



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 ONE of the following options BEST DESCRIBES clustering? SELECT ONE OPTION

- A. Clustering is classification of a continuous quantity.
- B. Clustering is supervised learning.
- C. Clustering is done without prior knowledge of output classes.
- D. Clustering requires you to know the classes.

Answer: C

Explanation:

Clustering is a type of machine learning technique used to group similar data points into clusters. It is a key concept in unsupervised learning, where the algorithm tries to find patterns or groupings in data without prior knowledge of output classes. Let's analyze each option:

? A. Clustering is classification of a continuous quantity.

? B. Clustering is supervised learning.

? C. Clustering is done without prior knowledge of output classes.

? D. Clustering requires you to know the classes.

Therefore, the correct answer is C because clustering is an unsupervised learning technique done without prior knowledge of output classes.

NEW QUESTION 3

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 4

Which ONE of the following types of coverage SHOULD be used if test cases need to cause each neuron to achieve both positive and negative activation values?

SELECT ONE OPTION

- A. Value coverage
- B. Threshold coverage
- C. Sign change coverage
- D. Neuron coverage

Answer: C

Explanation:

Coverage for Neuron Activation Values: Sign change coverage is used to ensure that test cases cause each neuron to achieve both positive and negative activation values. This type of coverage ensures that the neurons are thoroughly tested under different activation states.

Reference: ISTQB_CT-AI_Syllabus_v1.0, Section 6.2 Coverage Measures for Neural Networks, which details different types of coverage measures, including sign change coverage.

NEW QUESTION 5

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 6

Which ONE of the following options describes a scenario of A/B testing the LEAST? SELECT ONE OPTION

- A. A comparison of two different websites for the same company to observe from a user acceptance perspective.
- B. A comparison of two different offers in a recommendation system to decide on the more effective offer for same users.
- C. A comparison of the performance of an ML system on two different input datasets.
- D. A comparison of the performance of two different ML implementations on the same input data.

Answer: C

Explanation:

A/B testing, also known as split testing, is a method used to compare two versions of a product or system to determine which one performs better. It is widely used in web development, marketing, and machine learning to optimize user experiences and model performance. Here's why option C is the least descriptive of an A/B testing scenario:

? Understanding A/B Testing:

? Application in Machine Learning:

? Why Option C is the Least Descriptive:

? Clarifying the Other Options:

References:

? ISTQB CT-AI Syllabus, Section 9.4, A/B Testing, explains the methodology and application of A/B testing in various contexts.

? "Understanding A/B Testing" (ISTQB CT-AI Syllabus).

NEW QUESTION 7

Arihant Meditation is a startup using AI 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 patterns 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 8

Which ONE of the following hardware is MOST suitable for implementing AI when using ML?

SELECT ONE OPTION

- A. 64-bit CPUs.
- B. Hardware supporting fast matrix multiplication.
- C. High powered CPUs.
- D. Hardware supporting high precision floating point operations.

Answer: B

Explanation:

? A. 64-bit CPUs.

? B. Hardware supporting fast matrix multiplication.

? C. High powered CPUs.

? D. Hardware supporting high precision floating point operations.

Therefore, the correct answer is B because hardware supporting fast matrix multiplication, such as GPUs, is most suitable for the parallel processing requirements of machine learning.

NEW QUESTION 9

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 10

Which ONE of the following approaches to labelling requires the least time and effort? SELECT ONE OPTION

- A. Outsourced
- B. Pre-labeled dataset
- C. Internal
- D. AI-Assisted

Answer: B

Explanation:

Labelling Approaches: Among the options provided, pre-labeled datasets require the least time and effort because the data has already been labeled, eliminating the need for further manual or automated labeling efforts.

Reference: ISTQB_CT-AI_Syllabus_v1.0, Section 4.5 Data Labelling for Supervised Learning, which discusses various approaches to data labeling, including pre-labeled datasets, and their associated time and effort requirements.

NEW QUESTION 10

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