Linnaeus University

Faculty of Technology – Department of Computer Science

2DV610 – Software Testing

Test Cases

Manual Test

TC 1.1.1 - REQ1.1 The web server should be responsive under high load

Scenario: In this test, the web server should response under high load of HTTP requests from multiple users.

Preconditions:

- Server is running.

Test Steps:

1. Start JMeter.
2. By inserting Thread Groups, test plan should be set for the MyWebServer.
3. Create 1000 Thread Group Users.
4. Set a ramp-up period of 1 second.
5. Set loop count to 1.
6. After checking the URL and port of the HTTP, it should be added.
7. View result in the table by adding a listener.

Expected results:

The webserver should be responsive under high load of HTTP requests without any failure or error.

TC 1.1.2 - REQ1.2 The web server should be responsive under high load

Scenario: In this test, the web server should be responsive under high load of HTTP requests from multiple users.

Precondition(s):

- Server is running.

Test Steps:

1. Run JMeter
2. By inserting Thread Groups, test plan should be set for the MyWebServer.
3. Create 5000 Thread Group Users.
4. Set a ramp-up period of 1 second.
5. Set loop count to 1.
6. After checking the URL and port of the HTTP, it should be added.
7. View result in the table by adding a listener.

Expected results:

The webserver should be responsive under high load of HTTP requests without any failure or error.

TC 1.2.1 - REQ2.1 The web server must follow minimum requirements for HTTP 1.1 with Mozilla Firefox

Scenario: In this test, the web server should follow the minimum requirements of HTTP Protocol version 1.1.

Preconditions:

- Server is running.

Test Steps:

1. Open the web server on Mozilla Firefox.
2. Right Click and press on Inspect Element (Q).
3. Click on the "Network" tab.
4. Refresh the page.
5. Click on "localhost" with the status 200.
6. Click on "Headers" on the response window on the right.

Expected results:

It should display "HTTP/1.1" and 200 OK" on the Headers sections of the response window.

TC 1.2.2 - REQ2.2 The web server must follow minimum requirements for HTTP 1.1 with Curl

Scenario: In this test, the web server should follow the minimum requirements of HTTP Protocol version 1.1 with curl application.

Preconditions:

- Server is running.

Test Steps:

1. Install curl application.
2. Run the Command Line.
3. Write command "curl -v website address" on Command Line.

Expected results:

It should display "HTTP/1.1 200 OK".

TC 1.3.1 - REQ3.1 The web server must work on Windows 10

Scenario: In this test, the Web Server should be runnable and working on Windows 10.

Preconditions:

- Server is running.

Test Steps:

1. Open any browser on Windows 10.
2. Run the Web Server by entering the server localhost on the browser.

Expected results:

The server should work on Windows 10.

TC 1.3.2 - REQ3.2 The web server must work on Mac OS.

Scenario: In this test, the Web Server should be runnable and working on Mac OS.

Preconditions:

- Server is running.

Test Steps:

1. Open any Browser on Mac.
2. Run the Web Server by entering the server localhost on the browser.

Expected results:

The server should work on Mac OS.

TC 1.4 - REQ4 The source code should be released under GPL-2.0

Scenario: In this test, the source code will be checked, and it should be released under the GPL-2.0.

Preconditions:

- None

Test Steps:

1. Browse the source code of the web server application.
2. Open the LICENCE file with any text editor
3. Check the LICENCE file for GPL-2.0 License of the Web-Server.

Expected results:

The Web Server is licensed under GPL-2.0.

TC 1.5 - REQ5 the access log should be viewable from a text editor

Scenario: In this test, the system should contain an access log file that can be viewable from a text editor.

Preconditions:

- Server is running. It should display some content on the Terminal / Command Line.

Test Steps:

1. Browse the folder of source code “MyWebServer” and search for a file “log.txt” in the “.metadata” folder.
2. Run the file “log.txt” within a text editor.

Expected results:

The “log.txt” file should exist and be viewable in a text editor.

TC 1.6.1 - Start Server - The web server must start from a given port

Use Case: 1.2

Requirement:

Req 3. The web server must work on Linux, Mac, Windows*.

Scenario: In this test, the web server must request the port number of the socket and the shared source location. Then when the administrator enters the port number of the socket and the shared source location, the system must start the web server on the given port and indicate that the server has been launched.

Preconditions:

- Server is offline

Test Steps:

1. Make a jar file from the source code (src) folder.
2. On the Terminal/command line, type java -jar MyWebServer.jar Port Number Resource location.

Expected results:

The web server should start according to the given port and resource location. Also, it will display the message “HTTP Server started”.

TC 1.6.2 - The web server must write notifications in the access log file

Use Case: 1.4

Requirement:

Req 5. The access log should be viewable from a text editor.

Scenario: In this test, a notification should be displayed in the access log file according to the request.

Preconditions:

- TC 1.6.1

Test Steps:

1. Browse the folder of source code “MyWebServer” and search for a file “log.txt” in the “.metadata” folder.
2. Check the access log for the note within a text editor.

Expected results:

The web server should start according to the port and location of the given resource and write a notification in the access log that the system is started.

TC 1.6.3 - The web server must not start because of the taken socket

Use Case: 1.4a

Requirement:

Req 3. The web server must work on Linux, Mac, Windows*.

Scenario: In this test, if a user wants to set up a web server on a previously taken port, the system must reply with an error message that the port has already been taken including the socket number.

Preconditions:

- Server is offline

Test Steps:

1. Make a jar file from the source code (src) folder.
2. Run MyWebServer.jar with a port you have already used.
3. Check the result on the command line/Terminal.

Expected results:

The web server output should be an error message like “Socket XX was taken” (XX is the socket number, Example “80”).

TC 1.6.4 - The web server should not start due to restriction on the shared resource container

Use Case: 1.4b

Requirement:

Req 3. The web server must work on Linux, Mac, Windows*.

Scenario: In this test, if a user tries to configure a web server on a resource that has limited rights, the system should provide an error message stating that it cannot access the folder.

Test Steps:

1. Browse the folder of source code “MyWebServer” and search for a folder “resources”.
2. Erase the folder resources.
3. Start the server with a path to resources folder.

Expected results:

The web server output should be an error message like "No access to folder XX" (XX is the shared resource container provided, Example "\var\www").

TC 1.6.5 - Server Start - log information could not be written to server log file

Use Case: 1.4c

Requirement:

Req 5. The access log should be viewable from a text editor.

Scenario: In this test, the web server must display a message that it cannot write to the server log file.

Preconditions:

- Server is offline

Test Steps:

1. Browse the folder of source code "MyWebServer" and search for a file "log.txt" in the ".metadata" folder.
2. Erase the "log.txt" file.
3. Run the webserver.
4. Check To find an outgoing message about access to the log file.

Expected results:

The system presents an error message. "Cannot write to server log file log.txt".

TC 1.7.1 - When requesting a stop from the web server, the system should stop the server

Use Case: 2.1

Requirement:

Req 3. The web server must work on Linux, Mac, Windows*.

Scenario: In this test, when the web server stops by the administrator, the system should stop and notify the administrator that the server has been successfully stopped.

Preconditions:

- Server is running.

Test Steps:

1. Go to the Terminal.
2. Enter 'stop' in the Terminal.
3. Check the output message.

Expected results:

A message showing that the webserver is not running anymore (Stopped) will be displayed.

TC 1.7.2 – Stop notification should be written on the access log.

Use Case: 2.2

Requirement:

Req 5. The access log should be viewable from a text editor.

Scenario: In this test, when the webserver has been stopped, it should portrait a notification on the access log

Preconditions:

- Server is running.

Test Steps:

1. In the terminal, write stop to stop the server.
2. Open the access log in the text editor.
3. Check the stop notification in the access log.

Expected results:

As soon as the access log has been written, it should be displayed in the log file.

TC 1.8.1 - The system must show the requested Status Code 200 and write it in the log file

Use Case: 3.2

Requirement:

Req 2. The web server must follow minimum requirements for HTTP 1.1

Scenario: In this test, when a browser wants to access a shared resource, the system must forward that resource to the browser and write a success message in the access log file.

Preconditions:

- Server is running.

Test Steps:

1. Open the browser and access the website.
2. Check if the website has output content.
3. Open the access log file with any text editor.
4. Search for the success message in the log file.

Expected results:

When checking in the browser, the web server should make the website content available and write a success message in the access log.

TC 1.8.2 - The web server should be able to respond and show Status Code 404 Not Found

Use Case: 3.2a

Requirement:

Req 2. The web server must follow minimum requirements for HTTP 1.1

Scenario: In this test, a status code should be displayed when trying to access a resource that does not exist on the web server.

Preconditions:

- Server is running.

Test Steps:

1. Open a non-existed web address or delete the index.html file in the resources folder
2. Check the status code displayed in the browser.

Expected results:

"404 Not Found" status code should be displayed in the browser.

TC 1.8.3 - The web server should be able to respond and show Status Code 403 Forbidden

Use Case: 3.2b

Requirement:

Req 2. The web server must follow minimum requirements for HTTP 1.1

Scenario: In this test, a status code should be displayed when trying to access a resource that the server is not allowed to access.

Preconditions:

- Server is running.
- A restricted source must be present.

Test Steps:

1. Start JMeter.
2. By inserting Thread Groups, test plan should be set for the MyWebServer.
3. Create 1 Thread Group Users.
4. Set a ramp-up period of 1 second.
5. Set loop count to 1.
6. Set a HTTP request with the correct Server Name, pathname (/../secret.html) and correct port.
7. Change the “Method” to “GET”.
8. View results tree by adding a listener.

Expected results:

"403 Forbidden" status code should be displayed in the terminal.

TC 1.8.4 - The web server should be able to respond and show Status Code 400 Bad request

Use Case: 3.2c

Requirement:

Req 2. The web server must follow minimum requirements for HTTP 1.1

Scenario: In this test, a status code should be displayed when the requested source is invalid or malformed.

Preconditions:

- Server is running.

Test Steps:

1. Install curl application.
2. Run the Command Line.
3. Enter command curl -d “h1=hey” localhost:1998/ on the command line.

Expected results:

"400 Bad Request" status code should be displayed.

TC 1.8.5 - The server should encounter an error when trying to perform the request

Use Case: 3.2d

Requirement:

Req 2. The web server must follow minimum requirements for HTTP 1.1

Scenario: In this test, the system should present an error message when the server encountered an error while trying to perform the request.

Preconditions:

- Server is running.

Test Steps:

1. Start JMeter.
2. By inserting Thread Groups, test plan should be set for the MyWebServer.
3. Create 1 Thread Group Users.
4. Set a ramp-up period of 1 second.
5. Set loop count to 1.
6. Set a HTTP request with correct URL and port.
7. Change the “Method” to “POST”.
8. View results tree by adding a listener.

Expected results:

"405 requests not allowed" status code should be displayed.

TCJU1 Test – Integration

Requirement:

Req 1. The web server should be responsive under high load

Scenario: In this test, the web server must respond to multiple loads of HTTP requests from multiple users simultaneously.

Preconditions:

- Server is running.

Test Steps:

1. Run the integration package as JUnit test

Expected results:

All tests are passed printed and, on the console,, which says how many times the server has been successfully created, failed, or throws an exception.

TCJU2 Test – Response

Requirement:

Req 2. The web server must follow minimum requirements for HTTP 1.1

Scenario: In this test, the web server should follow the minimum requirements of HTTP Protocol version 1.1.

Preconditions:

- Server is running.

Test Steps:

1. Run the response package as Junit test

Expected results:

All tests should be passed. The response status should work as intended.

TCJU3 – View

Scenario: In this test, the web server should follow the minimum requirements of HTTP Protocol version 1.1.

Preconditions:

- Server is running

Test Steps:

1. Run the response package as Junit test.

Expected results:

All tests should be passed. The console displays the expected values from the server.

TCJU4 – Complete Junit Tests

Scenario: In this test, a group of automated tests that allow you to verify the correct operation of the server through a set of JUnit tests.

Preconditions:

- Server is running.

Test Steps:

1. Run the “se.lnu.http” package as Junit Test

Expected results:

All tests should be passed.

TA - Acceptance Testing

Scenario: In this test, the web server must be tested and ready for release. This test should if the system meets the company's requirements and says whether the technology is ready for release.

Test Steps:

1. Run Automated (Junit) tests.
2. Run Manual tests.

Expected results:

All Automated and Manual tests should be passed.