# Web Services/Rest API Testing and Automation with Postman, SoapUl and Swagger

**Introduction to Web Services and APIs**

Understanding the role of web services in modern applications

Differences between SOAP and REST web services

Core components of REST APIs (HTTP methods, URIs, data formats)

JSON and XML data structures

Basic networking concepts related to API testing

Fundamentals of Postman

What are Web Services? - With Live example

Types of Web Services - SoapUI and REST API

What is Web Services Description Language (WSDL)? Importance of WSDL in Web

Services

Difference between the Web Services Description Language (WSDL) and SoapUI

Protocol

**Exploring SoapUI , Postman Tool Basic Features**

Installing and Documenting SoapUI

Calculator Web Service Example

Creating Test Suites and Test Cases

Local Web Service Installation for Practice

Explaining Web Service Operations in Detail

**Web Services Testing (Manual) with SoapUI - Free Version**

Basic Assertions for Test validations

Advanced Assertions for Validating Responses

Strategy to Use Xpath Assertions in Tests

Properties Access-data Driven Strategy

Accessing Properties from Test Case, Suite, and Project Level

How to Send Values from Response to another Request-property Transfer?

**Web Services Automation Testing in SoapUI - Free version**

Introduction to Groovy Script Test Step

Importance of TestRunner and Context Variable

TestRunner Methods for the get Property() and set Property()

Accessing and Updating Properties through Groovy Methods

Parsing the XML Requests and Responses with XML Holder API

Triggering the SoapUI Requests through Groovy Code

Automating Services - Practice Exercises

Validating the Service Responses with Assertions

**REST API Testing (Manual) with SoapUI Free version**

REST API Concepts

REST API - Types of HTTP Methods

Practical Example on the GET and the POST

Add Place Post HTTP Example Using SoapUI

End-to-End Test of SoapUI Features on the Post HTTP API

**REST API Automation Testing with SoapUI Free version**

JSON Script Assertion Window Automation

Parsing the JSON Responses for API Validation

Examples of REST API Automation with JSON as a Response

Examples of REST API Automation with XML as a Response

**Rest API JSON Assertions and Validations**

JSON Path Extraction from Responses

JSON Assertions on Parsed Responses

Advance Example on JSON Assertions

Installation and setting up your workspace

Exploring the Postman interface (requests, collections, environments)

Sending and customizing HTTP requests

Managing request headers, authentication, and parameters

Understanding responses: status codes, headers, and bodies

API Testing with Postman

**Testing endpoints for GET, POST, PUT, DELETE operations**

Creating basic assertions (status code, response content, response time)

Working with variables and environments

Data-driven testing strategies within Postman

Introduction to the Postman Collection Runner for automation

SOAP Web Services and SoapUI

**Understanding SOAP structure, WSDLs, and SOAP envelopes**

Installing and navigating SoapUI

Importing WSDLs and creating SOAP projects

Sending SOAP requests and analyzing responses

Designing test cases and test suites in SoapUI

Common SoapUI assertions

**API Documentation with Swagger**

What is Swagger/OpenAPI and why it matters

Basic elements of an OpenAPI specification file (YAML/JSON)

Using Swagger Editor or online tools to create documentation

Generating interactive API documentation with Swagger UI

Leveraging Swagger for test design

**Test Scripting Fundamentals**

Variables, control flow, and functions in Postman

Working with response data and dynamic requests

Writing custom assertions

Basic Groovy syntax in the context of SoapUI

Advanced test case design and data manipulation

Customizing test steps and incorporating logic

**Test Automation and Chaining**

Building test flows in Postman for scenario-based testing

Chaining requests and extracting data between requests

Setting up test automation workflows with the Collection Runner

Scheduling SoapUI test suites for regression testing

Integration with CI/CD

Concepts of CI/CD and how API tests fit within pipelines

Running Postman collections with Newman (command-line tool)

Triggering SoapUI tests from CI/CD tools (e.g., Jenkins)

Incorporating API test results into CI/CD reports

**Best Practices and Next Steps**

Effective API test design strategies and patterns

Security testing considerations for APIs

Introduction to API performance/load testing

Advanced features of Postman and SoapUI for specialized scenarios

Resources and communities for continued learning