



ISTQB

Exam Questions CT-AI

Certified Tester AI Testing Exam

NEW QUESTION 1

Which ONE of the following characteristics is the least likely to cause safety related issues for an AI system?

- A. Non-determinism
- B. Robustness
- C. High complexity
- D. Self-learning

Answer: B

Explanation:

The question asks which characteristic is least likely to cause safety-related issues for an AI system. Let's evaluate each option:

? Non-determinism (A): Non-deterministic systems can produce different outcomes

even with the same inputs, which can lead to unpredictable behavior and potential safety issues.

? Robustness (B): Robustness refers to the ability of the system to handle errors,

anomalies, and unexpected inputs gracefully. A robust system is less likely to cause safety issues because it can maintain functionality under varied conditions.

? High complexity (C): High complexity in AI systems can lead to difficulties in

understanding, predicting, and managing the system's behavior, which can cause safety-related issues.

? Self-learning (D): Self-learning systems adapt based on new data, which can lead

to unexpected changes in behavior. If not properly monitored and controlled, this can result in safety issues.

References:

? ISTQB CT-AI Syllabus Section 2.8 on Safety and AI discusses various factors affecting the safety of AI systems, emphasizing the importance of robustness in maintaining safe operation.

NEW QUESTION 2

A software component uses machine learning to recognize the digits from a scan of handwritten numbers. In the scenario above, which type of Machine Learning (ML) is this an example of?

SELECT ONE OPTION

- A. Reinforcement learning
- B. Regression
- C. Classification
- D. Clustering

Answer: C

Explanation:

Recognizing digits from a scan of handwritten numbers using machine learning is an example of classification. Here's a breakdown:

? Classification: This type of machine learning involves categorizing input data into

predefined classes. In this scenario, the input data (handwritten digits) are classified into one of the 10 digit classes (0-9).

? Why Not Other Options:

References: The explanation is based on the definitions of different machine learning types as outlined in the ISTQB CT-AI syllabus, specifically under supervised learning and classification.

NEW QUESTION 3

Which ONE of the following statements correctly describes the importance of flexibility for AI systems?

SELECT ONE OPTION

- A. AI systems are inherently flexible.
- B. AI systems require changing of operational environments; therefore, flexibility is required.
- C. Flexible AI 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 4

Which ONE of the following models BEST describes a way to model defect prediction by looking at the history of bugs in modules by using code quality metrics of modules of historical versions as input?

SELECT ONE OPTION

- A. Identifying the relationship between developers and the modules developed by them.
- B. Search of similar code based on natural language processing.
- C. Clustering of similar code modules to predict based on similarity.
- D. Using a classification model to predict the presence of a defect by using code quality metrics as the input data.

Answer: D

Explanation:

Defect prediction models aim to identify parts of the software that are likely to contain defects by analyzing historical data and code quality metrics. The primary goal is to use this predictive information to allocate testing and maintenance resources effectively. Let's break down why option D is the correct choice:

? Understanding Classification Models:

? Input Data - Code Quality Metrics:

? Historical Data:

? Why Option D is Correct:

? Eliminating Other Options:

References:

? ISTQB CT-AI Syllabus, Section 9.5, Metamorphic Testing (MT), describes various testing techniques including classification models for defect prediction.

? "Using AI for Defect Prediction" (ISTQB CT-AI Syllabus, Section 11.5.1).

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 tests is MOST likely to describe a useful test to help detect different kinds of biases in ML pipeline?

SELECT ONE OPTION

- A. Testing the distribution shift in the training data for inappropriate bias.
- B. Test the model during model evaluation for data bias.
- C. Testing the data pipeline for any sources for algorithmic bias.
- D. Check the input test data for potential sample bias.

Answer: B

Explanation:

Detecting biases in the ML pipeline involves various tests to ensure fairness and accuracy throughout the ML process.

? Testing the distribution shift in the training data for inappropriate bias (A): This involves checking if there is any shift in the data distribution that could lead to bias in the model. It is an important test but not the most direct method for detecting biases.

? Test the model during model evaluation for data bias (B): This is a critical stage where the model is evaluated to detect any biases in the data it was trained on. It directly addresses potential data biases in the model.

? Testing the data pipeline for any sources for algorithmic bias (C): This test is crucial as it helps identify biases that may originate from the data processing and transformation stages within the pipeline. Detecting sources of algorithmic bias ensures that the model does not inherit biases from these processes.

? Check the input test data for potential sample bias (D): While this is an important step, it focuses more on the input data and less on the overall data pipeline. Hence, the most likely useful test to help detect different kinds of biases in the ML pipeline is B. Test the model during model evaluation for data bias.

References:

? ISTQB CT-AI Syllabus Section 8.3 on Testing for Algorithmic, Sample, and Inappropriate Bias discusses various tests that can be performed to detect biases at different stages of the ML pipeline.

? Sample Exam Questions document, Question #32 highlights the importance of evaluating the model for biases.

NEW QUESTION 7

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 8

In a conference on artificial intelligence (AI), a speaker made the statement, "The current implementation of AI using models which do NOT change by themselves is NOT true AI*. Based on your understanding of AI, is this above statement CORRECT or INCORRECT and why?

SELECT ONE OPTION

- A. This statement is incorrec
- B. Current AI is true AI and there is no reason to believe that this fact will change over time.
- C. This statement is correc
- D. In general, what is considered AI today may change over time.
- E. This statement is incorrec
- F. What is considered AI today will continue to be AI even as technology evolves and changes.
- G. This statement is correc
- H. In general, today the term AI is utilized incorrectly.

Answer: B

Explanation:

A. This statement is incorrect. Current AI is true AI and there is no reason to believe that this fact will change over time.

? AI is an evolving field, and the definition of what constitutes AI can change as technology advances.

* B. This statement is correct. In general, what is considered AI today may change over time.

? The term AI is dynamic and has evolved over the years. What is considered AI today might be viewed as standard computing in the future. Historically, as technologies become mainstream, they often cease to be considered "AI".

* C. This statement is incorrect. What is considered AI today will continue to be AI even as technology evolves and changes.

? This perspective does not account for the historical evolution of the definition of AI.

As new technologies emerge, the boundaries of AI shift.

* D. This statement is correct. In general, today the term AI is utilized incorrectly.

? While some may argue this, it is not a universal truth. The term AI encompasses a broad range of technologies and applications, and its usage is generally consistent with current technological capabilities.

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 is the BEST option to optimize the regression test selection and prevent the regression suite from growing large?

SELECT ONE OPTION

- A. Identifying suitable tests by looking at the complexity of the test cases.
- B. Using of a random subset of tests.
- C. Automating test scripts using AI-based test automation tools.
- D. Using an AI-based tool to optimize the regression test suite by analyzing past test results

Answer: D

Explanation:

? A. Identifying suitable tests by looking at the complexity of the test cases.

? B. Using a random subset of tests.

? C. Automating test scripts using AI-based test automation tools.

? D. Using an AI-based tool to optimize the regression test suite by analyzing past test results.

Therefore, the correct answer is D because using an AI-based tool to analyze past test results is the best option to optimize regression test selection and manage the size of the regression suite effectively.

NEW QUESTION 10

Which ONE of the following options is an example that BEST describes a system with AI- based autonomous functions?

SELECT ONE OPTION

A. A system that utilizes human beings for all important decisions.

B. A fully automated manufacturing plant that uses no software.

C. A system that utilizes a tool like Selenium.

D. A system that is fully able to respond to its environment.

Answer: D

Explanation:

AI-Based Autonomous Functions: An AI-based autonomous system is one that can respond to its environment without human intervention. The other options either involve human decisions or do not use AI at all.

Reference: ISTQB_CT-AI_Syllabus_v1.0, Sections on Autonomy and Testing Autonomous AI-Based Systems.

NEW QUESTION 15

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