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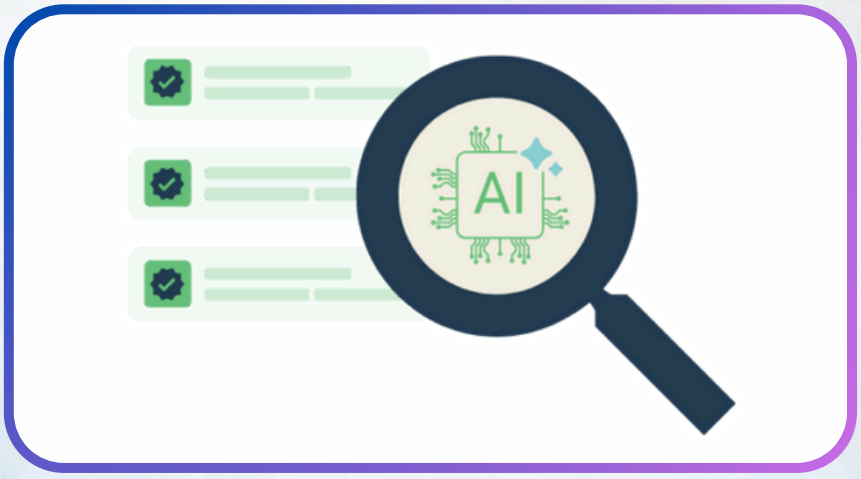
# AI and Gen-AI Testing

(ISTQB-Black-Box-Gen-AI-Testing)

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# Real Time AI and Gen-AI Testing

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## Module-1: Introduction to Artificial Intelligence (AI)

- Learning Path for AI QA Beginners
- Introduction to QA Engineering
- AI + QA = AI Quality Engineering
- What is AI QA Engineering?
- Role of an AI QA Engineer
- Key Components of AI
- AI QA Focus Areas

## Module-2: Core Mathematical Foundations for QA Engineers

- Mathematics for AI QA Engineers
- Statistics for QA Engineers
- Probability for QA Engineers
- Key Components of Mathematics

## Module-3: AI Models Testing-Machine Learning

- What is Model? Why?
- What is Machine Learning?
- Why ML for AI?
- Types of Machine Learning?
- Supervised Machine Learning?
- Un-Supervised Machine Learning?
- Reinforcement Learning

## Module-4: AI Models Testing- Simple Linear Regression

- What is Simple Linear Regression?
- Hands on Simple Linear Regression
- Working on Live datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-5: AI Models Testing-Multi Linear Regression

- What is Multivariate Linear Regression
- Computations related to Multivariate Linear Regression
- Working on Live datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-6: AI Models Testing-Logistic Regression

- What is Logit Regression/Function
- Computations related to Logit Regression
- Working on Live datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-7: AI Models Testing-K-NN

- What is KNN Regression?
- Computations related to KNN
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-8: AI Models Testing-SVM

- What is SVM Regression?
- Computations related to SVM
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-9. AI Models Testing-Decision Tree and Random Forest

- What is Decision Tree?
- Computations related to Decision Tree
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Bagging and Boosting
- Evaluating Results

## Module-10: AI Models Testing-Deep Learning

- Introduction to ANN
- Computations related to ANN
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-11: AI Models Testing-Deep Learning

- Introduction to CNN
- Computations related to CNN
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process
- Evaluating Results

## Module-12: AI Models Testing-Deep Learning

- Introduction to RNN
- Computations related to RNN
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process

## Module-13. AI Models Testing-NLP

- Introduction to NLP
- Computations related to NLP
- Working on real time datasets
- Testing model as per SCRUM process
- Implementing AI Agile Process

## Module-14: GenAI Testing using TestRigor

- Introduction to GenAI
- Computations related to GenAI
- Working on TestRigor
- NoCode or Code Less Using TestRigor
- GenAI testing with TestRigor

# Generative AI

## Overview of Generative AI

- What is Generative AI?
- Use cases: ChatGPT, Bard, Copilot, DALL·E, etc.
- QA challenges in testing GenAI mode

## Introduction to TestRigor/Testim

- What is TestRigor/Testim?
- No-code / plain English automation.
- Comparison with Selenium & Cypress.
- Role of AI in TestRigor.

## TestRigor Environment Setup

- Creating an account.
- Understanding Test Suites & Projects.
- Navigating the TestRigor dashboard.

## Writing Your First Test Case

- Example: “Click on ‘Login’”, “Enter ‘username’ into ‘Email’ field”.
- Running and viewing test results

## Deep Dive into GenAI Testing Concepts

- Testing in AI Systems
- Traditional QA vs. AI QA.
- Black-box vs. White-box AI Testing.
- Challenges: nondeterminism, bias, explainability.

## GenAI Testing Types

- Functional Testing (Response validity)
- Robustness Testing (Noise handling)
- Performance Testing (Response time)
- Bias Testing (Fairness, consistency)
- Security Testing (Prompt injection)

## Mapping AI Tests in TestRigor

- Designing test steps for conversational systems.
- Validating outputs dynamically.

## Assertions for AI Outputs

- Text comparisons (exact & fuzzy)
- Dynamic validations with variables
- Validating GenAI content correctness

## Automation in TestRigor – Advanced Features

- Test Data & Variable Handling
- Using dynamic and random data.
- Managing session-based data.

## Loops, Conditions & Reusability

- Reusable test cases (modular testing)
- Parameterized testing with datasets.

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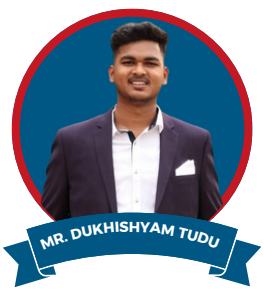
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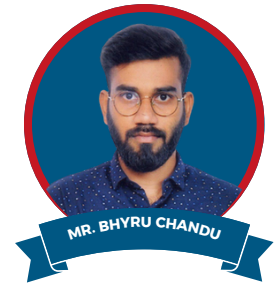
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