



Vipuvoimaa
EU:lta
2014–2020



**Tunne huominen.
All for the future.**





Tämä esitys on tehty osana Ohjelmistojen laadunvarmistuspajan perustaminen -hanketta, joka on saanut Etelä-Savon maakuntaliiton myöntämänä rahoitusta Euroopan aluekehitysrahastosta.



LOAD TESTING: A CLASSROOM PERSPECTIVE

QA WORKSHOP
Alexander Kerr

Resources

Hardware:

- Hosting services
- Testing devices

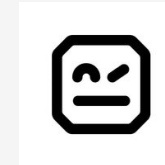
Software:

- Load generators
- Test framework

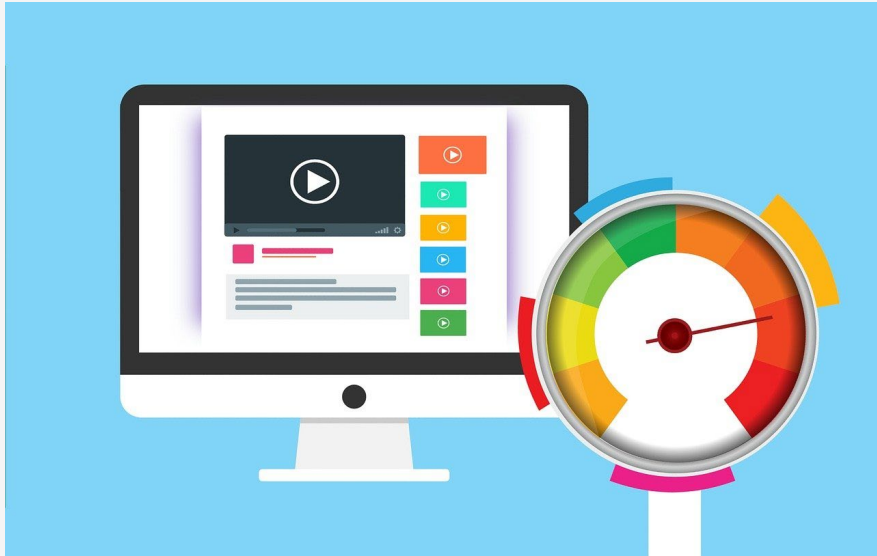
Testers:

- Staff on location
- 3rd party testing

XAMK QA Workshop - Alexander Kerr



Load Testing



DEFINITION:

- Sometimes referred to as performance testing
 - Load testing is a subset of performance testing
- Load testing can be used to check:
 - An applications total operating load
 - The applications stability under load
 - The responsiveness of an application under various levels of load

Common Load Tests

1

Smoke

A baseline test normally performed after application updates to ensure there are no unexpected deviations in response times

2

Load

Checking system performance under average/expected use and ensure user experience is not impacted

3

Stress

Checking system performance under higher than average user load to determine robustness and error handling under heavy usage.

The project

- Provided by Metatavu
- Open source component
- Expected performance defined
- Multiple configurations to be tested

Class date	Topic of the class
10.01.2023	Lecture: Introduction to software testing Lab exercises: How to start testing software?
17.01.2023	Lecture: Engineering test cases (test design, documentation, and testing methods) Lab exercises: Designing tests
24.01.2023	Lecture: Testing levels Lab exercises: Unit testing
31.01.2023	Lecture: Test automation Lab exercises: Test automation with Robot Framework
07.02.2023	Company project: Introduction to OTP and Robot Framework script. Exercise: Attempt to understand the instruction set and research how to perform parallel testing with Robot Framework.
14.02.2023	Company project: Deeper dive into testing. Exercise: Validate Robot Framework libraries and plugins are installed.
21.02.2023	Company project: Performance testing and recording of results obtained.
27.02.2023	Winter holiday week
21.03.2023	Return deadline for report

Creating a test bed

1

Hosting the application:

Local server or
Virtual lab?

2

**Host environment
vs production:**

Are the
environments
similar enough?

3

Time limitations:

What can students
realistically
achieve in 6
hours?

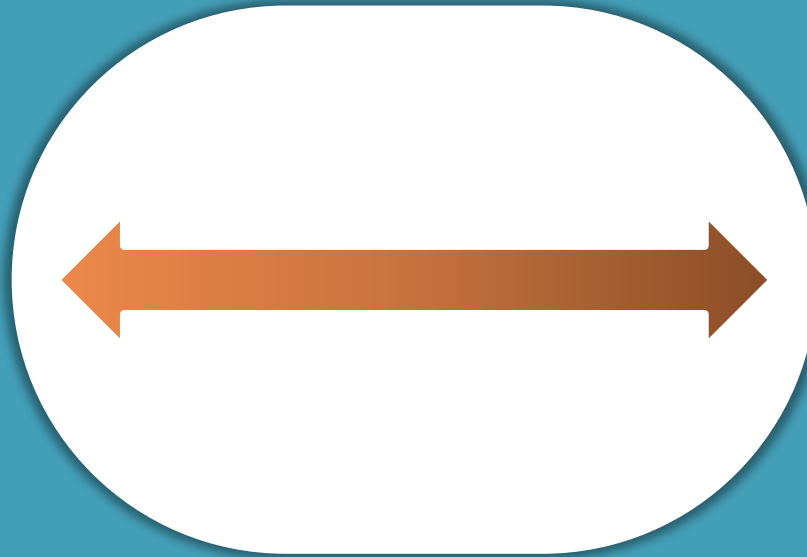
The Skills Gap

1

Student skills

2

Skills required for
load testing



Project breakdown

Project: Week 1

- Introducing the SUT (System Under Test)
- Discussion of Robot Framework
- Establishing how testing will be performed

Project: Week 2

- Closer examination of the test script in use
- Ensuring that script is working with initial test runs
- Explanation of Apache JMeter and the role it will play

Project: Week 3

- Testing of the application
- Recording the results
- Setting end date for reports to be returned.

Conclusion

Issues

- Limited time available for students to participate in testing
- Not possible in the virtual environment at this time
- Load testing is too specific a use case
- The skill gap is not small enough for students to overcome within the confines of the course structure

Recommendations

- Utilization of the Virtual Lab if possible once moved to updated hardware
- Offer more specialized testing as student projects for professional credits
- Offer optional course if companies can provide advanced notice of 5 – 6 months

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