



Website performance test cases

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Agenda

- How to create complex test cases?
- How to implement authentication?
- What option we have for Database testing?

1. Performance teszteltél már valaha?

- a) Igen, minden projektemen.
- b) Igen, előfordult már.
- c) Nem, de performance profiling eszközt már használtam.
- d) Nem, soha.

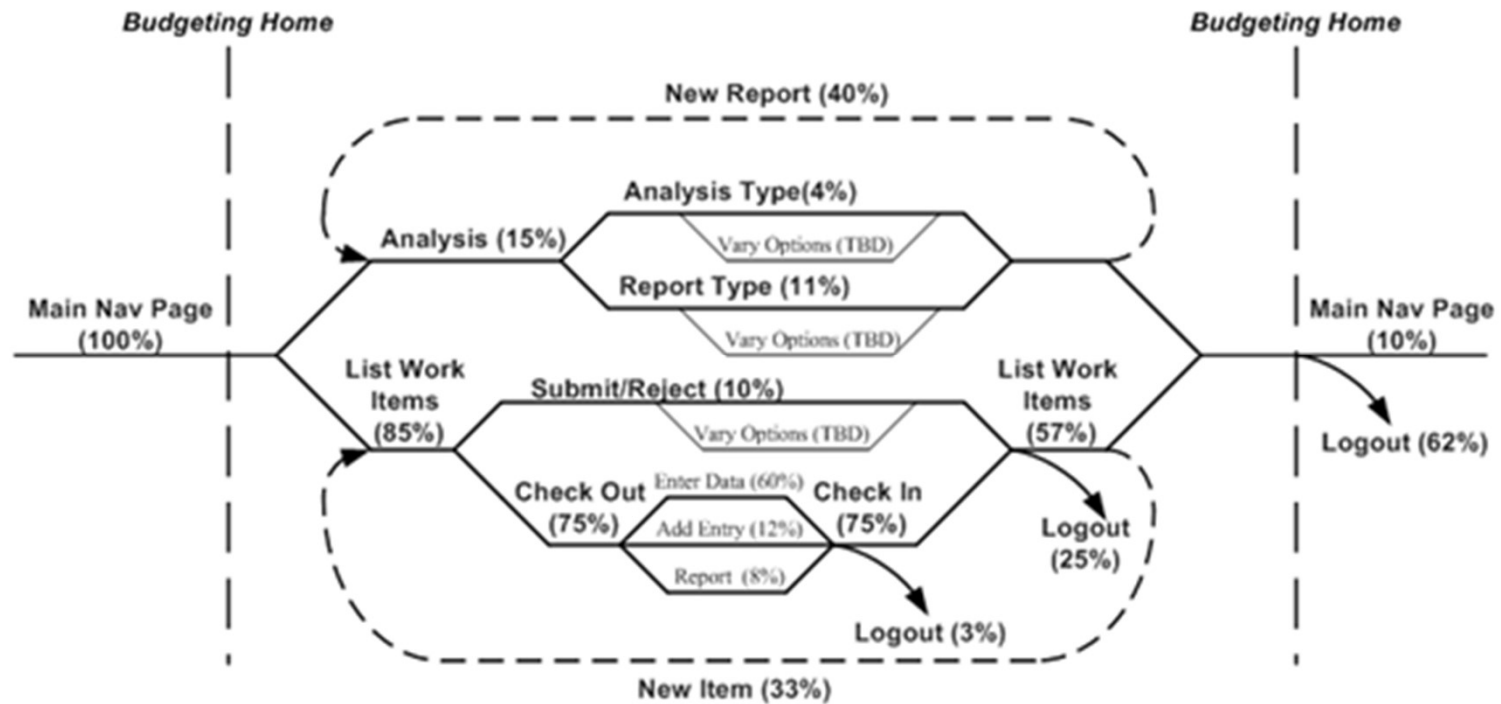
Questions

- Send the questions in Zoom using the Q&A section and I will try to answer them at the end.



COMPLEX TEST CASES

Modelling



[https://docs.microsoft.com/en-us/previous-versions/msp-n-p/bb924367\(v=pandp.10\)](https://docs.microsoft.com/en-us/previous-versions/msp-n-p/bb924367(v=pandp.10))

Request manipulation options

- For complex scenarios we need response and request manipulations
 - Generate data for requests
 - Extract data from responses

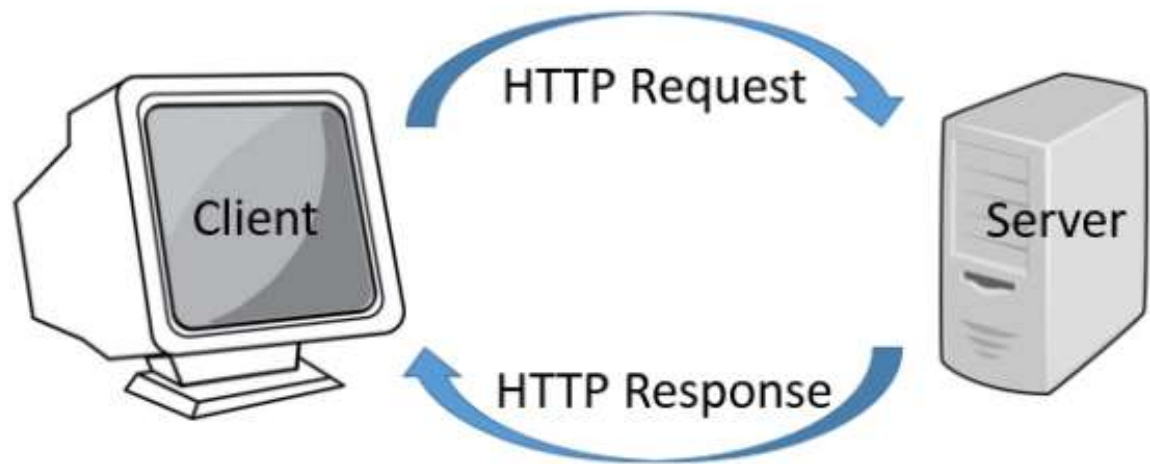


Image: <https://github.com/VanHakobyan/HTTP-Protocol-Manipulation>

JMeter options

- Examples:
 - **Built in elements & Plugins**
(download and copy the plugin manager to lib folder)
 - HTTP Authorization Manager
 - JDBC Request (SQL DB access)
 - WebDriver plugin
 - **Writing scripts :**
 - Groovy (Java)
 - Beanshell (Java)
 - JavaScript
 - etc.



Image: <https://medium.com/edureka/jmeter-plugins-1bceec7f6226>

Layers of testing

- **Presentation Layer:** performance testing web presentation layer needs very different toolset
- We will focus on 3 layers:
 - **Website backend**
 - **Internal services** (e.g microservice architecture)
 - **Databases**

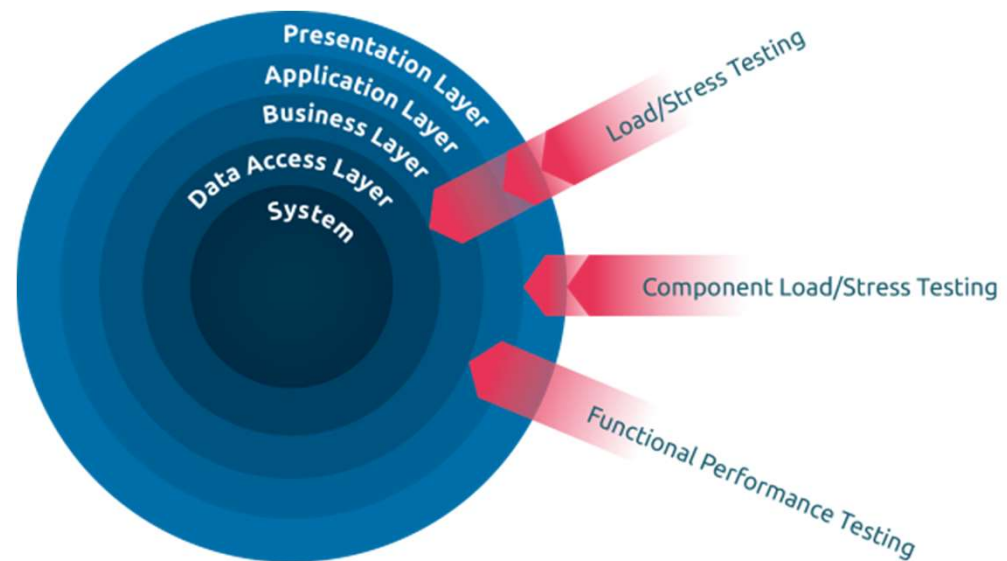


Image: <https://www.tmap.net/building-blocks/performance-testing>

BLAZEDEMOMO EXAMPLE (website backend)

- It's a test site for performance testing (by Blazemeter)
- It is a simple demo of flight search and booking system
- **You can use this site for practicing!**

(with many threads)

(if you are using it from company or university network then too many request can trigger firewall)

<https://blazedemo.com/>

Travel The World home

Welcome to the Simple Travel Agency!

The is a sample site you can test with BlazeMeter!

Check out our [destination of the week! The Beach!](#)

Choose your departure city:

Paris

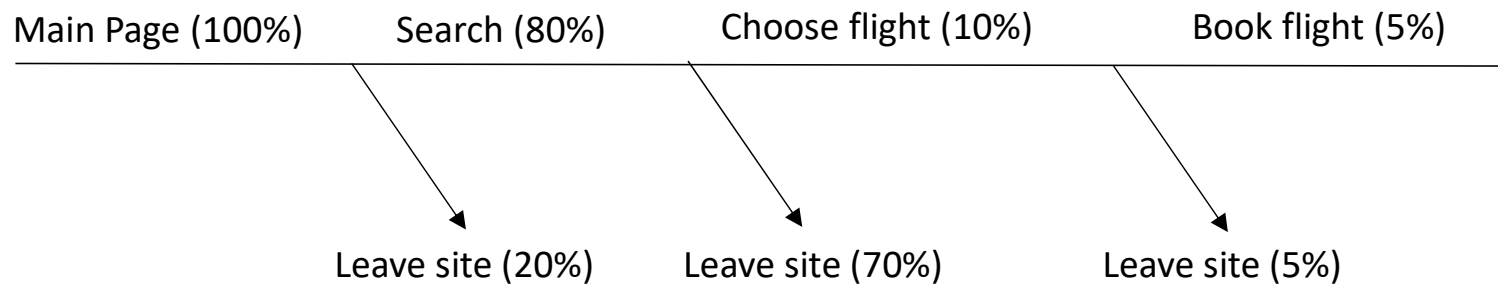
Choose your destination city:

Buenos Aires

Find Flights


Modell for the example


- Website is very simple, so our modell is very linear
- We decide that we implement two path : Search and Book



DEMO 1. : BLAZEDEMOMO

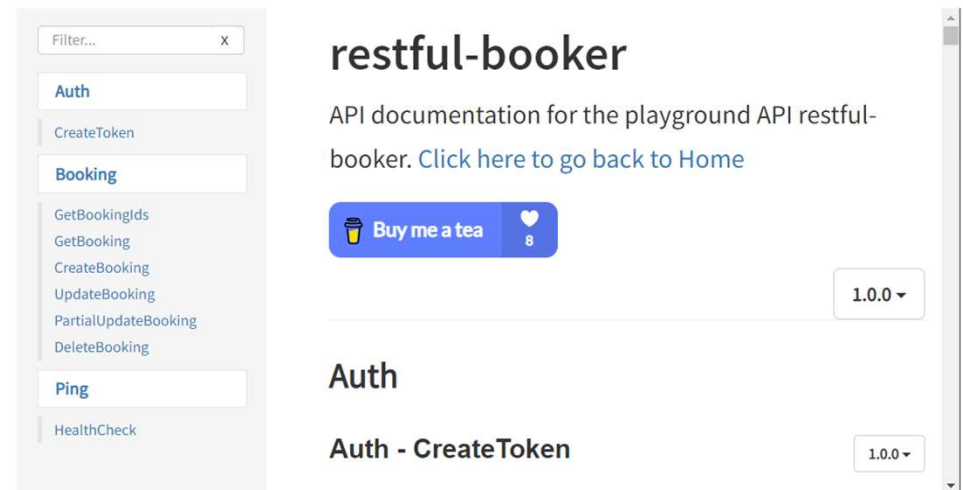
 HTTP(S) Test Script Recorder

 Constant Timer

 CSV Data Set Config

Microservice API example

- Example practice API:
 - <https://restful-booker.herokuapp.com/apidoc/index.html>
 - Please do not use it for actual performance testing as this API is not intended for that!



DEMO 2. : RESTFUL-BOOKER

AUTHENTICATION

Authentication



- Two usage:
 - Used in the performance test and effecting the result
 - Try to simulate real world! (use different users)!
 - To be able to communicate with API/backend

Authentication options

- Basic Authentication (uses standard fields in the HTTP header)
- Integrated Windows Authentication (NTLM)
- Form authentication (using sessionId cookie)
- Token based



Image: <https://plugins.miniorange.com/confluence-rest-api-authentication/4me-icon-personal-access-token>

OAuth / OpenId

- Implement steps to get access token and use it in request headers
 - There is no plugin, but there are good code examples
- **You can use webdriver to extract the token!**



Multi Factor Authentication

- Constant One-Time Passcodes
 - Devs to implement configurable option
 - **Only for test enviroment!**
- If you are not performance testing the authentication: turn off MFA






Image: <https://securityintelligence.com/why-you-need-advanced-authentication-to-protect-identities-without-compromising-user-experience/>

Authentication Examples

- The examples use demo sites and these sites are not for performance testing!
- Please use only one thread if you try them!

DEMO 3. : AUTHENTIFICATIONS

-  HTTP Authorization Manager
-  jp@gc - Chrome Driver Config
-  jp@gc - WebDriver Sampler

DATABASE TESTING

SQL Database testing options

- Use backend calls to generate database load
- Test database operations directly
- Jmeter support : JDBC Request
 - There are drivers for different DBs (examples are using MSSQL)

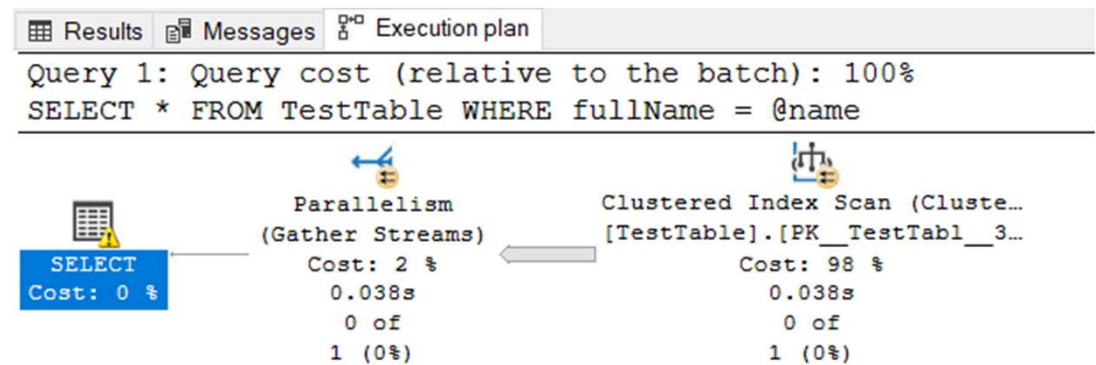


Database performance monitoring

- Examples are using MS SQL
- Monitoring options you have:
 - Check **Execution Plan** for queries
 - **SQL Server Profiler**
 - **Performance Dashboard**
 - **Activity Monitor**
- All SQL servers have similar tools

Execution Plans

- Helps you to identify issues with Query
- Common performance issues:
 - Getting too many data
 - Missing indexes
 - Implicit conversion
 - Ordering (App can do)
 - Locks (Deadlock)



DEMO 4. : DATABASE



JDBC Request



JDBC Connection Configuration

NoSQL

- **NoSQL : non-relational database**
 - (Usually compromise consistency in favor of speed)
- Plugins for **Hadoop** and **MongoDB**
 - Try templates in JMeter!
- Others can be implemented with Groovy scripts

Poll 2. Milyen témáról hallanál még szívesen?

1. Performance teszt típusok (load, spike, stb.) és implementálásuk
2. Egyéb performance testing eszközök (Gatling, K6, Taurus, stb.)
3. Performance teszt eredmények vizualizációja (InfluxDB & Graphana)
4. Web UI funkcionális tesztelés (TypeScript & WebdriverIO)

Questions

Access the material:

<https://github.com/istvanhegedus/webperftesting>



Thank you for your
attention!

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