Automated testing of REST APIs and web services

Course code: TESTING_RESTAPI

The course is intended for all programmers and testers who need to create automated tests of REST APIs and web services (SOAP) communicating via the HTTP protocol, in systems built on any platform or programming language. The aim of the course is to create non-trivial tests of the interface and logic of the prepared application. The course is cross-platform and suitable for all developers in languages such as Java, C#, Python and more.

Required entry skills
- The course assumes knowledge and experience with programming in languages such as Java, C#, Python and others.

Teaching methods
- Expert interpretation with practical examples, exercises on computers.

Studying materials
- Printed presentations of the discussed material.

Course outline
Introduction and basic concepts
- Testing
- REST API (JSON, OpenAPI, YAML)
- Web services (XML, XSD, WSDL)
- Architecture and functionality of the tested application
- SoapUI tools environment

What SoapUI can do
- Structure and modularity of SoapUI projects
- Test scenarios in SoapUI

Working with API of tested systems
- Import OpenAPI (Swagger)
- WSDL import

Test Scenario Steps:
- HTTP
- REST
- SOAP
- Parameter transfer
- Conditional jumps
- Creating and calling functions
- Waiting
- Manual entry
- Assertions

Parameterization of SoapUI projects
- Global and context parameters
- Saving and using parameters across tests

API simulation
- Generating Mock service
- Generating responses
- Answer selection logic
- Parameterization of responses

Stress tests

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- Load test generation
- Stress test strategy
- Evaluation of results
- Scripting

What is Groovy

- Useful scripts
- Using scripts in test scenarios

Continuous Integration

Running tests from the command line