ISTQB

Exam Questions CT-AI

Certified Tester AI Testing Exam

NEW QUESTION 1
A ML engineer is trying to determine the correctness of the new open-source implementation *X", of a supervised regression algorithm implementation. R-Square is one of the functional performance metrics used to determine the quality of the model.
Which ONE of the following would be an APPROPRIATE strategy to achieve this goal? SELECT ONE OPTION

A. Add 10% of the rows randomly and create another model and compare the R-Square scores of both the model.
B. Train various models by changing the order of input features and verify that the R- Square score of these models vary significantly.
C. Compare the R-Square score of the model obtained using two different implementations that utilize two different programming languages while using the same algorithm and the same training and testing data.
D. Drop 10% of the rows randomly and create another model and compare the R-Square scores of both the models.

Answer: C

Explanation:
? A. Add 10% of the rows randomly and create another model and compare the R- Square scores of both the models.
? B. Train various models by changing the order of input features and verify that the R-Square score of these models vary significantly.
? C. Compare the R-Square score of the model obtained using two different implementations that utilize two different programming languages while using the same algorithm and the same training and testing data.
? D. Drop 10% of the rows randomly and create another model and compare the R- Square scores of both the models.
Therefore, option C is the most appropriate strategy because it directly compares the performance of the new implementation "X" with another implementation using the same algorithm and datasets, which helps in verifying the correctness of the implementation.

NEW QUESTION 2
Which of the following is THE LEAST appropriate tests to be performed for testing a feature related to autonomy?
SELECT ONE OPTION

A. Test for human handover to give rest to the system.
B. Test for human handover when it should actually not be relinquishing control.
C. Test for human handover requiring mandatory relinquishing control.
D. Test for human handover after a given time interval.

Answer: B

Explanation:
Testing Autonomy: Testing for human handover when it should not be relinquishing control is the least appropriate because it contradicts the very definition of autonomous systems. The other tests are relevant to ensuring smooth operation and transitions between human and AI control.
Reference: ISTQB_CT-AI_Syllabus_v1.0, Sections on Testing Autonomous AI-Based Systems and Testing for Human-AI Interaction.

NEW QUESTION 3
Which ONE of the following statements is a CORRECT adversarial example in the context of machine learning systems that are working on image classifiers.
SELECT ONE OPTION

A. Black box attacks based on adversarial examples create an exact duplicate model of the original.
B. These attack examples cause a model to predict the correct class with slightly less accuracy even though they look like the original image.
C. These attacks can't be prevented by retraining the model with these examplesaugmented to the training data.
D. These examples are model specific and are not likely to cause another model trained on same task to fail.

Answer: D

Explanation:
? A. Black box attacks based on adversarial examples create an exact duplicate model of the original.
? B. These attack examples cause a model to predict the correct class with slightly less accuracy even though they look like the original image.
? C. These attacks can't be prevented by retraining the model with these examples augmented to the training data.
? D. These examples are model specific and are not likely to cause another model trained on the same task to fail.
Therefore, the correct answer is D because adversarial examples are typically model- specific and may not cause another model trained on the same task to fail.

NEW QUESTION 4
Which ONE of the following options is the MOST APPROPRIATE stage of the ML workflow to set model and algorithm hyperparameters?
SELECT ONE OPTION

A. Evaluating the model
B. Deploying the model
C. Tuning the model
D. Data testing

Answer: C

Explanation:
Setting model and algorithm hyperparameters is an essential step in the machine learning workflow, primarily occurring during the tuning phase.
? Evaluating the model (A): This stage involves assessing the model's performance
using metrics and does not typically include the setting of hyperparameters.
? Deploying the model (B): Deployment is the stage where the model is put into production and used in real-world applications. Hyperparameters should already be set before this stage.
? Tuning the model (C): This is the correct stage where hyperparameters are set.
Tuning involves adjusting the hyperparameters to optimize the model's performance.
? Data testing (D): Data testing involves ensuring the quality and integrity of the data
used for training and testing the model. It does not include setting hyperparameters.
Hence, the most appropriate stage of the ML workflow to set model and algorithm hyperparameters is C. Tuning the model.

References:
? ISTQB CT-AI Syllabus Section 3.2 on the ML Workflow outlines the different stages of the ML process, including the tuning phase where hyperparameters are set.
? Sample Exam Questions document, Question #31 specifically addresses the stage in the ML workflow where hyperparameters are configured.

NEW QUESTION 5
A system was developed for screening the X-rays of patients for potential malignancy detection (skin cancer). A workflow system has been developed to screen multiple cancers by using several individually trained ML models chained together in the workflow.
Testing the pipeline could involve multiple kind of tests (I - III): I.Pairwise testing of combinations
II.Testing each individual model for accuracy III.A/B testing of different sequences of models
Which ONE of the following options contains the kinds of tests that would be MOST APPROPRIATE to include in the strategy for optimal detection?
SELECT ONE OPTION

A. Only III
B. I and II
C. I and III
D. Only II

Answer: B

Explanation:
The question asks which combination of tests would be most appropriate to include in the strategy for optimal detection in a workflow system using multiple ML models.
? Pairwise testing of combinations (I): This method is useful for testing interactions between different components in the workflow to ensure they work well together, identifying potential issues in the integration.
? Testing each individual model for accuracy (II): Ensuring that each model in the workflow performs accurately on its own is crucial before integrating them into a combined workflow.
? A/B testing of different sequences of models (III): This involves comparing different sequences to determine which configuration yields the best results. While useful, it might not be as fundamental as pairwise and individual accuracy testing in the initial stages.
References:
? ISTQB CT-AI Syllabus Section 9.2 on Pairwise Testing and Section 9.3 on Testing ML Models emphasize the importance of testing interactions and individual model accuracy in complex ML workflows.

NEW QUESTION 6
Which ONE of the following statements correctly describes the importance of flexibility for Al systems?
SELECT ONE OPTION

A. Al systems are inherently flexible.
B. Al systems require changing of operational environments; therefore, flexibility is required.
C. Flexible Al systems allow for easier modification of the system as a whole.
D. Self-learning systems are expected to deal with new situations without explicitly having to program for it.

Answer: C

Explanation:
Flexibility in AI systems is crucial for various reasons, particularly because it allows for easier modification and adaptation of the system as a whole.
? AI systems are inherently flexible (A): This statement is not correct. While some AI systems may be designed to be flexible, they are not inherently flexible by nature. Flexibility depends on the system's design and implementation.
? AI systems require changing operational environments; therefore, flexibility is required (B): While it's true that AI systems may need to operate in changing environments, this statement does not directly address the importance of flexibility for the modification of the system.
? Flexible AI systems allow for easier modification of the system as a whole (C): This statement correctly describes the importance of flexibility. Being able to modify AI systems easily is critical for their maintenance, adaptation to new requirements, and improvement.
? Self-learning systems are expected to deal with new situations without explicitly having to program for it (D): This statement relates to the adaptability of self- learning systems rather than their overall flexibility for modification.
Hence, the correct answer is C. Flexible AI systems allow for easier modification of the system as a whole.
References:
? ISTQB CT-AI Syllabus Section 2.1 on Flexibility and Adaptability discusses the importance of flexibility in AI systems and how it enables easier modification and adaptability to new situations.
? Sample Exam Questions document, Question #30 highlights the importance of flexibility in AI systems.

NEW QUESTION 7
The activation value output for a neuron in a neural network is obtained by applying computation to the neuron.
Which ONE of the following options BEST describes the inputs used to compute the activation value?
SELECT ONE OPTION

A. Individual bias at the neuron level, activation values of neurons in the previous layer, and weights assigned to the connections between the neurons.
B. Activation values of neurons in the previous layer, and weights assigned to the connections between the neurons.
C. Individual bias at the neuron level, and weights assigned to the connections between the neurons.
D. Individual bias at the neuron level, and activation values of neurons in the previous layer.

Answer: A

Explanation:
In a neural network, the activation value of a neuron is determined by a combination of inputs from the previous layer, the weights of the connections, and the bias at the neuron level. Here??s a detailed breakdown:
? Inputs for Activation Value:
? Calculation:

? Why Option A is Correct:
? Eliminating Other Options:
References:
? ISTQB CT-AI Syllabus, Section 6.1, Neural Networks, discusses the components and functioning of neurons in a neural network.
? "Neural Network Activation Functions" (ISTQB CT-AI Syllabus, Section 6.1.1).

NEW QUESTION 8
Which ONE of the following options represents a technology MOST TYPICALLY used to implement AI?
SELECT ONE OPTION

A. Search engines
B. Procedural programming
C. Case control structures
D. Genetic algorithms

Answer: D

Explanation:
Technology Most Typically Used to Implement AI: Genetic algorithms are a well-known technique used in AI. They are inspired by the process of natural selection and are used to find approximate solutions to optimization and search problems. Unlike search engines, procedural programming, or case control structures, genetic algorithms are specifically designed for evolving solutions and are commonly employed in AI implementations. Reference: ISTQB_CT-AI_Syllabus_v1.0, Section 1.4 AI Technologies, which identifies different technologies used to implement AI.

NEW QUESTION 9
Data used for an object detection ML system was found to have been labelled incorrectly in many cases.
Which ONE of the following options is most likely the reason for this problem? SELECT ONE OPTION

A. Security issues
B. Accuracy issues
C. Privacy issues
D. Bias issues

Answer: B

Explanation:
The question refers to a problem where data used for an object detection ML system was labelled incorrectly. This issue is most closely related to "accuracy issues." Here's a detailed Explanation
? Accuracy Issues: The primary goal of labeling data in machine learning is to
ensure that the model can accurately learn and make predictions based on the given labels. Incorrectly labeled data directly impacts the model's accuracy, leading to poor performance because the model learns incorrect patterns.
? Why Not Other Options:
References: This explanation is consistent with the concepts covered in the ISTQB CT-AI syllabus under dataset quality issues and their impact on machine learning models.

NEW QUESTION 10
In a certain coffee producing region of Colombia, there have been some severe weather storms, resulting in massive losses in production. This caused a massive drop in stock price of coffee.
Which ONE of the following types of testing SHOULD be performed for a machine learning model for stock-price prediction to detect influence of such phenomenon as above on price of coffee stock.
SELECT ONE OPTION

A. Testing for accuracy
B. Testing for bias
C. Testing for concept drift
D. Testing for security

Answer: C

Explanation:
Type of Testing for Stock-Price Prediction Models: Concept drift refers to the change in the statistical properties of the target variable over time. Severe weather storms causing massive losses in coffee production and affecting stock prices would require testing for concept drift to ensure that the model adapts to new patterns in data over time. Reference: ISTQB_CT-AI_Syllabus_v1.0, Section 7.6 Testing for Concept Drift, which explains the need to test for concept drift in models that might be affected by changing external factors.

NEW QUESTION 10
Arihant Meditation is a startup using Al to aid people in deeper and better meditation based on analysis of various factors such as time and duration of the meditation, pulse and blood pressure, EEG patters etc. among others. Their model accuracy and other functional performance parameters have not yet reached their desired level.
Which ONE of the following factors is NOT a factor affecting the ML functional performance?
SELECT ONE OPTION

A. The data pipeline
B. The quality of the labeling
C. Biased data
D. The number of classes

Answer: D

Explanation:

Factors Affecting ML Functional Performance: The data pipeline, quality of the labeling, and biased data are all factors that significantly affect the performance of machine learning models. The number of classes, while relevant for the model structure, is not a direct factor affecting the performance metrics such as accuracy or bias.
Reference: ISTQB_CT-AI_Syllabus_v1.0, Sections on Data Quality and its Effect on the ML Model and ML Functional Performance Metrics.

NEW QUESTION 14
An image classification system is being trained for classifying faces of humans. The distribution of the data is 70% ethnicity A and 30% for ethnicities B, C and D.
Based ONLY on the above information, which of the following options BEST describes the situation of this image classification system?
SELECT ONE OPTION

A. This is an example of expert system bias.
B. This is an example of sample bias.
C. This is an example of hyperparameter bias.
D. This is an example of algorithmic bias.

Answer: B

Explanation:
? A. This is an example of expert system bias.
? B. This is an example of sample bias.
? C. This is an example of hyperparameter bias.
? D. This is an example of algorithmic bias.
Based on the provided information, option B (sample bias) best describes the situation because the training data is skewed towards ethnicity A, potentially leading to biased model performance.

NEW QUESTION 17
A company producing consumable goods wants to identify groups of people with similar tastes for the purpose of targeting different products for each group. You have to choose and apply an appropriate ML type for this problem.
Which ONE of the following options represents the BEST possible solution for this above- mentioned task?
SELECT ONE OPTION

A. Regression
B. Association
C. Clustering
D. Classification

Answer: C

Explanation:
? A. Regression
? B. Association
? C. Clustering
? D. Classification
Therefore, the correct answer is C because clustering is the most suitable method for grouping people with similar tastes for targeted product marketing.

NEW QUESTION 20
In the near future, technology will have evolved, and Al will be able to learn multiple tasks by itself without needing to be retrained, allowing it to operate even in new environments. The cognitive abilities of Al are similar to a child of 1-2 years.??
In the above quote, which ONE of the following options is the correct name of this type of Al?
SELECT ONE OPTION

A. Technological singularity
B. Narrow Al
C. Super Al
D. General Al

Answer: D

Explanation:
* A. Technological singularity
? Technological singularity refers to a hypothetical point in the future when AI surpasses human intelligence and can continuously improve itself without human intervention. This scenario involves capabilities far beyond those described in the question.
* B. Narrow AI
? Narrow AI, also known as weak AI, is designed to perform a specific task or a narrow range of tasks. It does not have general cognitive abilities and cannot learn multiple tasks by itself without retraining.
* C. Super AI
? Super AI refers to an AI that surpasses human intelligence and capabilities across
all fields. This is an advanced concept and not aligned with the description of having cognitive abilities similar to a young child.
* D. General AI
? General AI, or strong AI, has the ability to understand, learn, and apply knowledge across a wide range of tasks, similar to human cognitive abilities. It aligns with the description of AI that can learn multiple tasks and operate in new environments without needing retraining.

NEW QUESTION 22
Written requirements are given in text documents, which ONE of the following options is the BEST way to generate test cases from these requirements?
SELECT ONE OPTION

A. Natural language processing on textual requirements
B. Analyzing source code for generating test cases
C. Machine learning on logs of execution

D. GUI analysis by computer vision

Answer: A

Explanation:
When written requirements are given in text documents, the best way to generate test cases is by using Natural Language Processing (NLP). Here's why:
? Natural Language Processing (NLP): NLP can analyze and understand human
language. It can be used to process textual requirements to extract relevant information and generate test cases. This method is efficient in handling large volumes of textual data and identifying key elements necessary for testing.
? Why Not Other Options:
References: This aligns with the methodology discussed in the syllabus under the section on using AI for generating test cases from textual requirements.

NEW QUESTION 26
Which ONE of the following tests is LEAST likely to be performed during the ML model testing phase?
SELECT ONE OPTION

A. Testing the accuracy of the classification model.
B. Testing the API of the service powered by the ML model.
C. Testing the speed of the training of the model.
D. Testing the speed of the prediction by the model.

Answer: C

Explanation:
The question asks which test is least likely to be performed during the ML model testing phase. Let's consider each option:
? Testing the accuracy of the classification model (A): Accuracy testing is a
fundamental part of the ML model testing phase. It ensures that the model correctly classifies the data as intended and meets the required performance metrics.
? Testing the API of the service powered by the ML model (B): Testing the API is
crucial, especially if the ML model is deployed as part of a service. This ensures that the service integrates well with other systems and that the API performs as expected.
? Testing the speed of the training of the model (C): This is least likely to be part of
the ML model testing phase. The speed of training is more relevant during the development phase when optimizing and tuning the model. During testing, the focus is more on the model's performance and behavior rather than how quickly it was trained.
? Testing the speed of the prediction by the model (D): Testing the speed of
prediction is important to ensure that the model meets performance requirements in a production environment, especially for real-time applications.
References:
? ISTQB CT-AI Syllabus Section 3.2 on ML Workflow and Section 5 on ML Functional Performance Metrics discuss the focus of testing during the model testing phase, which includes accuracy and prediction speed but not the training speed.

NEW QUESTION 31
"Splendid Healthcare" has started developing a cancer detection system based on ML. The type of cancer they plan on detecting has 2% prevalence rate in the population of a particular geography. It is required that the model performs well for both normal and cancer patients.
Which ONE of the following combinations requires MAXIMIZATION? SELECT ONE OPTION

A. Maximize precision and accuracy
B. Maximize accuracy and recall
C. Maximize recall and precision
D. Maximize specificity number of classes

Answer: C

Explanation:
? Prevalence Rate and Model Performance:
? Importance of Recall:
? Importance of Precision:
? Balancing Recall and Precision:
? Accuracy and Specificity:
? Conclusion:
: This explanation aligns with the principles outlined in the ISTQB CT-AI Syllabus, particularly sections on performance metrics for ML models and handling imbalanced datasets (Chapter 5: ML Functional Performance Metrics).

NEW QUESTION 35
Pairwise testing can be used in the context of self-driving cars for controlling an explosion in the number of combinations of parameters.
Which ONE of the following options is LEAST likely to be a reason for this incredible growth of parameters?
SELECT ONE OPTION

A. Different Road Types
B. Different weather conditions
C. ML model metrics to evaluate the functional performance
D. Different features like ADAS, Lane Change Assistance etc.

Answer: C

Explanation:
Pairwise testing is used to handle the large number of combinations of parameters that can arise in complex systems like self-driving cars. The question asks which of the given options is least likely to be a reason for the explosion in the number of parameters.
? Different Road Types (A): Self-driving cars must operate on various road types,
such as highways, city streets, rural roads, etc. Each road type can have different characteristics, requiring the car's system to adapt and handle different scenarios. Thus, this is a significant factor contributing to the growth of parameters.
? Different Weather Conditions (B): Weather conditions such as rain, snow, fog, and

bright sunlight significantly affect the performance of self-driving cars. The car's sensors and algorithms must adapt to these varying conditions, which adds to the number of parameters that need to be considered.
? ML Model Metrics to Evaluate Functional Performance (C): While evaluating
machine learning (ML) model performance is crucial, it does not directly contribute to the explosion of parameter combinations in the same way that road types, weather conditions, and car features do. Metrics are used to measure and assess
performance but are not themselves variable conditions that the system must handle.
? Different Features like ADAS, Lane Change Assistance, etc. (D): Advanced Driver
Assistance Systems (ADAS) and other features add complexity to self-driving cars. Each feature can have multiple settings and operational modes, contributing to the overall number of parameters.
Hence, the least likely reason for the incredible growth in the number of parameters is C. ML model metrics to evaluate the functional performance.
References:
? ISTQB CT-AI Syllabus Section 9.2 on Pairwise Testing discusses the application of this technique to manage the combinations of different variables in AI-based systems, including those used in self-driving cars.
? Sample Exam Questions document, Question #29 provides context for the explosion in parameter combinations in self-driving cars and highlights the use of pairwise testing as a method to manage this complexity.

NEW QUESTION 39
Which ONE of the following options does NOT describe an Al technology related characteristic which differentiates Al test environments from other test environments?
SELECT ONE OPTION

A. Challenges resulting from low accuracy of the models.
B. The challenge of mimicking undefined scenarios generated due to self-learning
C. The challenge of providing explainability to the decisions made by the system.
D. Challenges in the creation of scenarios of human handover for autonomous systems.

Answer: D

Explanation:
AI test environments have several unique characteristics that differentiate them from traditional test environments. Let??s evaluate each option:
? A. Challenges resulting from low accuracy of the models.
? B. The challenge of mimicking undefined scenarios generated due to self-learning.
? C. The challenge of providing explainability to the decisions made by the system.
? D. Challenges in the creation of scenarios of human handover for autonomous systems.
Given the above points, option D is the correct answer because it describes a challenge related to operational deployment rather than a technology-related characteristic unique to AI test environments.

NEW QUESTION 43
.....

Thank You for Trying Our Product

We offer two products:

1st - We have Practice Tests Software with Actual Exam Questions

2nd - Questons and Answers in PDF Format

CT-AI Practice Exam Features:

* CT-AI Questions and Answers Updated Frequently

* CT-AI Practice Questions Verified by Expert Senior Certified Staff

* CT-AI Most Realistic Questions that Guarantee you a Pass on Your FirstTry

* CT-AI Practice Test Questions in Multiple Choice Formats and Updatesfor 1 Year