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API Test Automation

API?...

API?

Application
Programming Interface

API History

1960s APIs used as libraries in the first operating systems

1970s Distributed Systems - remote access to APIs

1990s Message Oriented Middleware

Service Oriented Architecture

SOAP – Simple Object Access Protocol

2000s REST – Representational state transfer or RESTful

2010s MicroServices

API Testing

*“A set of subroutine definitions, protocols, and tools for building application software. In general terms, it is a set of **clearly defined methods of communication between various software components.**”*

ISTQB Glossary

<http://glossary.istqb.org/search/API%20Testing>

API Testing

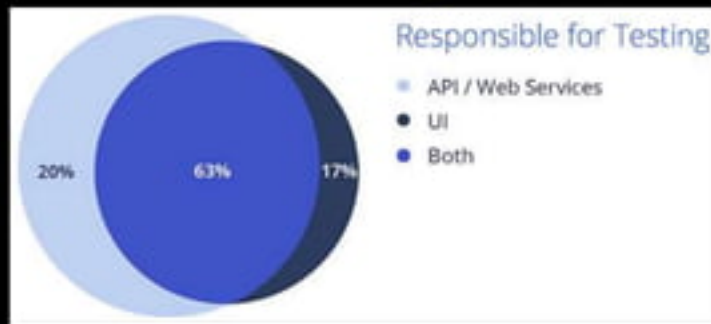
*“**Testing** performed by submitting commands to the software under test using programming interfaces of the application directly.”*

ISTQB Glossary

<http://glossary.istqb.org/search/API%20Testing>

API Testing ... today!

*“The **majority of testers** are responsible for both **API and UI Testing**”*



The State of Testing 2017 - SmartBear

<https://smartbear.com/resources/ebooks/the-state-of-testing-2017-industry-report/>

API Testing ... tomorrow?

- Agility
 - DevOps practices
 - Continuous Delivery > Continuous Deployment
 - Continuous Automated Testing
 - Test Automation and Shift left
- Microservices Architecture migrations
- Internet Of Things

Exponential growth of available APIs!

API Testing ... top concerns?

1. Functionality

Is my API returning the correct response every time

2. Performance

How the API responds under different load conditions

3. Security

Is it safe from hackers and attacks

4. Availability

Is always available to the users

RESTful Web Services

RESTful Web Services

Application Program Interface (API)

Uses HTTP requests (POST, GET, PUT and DELETE)

Based on representational state transfer technology

No state is retained between calls (call are stateless)

Lighter than the more robust SOAP

JSON vs XML

RESTful Web Services - Constraints

1. Decouples consumers from producers
2. Stateless existence
3. Able to leverage a cache
4. Leverages a layered system
5. Leverages a uniform interface

RESTful Web Services - IoT

JSON great for data interchange:

- Schemaless (valid if is well-formed)
- Minimal set of data types
- Human-readable
- Easily parseable
- Parsers are widely available in different languages

... but...

RESTful Web Services - IoT

IoT devices typically need to optimize:

- Network traffic (small and fast)
- Amount of computation
- Memory, storage and power consumption

REST vs optimized IoT protocols...

Solution? IoT hubs that act as man-in-the-middle

API Test Automation Tools

Some tools?

Postman

SoapUI

Robot Framework

Disclaimer



A tool is just
a tool!



Don't use
your
hammer for
everything!

Postman

Developing APIs is hard Postman makes it easy

Postman is the most complete API Development Environment

<https://www.getpostman.com>

Postman

<https://www.getpostman.com/postman>

<https://www.getpostman.com/pricing>

Header, Sidebar, Builder

History & Collections (groups of requests)

Runner, Newman or Monitors

Environments

Tests

SoapUI

Build Better | Test Smarter

The Most Advanced REST & SOAP Testing Tool in the World

<https://www.soapui.org>

SoapUI

<https://www.soapui.org/open-source/features.html>

<https://www.soapui.org/store.html>

Requests vs TestsCases

SoapUI vs SoapUI PRO

Robot Framework

Generic test automation framework for acceptance testing and ATDD

<http://robotframework.org>

Robot Framework

<http://robotframework.org/#introduction>

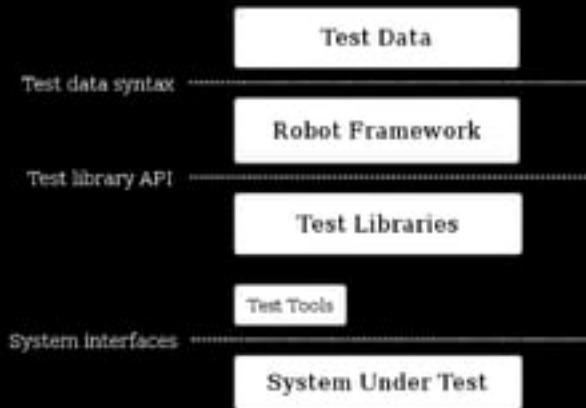
https://github.com/joao-carloto/RF_Install_Script

Framework vs Tool

Keyword Driven

Data Driven

Requests library



Questions?

Thank You!

Obrigado!

Спасибо!

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