

## **API Testing Curriculum**

### **COURSE SYLLABUS**

### **COURSE INTRODUCTION**

### **API INTRODUCTION**

#### **Introduction to web application architecture**

#### **Introduction to**

- Client & Server model
- HTTP & HTTPS protocols
- SSL & TLS protocols
- Hand-shake process
- HTTP Request Headers
- HTTP Response Headers
- Request & Response Cookies
- HTTP Methods/HTTP verbs

#### **Safe methods vs. unsafe methods**

- GET
  - POST
  - PUT
  - PATCH
  - DELETE
  - OPTIONS & HEAD
- ✓ Introduction to APIs
  - ✓ Where does an API reside i.e., middle-ware layer/business layer
  - ✓ Introduction to API architecture/Web-Services
    - REST API
    - SOAP API



+44 (020) 3950 8881



+1 332-600-8899



+91 9581512555



+46 76 441 48 79



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## API TESTING

- What is API testing?
- Advantages of API testing
- Testing techniques used in API testing
- Definition of API --> Understanding Protocol, API URI, end points, Query Parameters, Resources, HTTP verbs, Request body, Authentication type
- Why Postman for API Testing?

## INTRODUCTION TO POSTMAN TOOL

- What is Postman tool
- Installation of Native Postman tool for Windows OS
- Introduction to Postman landscape
- Introduction to Postman Settings & GUI
- Introduction to Postman API network & Postman Templates

## POSTMAN WORKSPACE

- An introduction to Workspaces (Personal, Team, Public, Private)
- How to create and manage Workspaces
- Invite to Workspaces
- Leave Workspace & Delete Workspace
- Collaboration of Workspaces

## INTRODUCTION TO WIZDLER TOOL-SOAP API TESTING TOOL

- What are SOAP web-services/APIs
- What is WSDL file
- Installation of Wizzler tool as a chrome app for the chrome browser for Windows OS/Mac OS
- Introduction to Wizzler tool
- How to parse SOAP WSDL file using Wizzler tool
- Testing SOAP APIs using Wizzler tool & Postman tool
- Understanding Request headers & Response headers
- Understanding Authentication API examples using Wizzler tool



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## TESTING REST APIs & SOAP APIs WITH POSTMAN TOOL

- Testing REST API request using Postman tool with HTTP protocol & HTTPS protocol
- Testing SOAP API request using Postman tool
- Validating Response Code, Response Description, Response Body, Cookies, Response Time, Response Size, HTTP Request Headers, HTTP Response Headers
- Functional Testing of API's (Positive & Negative Test Cases)
- Understanding History tab in Postman tool [Save Responses, Delete, Clear All, Add]
- REST API testing with authentication types [BASIC AUTH, DIGEST AUTH, ACCESS TOKEN]
- Understanding query parameters on sending API request
- Validating REST API that returns JSON/XML/HTML/IMAGES/DOCUMENTS with Postman client
- Examples on validating response headers and status codes
- What are Cookies & How to understand Cookies parameters
- Analyzing Cookies after API response is received
- Saving API responses in Postman client
- Find & Replace option in Postman client
- Postman – Browse view, Build view, Boot camp view, 2 pane view, console view

## POSTMAN COLLECTIONS

- Introduction to Collections
- Creating & Understanding Collections feature
- Setting up Test Project & Collections with REST APIs
- Setting up Test Project & Collections with SOAP APIs
- Exporting & Importing collections in .JSON format, from Postman tool and to Postman tool
- Share Collections [internal Workspaces and to external users]
- Run Collections Remotely with Collection URL
- View & Collaborate Collections documentation in Postman web dashboard
- Introduction to Collection Runner
- Introduction to Collection-Change log
- Introduction to Collection Results-View/Download/Delete Historical Collection runs
- Publishing Collections to Postman API Network & Templates
- Unpublishing the Collections from Postman API Network & Templates
- Create a Fork request, Create Pull request, Merge Changes in Postman tool
- How to create Mock API using GET, POST, PUT, DELETE methods to simulate API response



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## CURL COMMANDS

- Understanding curl commands syntax for GET, POST, PUT, PATCH, DELETE HTTP methods
- Deriving API URL and end point from CURL commands
- Importing an API request from a browser into Postman tool
- Importing an API request from a CURL command into Postman tool
- Execution of imported CURL commands in the Postman tool

## POSTMAN VARIABLES

### Introduction to Postman variables

- Collection/Private variables [at different levels such as protocol, Base URL, Endpoint, Request Headers, Request Body, Query Parma's, Authorization]
- Global variables [at different levels such as protocol, Base URL, Endpoint, Request Headers, Request Body, Query Parma's, Authorization]
- Environment variables [at different levels such as protocol, Base URL, Endpoint, Request Headers, Request Body, Query Parma's, Authorization]
- How to set and get collection/private variables through wizard & manual ways
- How to set and get Global variables through pre-request scrip's at all layers [API, Folder, Collection]
- How to set & get Environment variables thro pre-request scrip's at all layers [API, Folder, Collection]
- Creating Global & Environment variables and its usage at API, Folder & Collection levels

## API AUTOMATION-PART 1

- How to use Postman proxy to record all API calls from a browser
- Postman monitors-Scheduling the API testing periodically (Monitors)
- How to create quick automation test scripts using reusable Java Scripts/code snippets
- How to create Pre-request scripts using reusable Java Scripts/code snippets
- API chaining of API requests
- Grabbing the response body into string for advance validations
- Data Driven API testing using external data sources
  - CSV
  - JSON
- Performance/Load testing of API testing in Postman tool
- Introducing delays for scheduled or continuous load API testing

## API AUTOMATION-PART 2

- Command line execution with Newman tool
- Basic introduction to NPM tool & Node JS
- Installing Node JS & Newman tool
- Running a collection with Newman tool
- Exploring and Execution of all CLI commands using Newman tool
- Generating the API test report(s) using Newman tool
  - i) JSON/CLI
  - ii) HTMLEXTRA
- How to debug & troubleshoot in Postman
- Logging feature to debug automation scripts
  - console.log | console. Debug | console.info | console. Warn | console. Error
- Postman APIs integration with CI/CD (Jenkins)
- Using Postman to Create a Reusable API Framework

## CASE STUDY/ASSIGNMENT

- Postman Tool hands on assignments against a REST & SOAP Web-Services/APIs
- Building Test Plan & Test Cases for an API project
- API objective/subjective test assessment

### KEY FEATURES



**Instructor-led Sessions**



**Learn from Experts**



**Assignments**



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