team configure the notebook instance placement to meet these requirements?

- A. Associate the Amazon SageMaker notebook with a private subnet in a VP
- B. Place the Amazon SageMaker endpoint and S3 buckets within the same VPC.
- C. Associate the Amazon SageMaker notebook with a private subnet in a VP
- D. Use IAM policies to grant access to Amazon S3 and Amazon SageMaker.
- E. Associate the Amazon SageMaker notebook with a private subnet in a VP
- F. Ensure the VPC has S3 VPC endpoints and Amazon SageMaker VPC endpoints attached to it.
- G. Associate the Amazon SageMaker notebook with a private subnet in a VP
- H. Ensure the VPC has a NAT gateway and an associated security group allowing only outbound connections to Amazon S3 and Amazon SageMaker

Answer: D

NEW QUESTION 105

A company is launching a new product and needs to build a mechanism to monitor comments about the company and its new product on social media. The company needs to be able to evaluate the sentiment expressed in social media posts, and visualize trends and configure alarms based on various thresholds. The company needs to implement this solution quickly, and wants to minimize the infrastructure and data science resources needed to evaluate the messages. The company already has a solution in place to collect posts and store them within an Amazon S3 bucket. What services should the data science team use to deliver this solution?

- A. Train a model in Amazon SageMaker by using the BlazingText algorithm to detect sentiment in the corpus of social media post
- B. Expose an endpoint that can be called by AWS Lambda
- C. Trigger a Lambda function when posts are added to the S3 bucket to invoke the endpoint and record the sentiment in an Amazon DynamoDB table and in a custom Amazon CloudWatch metri
- D. Use CloudWatch alarms to notify analysts of trends.
- E. Train a model in Amazon SageMaker by using the semantic segmentation algorithm to model the semantic content in the corpus of social media post
- F. Expose an endpoint that can be called by AWS Lambda
- G. Trigger a Lambda function when objects are added to the S3 bucket to invoke the endpoint and record the sentiment in an Amazon DynamoDB tabl
- H. Schedule a second Lambda function to query recently added records and send an Amazon Simple Notification Service (Amazon SNS) notification to notify analysts of trends.
- I. Trigger an AWS Lambda function when social media posts are added to the S3 bucke
- J. Call Amazon Comprehend for each post to capture the sentiment in the message and record the sentiment in an Amazon DynamoDB tabl
- K. Schedule a second Lambda function to query recently added records and send an Amazon Simple Notification Service (Amazon SNS) notification to notify analysts of trends.
- L. Trigger an AWS Lambda function when social media posts are added to the S3 bucke
- M. Call Amazon Comprehend for each post to capture the sentiment in the message and record the sentiment in a custom Amazon CloudWatch metric and in S3. Use CloudWatch alarms to notify analysts of trends.

Answer: A

NEW QUESTION 107

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 Firehose stream that transforms raw record attributes into simple transformed values using SQL.

Answer: D

NEW QUESTION 110

A machine learning specialist is running an Amazon SageMaker endpoint using the built-in object detection algorithm on a P3 instance for real-time predictions in a company's production application. When evaluating the model's resource utilization, the specialist notices that the model is using only a fraction of the GPU. Which architecture changes would ensure that provisioned resources are being utilized effectively?

- A. Redeploy the model as a batch transform job on an M5 instance.
- B. Redeploy the model on an M5 instanc
- C. Attach Amazon Elastic Inference to the instance.
- D. Redeploy the model on a P3dn instance.
- E. Deploy the model onto an Amazon Elastic Container Service (Amazon ECS) cluster using a P3 instance.

Answer: B

Explanation:

<https://aws.amazon.com/machine-learning/elastic-inference/>

NEW QUESTION 111

A company provisions Amazon SageMaker notebook instances for its data science team and creates Amazon VPC interface endpoints to ensure communication between the VPC and the notebook instances. All connections to the Amazon SageMaker API are contained entirely and securely using the AWS network.

However, the data science team realizes that individuals outside the VPC can still connect to the notebook instances across the internet. Which set of actions should the data science team take to fix the issue?

- A. Modify the notebook instances' security group to allow traffic only from the CIDR ranges of the VP
- B. Apply this security group to all of the notebook instances' VPC interfaces.
- C. Create an IAM policy that allows the sagemaker:CreatePresignedNotebookInstanceUrl and sagemaker:DescribeNotebookInstance actions from only the VPC endpoint
- D. Apply this policy to all IAM users, groups, and roles used to access the notebook instances.
- E. Add a NAT gateway to the VP
- F. Convert all of the subnets where the Amazon SageMaker notebook instances are hosted to private subnet
- G. Stop and start all of the notebook instances to reassign only private IP addresses.
- H. Change the network ACL of the subnet the notebook is hosted in to restrict access to anyone outside the VPC.

Answer: B

NEW QUESTION 116

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 117

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 (RM&)
- D. L1 norm

Answer: A

NEW QUESTION 122

IT leadership wants Jo transition a company's existing machine learning data storage environment to AWS as a temporary ad hoc solution The company currently uses a custom software process that heavily leverages SOL as a query language and exclusively stores generated csv documents for machine learning The ideal state for the company would be a solution that allows it to continue to use the current workforce of SQL experts The solution must also support the storage of csv and JSON files, and be able to query over semi-structured data The following are high priorities for the company:

- Solution simplicity
- Fast development time
- Low cost
- High flexibility

What technologies meet the company's requirements?

- A. Amazon S3 and Amazon Athena
- B. Amazon Redshift and AWS Glue
- C. Amazon DynamoDB and DynamoDB Accelerator (DAX)
- D. Amazon RDS and Amazon ES

Answer: B

NEW QUESTION 123

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: D

NEW QUESTION 127

A retail company is using Amazon Personalize to provide personalized product recommendations for its customers during a marketing campaign. The company sees a significant increase in sales of recommended items to existing customers immediately after deploying a new solution version, but these sales decrease a short time after deployment. Only historical data from before the marketing campaign is available for training.

How should a data scientist adjust the solution?

- A. Use the event tracker in Amazon Personalize to include real-time user interactions.
- B. Add user metadata and use the HRNN-Metadata recipe in Amazon Personalize.
- C. Implement a new solution using the built-in factorization machines (FM) algorithm in Amazon SageMaker.
- D. Add event type and event value fields to the interactions dataset in Amazon Personalize.

Answer: A

NEW QUESTION 128

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 130

A company uses camera images of the tops of items displayed on store shelves to determine which items were removed and which ones still remain. After several hours of data labeling, the company has a total of 1,000 hand-labeled images covering 10 distinct items. The training results were poor.

Which machine learning approach fulfills the company's long-term needs?

- A. Convert the images to grayscale and retrain the model.
- B. Reduce the number of distinct items from 10 to 2, build the model, and iterate.
- C. Attach different colored labels to each item, take the images again, and build the model.
- D. Augment training data for each item using image variants like inversions and translations, build the model, and iterate.

Answer: A

NEW QUESTION 132

A health care company is planning to use neural networks to classify their X-ray images into normal and abnormal classes. The labeled data is divided into a training set of 1,000 images and a test set of 200 images. The initial training of a neural network model with 50 hidden layers yielded 99% accuracy on the training set, but only 55% accuracy on the test set.

What changes should the Specialist consider to solve this issue? (Choose three.)

- A. Choose a higher number of layers.
- B. Choose a lower number of layers.
- C. Choose a smaller learning rate.
- D. Enable dropout.
- E. Include all the images from the test set in the training set.
- F. Enable early stopping.

Answer: ADE

NEW QUESTION 133

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 137

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: B

NEW QUESTION 141

An agricultural company is interested in using machine learning to detect specific types of weeds in a 100-acre grassland field. Currently, the company uses tractor-mounted cameras to capture multiple images of the field as 10 × 10 grids. The company also has a large training dataset that consists of annotated images of popular weed classes like broadleaf and non-broadleaf docks.

The company wants to build a weed detection model that will detect specific types of weeds and the location of each type within the field. Once the model is ready, it will be hosted on Amazon SageMaker endpoints. The model will perform real-time inferencing using the images captured by the cameras. Which approach should a Machine Learning Specialist take to obtain accurate predictions?

- A. Prepare the images in RecordIO format and upload them to Amazon S3. Use Amazon SageMaker to train, test, and validate the model using an image classification algorithm to categorize images into various weed classes.
- B. Prepare the images in Apache Parquet format and upload them to Amazon S3. Use Amazon SageMaker to train, test, and validate the model using an object-detection single-shot multibox detector (SSD) algorithm.
- C. Prepare the images in RecordIO format and upload them to Amazon S3. Use Amazon SageMaker to train, test, and validate the model using an object-detection single-shot multibox detector (SSD) algorithm.
- D. Prepare the images in Apache Parquet format and upload them to Amazon S3. Use Amazon SageMaker to train, test, and validate the model using an image classification algorithm to categorize images into various weed classes.

Answer: C

NEW QUESTION 146

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: CEF

NEW QUESTION 149

A large consumer goods manufacturer has the following products on sale

- 34 different toothpaste variants
- 48 different toothbrush variants
- 43 different mouthwash variants

The entire sales history of all these products is available in Amazon S3. Currently, the company is using custom-built autoregressive integrated moving average (ARIMA) models to forecast demand for these products. The company wants to predict the demand for a new product that will soon be launched. Which solution should a Machine Learning Specialist apply?

- A. Train a custom ARIMA model to forecast demand for the new product.
- B. Train an Amazon SageMaker DeepAR algorithm to forecast demand for the new product.
- C. Train an Amazon SageMaker k-means clustering algorithm to forecast demand for the new product.
- D. Train a custom XGBoost model to forecast demand for the new product.

Answer: B

Explanation:

The Amazon SageMaker DeepAR forecasting algorithm is a supervised learning algorithm for forecasting scalar (one-dimensional) time series using recurrent neural networks (RNN). Classical forecasting methods, such as autoregressive integrated moving average (ARIMA) or exponential smoothing (ETS), fit a single model to each individual time series. They then use that model to extrapolate the time series into the future.

NEW QUESTION 150

A telecommunications company is developing a mobile app for its customers. The company is using an Amazon SageMaker hosted endpoint for machine learning model inferences.

Developers want to introduce a new version of the model for a limited number of users who subscribed to a preview feature of the app. After the new version of the model is tested as a preview, developers will evaluate its accuracy. If a new version of the model has better accuracy, developers need to be able to gradually release the new version for all users over a fixed period of time.

How can the company implement the testing model with the LEAST amount of operational overhead?

- A. Update the ProductionVariant data type with the new version of the model by using the CreateEndpointConfig operation with the InitialVariantWeight parameter set to 0. Specify the TargetVariant parameter for InvokeEndpoint calls for users who subscribed to the preview feature.
- B. When the new version of the model is ready for release, gradually increase InitialVariantWeight until all users have the updated version.
- C. Configure two SageMaker hosted endpoints that serve the different versions of the model.
- D. Create an Application Load Balancer (ALB) to route traffic to both endpoints based on the TargetVariant query string parameter.
- E. Reconfigure the app to send the TargetVariant query string parameter for users who subscribed to the preview feature.
- F. When the new version of the model is ready for release, change the ALB's routing algorithm to weighted until all users have the updated version.
- G. Update the DesiredWeightsAndCapacity data type with the new version of the model by using the UpdateEndpointWeightsAndCapacities operation with the DesiredWeight parameter set to 0. Specify the TargetVariant parameter for InvokeEndpoint calls for users who subscribed to the preview feature.
- H. When the new version of the model is ready for release, gradually increase DesiredWeight until all users have the updated version.
- I. Configure two SageMaker hosted endpoints that serve the different versions of the model.
- J. Create an Amazon Route 53 record that is configured with a simple routing policy and that points to the current version of the model.
- K. Configure the mobile app to use the endpoint URL for users who subscribed to the preview feature and to use the Route 53 record for other users.
- L. When the new version of the model is ready for release, add a new model version endpoint to Route 53, and switch the policy to weighted until all users have the updated version.

Answer: D

NEW QUESTION 155

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: A

NEW QUESTION 160

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 161

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 163

A retail company uses a machine learning (ML) model for daily sales forecasting. The company's brand manager reports that the model has provided inaccurate results for the past 3 weeks.

At the end of each day, an AWS Glue job consolidates the input data that is used for the forecasting with the actual daily sales data and the predictions of the model. The AWS Glue job stores the data in Amazon S3. The company's ML team is using an Amazon SageMaker Studio notebook to gain an understanding about the source of the model's inaccuracies.

What should the ML team do on the SageMaker Studio notebook to visualize the model's degradation MOST accurately?

- A. Create a histogram of the daily sales over the last 3 week
- B. In addition, create a histogram of the daily sales from before that period.
- C. Create a histogram of the model errors over the last 3 week
- D. In addition, create a histogram of the model errors from before that period.
- E. Create a line chart with the weekly mean absolute error (MAE) of the model.
- F. Create a scatter plot of daily sales versus model error for the last 3 week
- G. In addition, create a scatter plot of daily sales versus model error from before that period.

Answer: C

NEW QUESTION 167

Which of the following metrics should a Machine Learning Specialist generally use to compare/evaluate machine learning classification models against each other?

- A. Recall
- B. Misclassification rate
- C. Mean absolute percentage error (MAPE)
- D. Area Under the ROC Curve (AUC)

Answer: D

NEW QUESTION 171

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: D

NEW QUESTION 174

A machine learning specialist stores IoT soil sensor data in Amazon DynamoDB table and stores weather event data as JSON files in Amazon S3. The dataset in DynamoDB is 10 GB in size and the dataset in Amazon S3 is 5 GB in size. The specialist wants to train a model on this data to help predict soil moisture levels as a function of weather events using Amazon SageMaker.

Which solution will accomplish the necessary transformation to train the Amazon SageMaker model with the LEAST amount of administrative overhead?

A. Launch an Amazon EMR cluster

B. Create an Apache Hive external table for the DynamoDB table and S3 data

C. Join the Hive tables and write the results out to Amazon S3.

D. Crawl the data using AWS Glue crawler

E. Write an AWS Glue ETL job that merges the two tables and writes the output to an Amazon Redshift cluster.

F. Enable Amazon DynamoDB Streams on the sensor table

G. Write an AWS Lambda function that consumes the stream and appends the results to the existing weather files in Amazon S3.

H. Crawl the data using AWS Glue crawler

I. Write an AWS Glue ETL job that merges the two tables and writes the output in CSV format to Amazon S3.

Answer: C

NEW QUESTION 177

A data scientist wants to use Amazon Forecast to build a forecasting model for inventory demand for a retail company. The company has provided a dataset of historic inventory demand for its products as a .csv file stored in an Amazon S3 bucket. The table below shows a sample of the dataset.

timestamp	item_id	demand	category	lead_time
2019-12-14	uni_000736	120	hardware	90
2020-01-31	uni_003429	98	hardware	30
2020-03-04	uni_000211	234	accessories	10

How should the data scientist transform the data?

A. Use ETL jobs in AWS Glue to separate the dataset into a target time series dataset and an item metadata dataset

B. Upload both datasets as .csv files to Amazon S3.

C. Use a Jupyter notebook in Amazon SageMaker to separate the dataset into a related time series dataset and an item metadata dataset

D. Upload both datasets as tables in Amazon Aurora.

E. Use AWS Batch jobs to separate the dataset into a target time series dataset, a related time series dataset, and an item metadata dataset

F. Upload them directly to Forecast from a local machine.

G. Use a Jupyter notebook in Amazon SageMaker to transform the data into the optimized protobuf recordIO format

H. Upload the dataset in this format to Amazon S3.

Answer: A

Explanation:

<https://docs.aws.amazon.com/forecast/latest/dg/dataset-import-guidelines-troubleshooting.html>

NEW QUESTION 178

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 183

A logistics company needs a forecast model to predict next month's inventory requirements for a single item in 10 warehouses. A machine learning specialist uses Amazon Forecast to develop a forecast model from 3 years of monthly data. There is no missing data. The specialist selects the DeepAR+ algorithm to train a predictor. The predictor means absolute percentage error (MAPE) is much larger than the MAPE produced by the current human forecasters.

Which changes to the CreatePredictor API call could improve the MAPE? (Choose two.)

A. Set PerformAutoML to true.

- B. Set ForecastHorizon to 4.
- C. Set ForecastFrequency to W for weekly.
- D. Set PerformHPO to true.
- E. Set FeaturizationMethodName to filling.

Answer: CD

NEW QUESTION 186

A Machine Learning Specialist is applying a linear least squares regression model to a dataset with 1 000 records and 50 features Prior to training, the ML Specialist notices that two features are perfectly linearly dependent
Why could this be an issue for the linear least squares regression model?

- A. It could cause the backpropagation algorithm to fail during training
- B. It could create a singular matrix during optimization which fails to define a unique solution
- C. It could modify the loss function during optimization causing it to fail during training
- D. It could introduce non-linear dependencies within the data which could invalidate the linear assumptions of the model

Answer: C

NEW QUESTION 188

A data scientist needs to identify fraudulent user accounts for a company's ecommerce platform. The company wants the ability to determine if a newly created account is associated with a previously known fraudulent user. The data scientist is using AWS Glue to cleanse the company's application logs during ingestion. Which strategy will allow the data scientist to identify fraudulent accounts?

- A. Execute the built-in FindDuplicates Amazon Athena query.
- B. Create a FindMatches machine learning transform in AWS Glue.
- C. Create an AWS Glue crawler to infer duplicate accounts in the source data.
- D. Search for duplicate accounts in the AWS Glue Data Catalog.

Answer: B

NEW QUESTION 192

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

Explanation:

Using compressions will reduce the amount of data scanned by Amazon Athena, and also reduce your S3 bucket storage. It's a Win-Win for your AWS bill.
Supported formats: GZIP, LZO, SNAPPY (Parquet) and ZLIB.

NEW QUESTION 194

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 195

A company wants to predict the sale prices of houses based on available historical sales data. The target variable in the company's dataset is the sale price. The features include parameters such as the lot size, living area measurements, non-living area measurements, number of bedrooms, number of bathrooms, year built, and postal code. The company wants to use multi-variable linear regression to predict house sale prices. Which step should a machine learning specialist take to remove features that are irrelevant for the analysis and reduce the model's complexity?

- A. Plot a histogram of the features and compute their standard deviatio
- B. Remove features with high variance.
- C. Plot a histogram of the features and compute their standard deviatio
- D. Remove features with low variance.
- E. Build a heatmap showing the correlation of the dataset against itsel
- F. Remove features with low mutual correlation scores.
- G. Run a correlation check of all features against the target variabl
- H. Remove features with low target variable correlation scores.

Answer: D

NEW QUESTION 199

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 203

A Machine Learning Specialist is developing 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 pie-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 205

A Machine Learning Specialist is planning to create a long-running Amazon EMR cluster. The EMR cluster will have 1 master node, 10 core nodes, and 20 task nodes. To save on costs, the Specialist will use Spot Instances in the EMR cluster.
 Which nodes should the Specialist launch on Spot Instances?

- A. Master node
- B. Any of the core nodes
- C. Any of the task nodes
- D. Both core and task nodes

Answer: A

NEW QUESTION 207

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: C

NEW QUESTION 208

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