MATRIX

QA Engineering Syllabus

7 months

Niyə bu proqram?

Bu proqram sizi yalnız Manual QA və ya Automation QA istiqamətində deyil, korporativ layihələrdə istifadə olunan tam QA ekosistemi ilə tanış edir.



Müasir QA Engineering üçün tələb olunan texnologiyaları bir proqramda öyrənin.

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Tədrisi bitirən məzunların çalışdığı şirkətlər :





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1.Month– Software Testing Fundamentals

- Introduction to Software Testing
- QA vs QC vs Testing
- Software Defects & Bug Lifecycle
- Software Development Life Cycle (SDLC)
- SDLC Phases /Waterfall Model /Agile Methodology
- QA Responsibilities Throughout SDLC
- Software Testing Life Cycle (STLC) /STLC Phases
- Entry & Exit Criteria /Test Deliverables
- Requirement Traceability Matrix (RTM) /Testing Principles
- Seven Testing Principles /Shift Left Testing
- Risk-Based Testing /Quality Assurance Mindset
- Fundamental Test Process
- Test Planning / Test Analysis/ Test Design
- Test Execution /Test Closure
- Testing Psychology / Tester Mindset
- Communication with Developers
- Root Cause Analysis
- Defect Prevention /Testing Models
- Waterfall Testing /V-Model /Agile Testing
- Continuous Testing /Test Levels & Test Types
- Unit Testing /Integration Testing /System Testing
- User Acceptance Testing (UAT)
- Functional & Non-Functional Testing/Maintenance Testing
- Regression Testing /Smoke Testing
- Sanity Testing /Release Validation Testing
- Test Design Techniques /Identify Test Conditions
- Test Scenarios/Test Cases
- Test Data Preparation
- Test Case Review Techniques

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2.Month

- Black Box Testing Techniques /Equivalence Partitioning
- Boundary Value Analysis /Decision Table Testing
- State Transition Testing
- Experience-Based Testing Techniques
- Error Guessing /Checklist-Based Testing
- Exploratory Testing /Session-Based Testing
- Choosing the Right Test Technique
- Requirement-Based Testing /Risk-Based Testing
- Business Scenario Testing /Test Coverage Analysis
- Defect Management /Bug Reporting
- Defect Severity & Priority /Defect Lifecycle
- Bug Report Best Practices
- Test Management /Test Strategy /Test Planning
- Test Estimation/Test Monitoring & Control
- Test Organization /QA Roles & Responsibilities
- Scrum Team Collaboration
- Sprint Testing Activities /QA Documentation Standards
- API Testing Fundamentals
- Introduction to APIs /REST API Basics
- HTTP Methods /HTTP Status Codes
- JSON Structure & Validation
- API Testing with Postman, Swagger & SoapUI
- Sending API Requests /Response Validation
- Environment Variables /API Documentation Analysis
- SQL for QA Engineers /Database Fundamentals
- SELECT Queries /Filtering /JOIN /Aggregate Functions
- Applying SQL & API Testing
- Backend Validation /Database Verification
- API Response Verification
- End-to-End Testing Scenarios

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3.Month

- HTML & CSS Fundamentals for QA /HTML Structure
- CSS Basics /DOM Elements
- Browser Developer Tools /Web Application Testing
- Functional Testing /UI Testing
- Cross-Browser Testing
- Responsive Testing /Compatibility Testing
- Requirement Analysis for QA
- Understanding Business Requirements
- Functional Requirements
- Non-Functional Requirements
- Acceptance Criteria /Test Case Management with Qase.io
- Test Suite Management /Test Case Creation
- Test Execution /Test Reporting
- Team Collaboration /Defect Tracking with Jira
- Creating Bug Reports /Workflow Management
- Bug Lifecycle /Sprint Boards & Backlog
- Incident & Risk Management /Risk Identification
- Risk Assessment /Incident Reporting /Defect Metrics
- Real Web Project Testing /Requirement Analysis
- Test Scenario Preparation /Test Case Execution
- Bug Reporting /Regression Testing
- Agile Testing in Real Projects
- Scrum Framework /Sprint Planning
- Daily Stand-up Meetings /Sprint Review
- Sprint Retrospective /End-to-End Testing Process
- User Journey Validation /Business Flow Testing
- Integration Validation /Release Readiness Testing
- Test Documentation & Reporting
- Test Plan Preparation /Test Execution Report
- Test Summary Report
- Defect Report
- Test Metrics & Quality Reporting

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4.Month-Java Fundamentals for QA Automation

- Java Introduction & Development Environment
- Introduction to Java
- JDK, JRE & JVM Architecture
- Installing Java & IntelliJ IDEA
- Writing and Running the First Java Program
- Variables & Data Types
- Primitive Data Types
- Non-Primitive Data Types
- Variables and Constants
- Type Casting
- Java Operators
- Arithmetic Operators
- Assignment Operators
- Comparison Operators
- Logical Operators
- Increment & Decrement Operators
- Control Flow Statements
- If, Else If, Else
- Switch Statement
- Nested Conditions
- Decision Making in Java
- Looping Constructs
- For Loop
- While Loop
- Do-While Loop
- Break & Continue Statements

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- Methods & Arrays
- Creating Methods
- Parameters & Return Types
- Method Overloading
- One-Dimensional Arrays
- Array Operations
- Object-Oriented Programming (OOP)
- Classes & Objects
- Constructors
- Access Modifiers
- Inheritance & Polymorphism
- Inheritance
- Method Overriding
- Polymorphism
- Super & This Keywords
- OOP Best Practices for Test Automation

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5.Month

- Encapsulation Principles
- Getters & Setters
- Public, Private, Protected & Default
- Data Hiding Best Practices
- Abstraction & Abstract Classes
- Abstraction Concepts
- Abstract Classes
- Abstract Methods
- Interface vs Abstract Class
- Java Keywords
- this Keyword / super Keyword
- final Keyword
- Static Keyword
- Practical Usage in Automation Projects
- Enums & Exception Handling
- Enum Types /Try-Catch-Finally
- Throw & Throws /Custom Exceptions
- Exception Handling Best Practices /Generics
- Generic Classes /Generic Methods /Type Parameters
- Benefits of Generics /Usage in Selenium Frameworks
- Collections Framework /List Interface
- Set Interface /Map Interface
- ArrayList, LinkedList, HashSet, HashMap
- Iterating Through Collections
- File Handling & Database Fundamentals
- Reading Files in Java /Writing Files in Java
- FileReader & FileWriter
- BufferedReader & BufferedWriter
- Introduction to Database Concepts
- JDBC Fundamentals for QA Automation

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6.Month

1. Automation Tools and Practices
2. JDBC and Hibernate Overview
3. Build Automation with Maven
4. Version Control System (Git Commands)
5. Hosting Projects on GitHub
6. Introduction to TestNG and Test Annotations
7. Selenium WebDriver Basics (Locators, Browser Handling)
8. Advanced Selenium: Handling Alerts, Frames, Windows
9. Log4j for Logging

7.Month

1. Testing Techniques
2. API Testing Introduction with Rest Assured
3. Validating REST APIs with Rest Assured
4. Cucumber Framework for Behavior-Driven Development (BDD)
5. Integrating Selenium with Cucumber
6. Framework Design and Best Practices
7. End-to-End Testing Workflow
8. Test Reports and Logging Enhancements
9. Final Project Presentation and Evaluation