

# JMeter Documentation

This document records all the steps with respect to the non-functional testing using JMeter

## Question

### **Performance Testing - JMETER**

Perform 2 rounds of load testing with minimum 20 users, on OrangeHrm application using JMETER

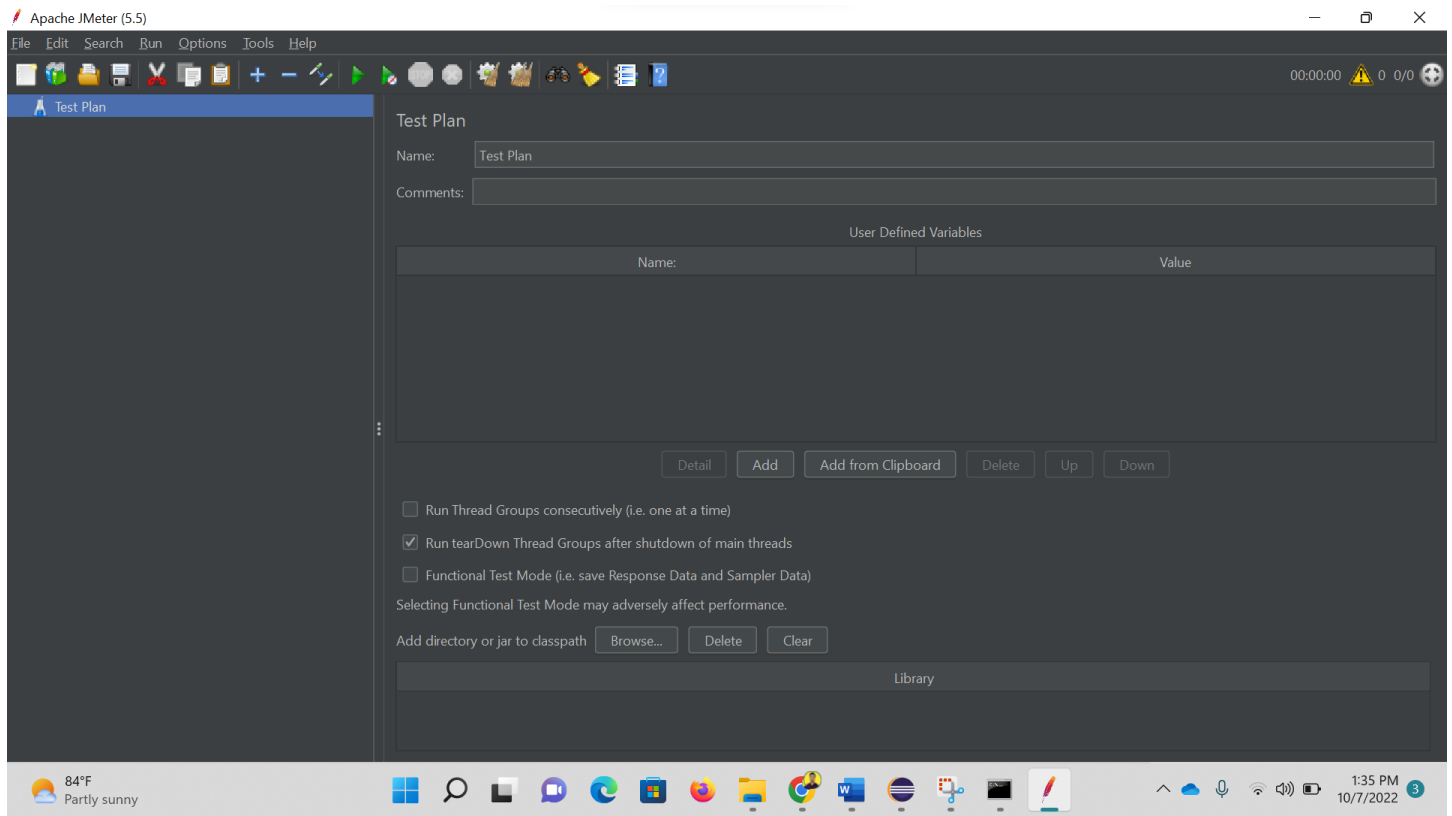
## Non – functional testing

Non-Functional Testing is defined as a type of Software testing to check non-functional aspects (performance, usability, reliability, etc.) of a software application. It is designed to test the readiness of a system as per nonfunctional parameters which are never addressed by functional testing.

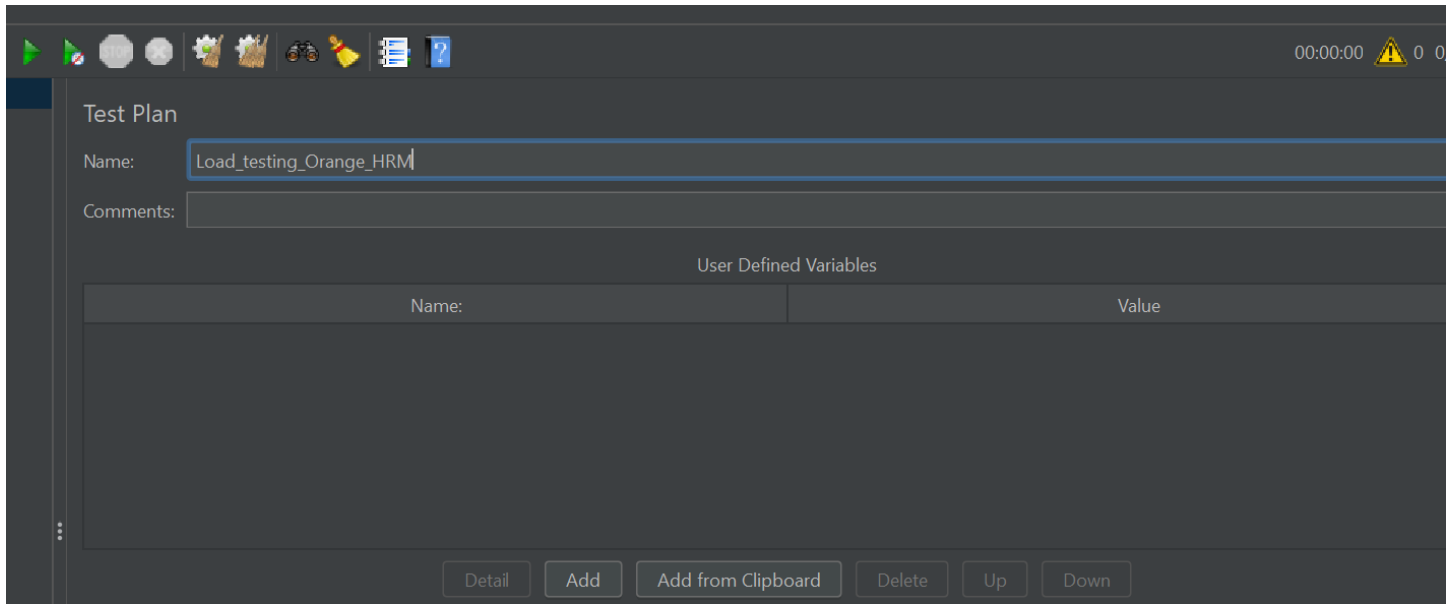
## JMeter:

Apache JMeter is an Apache project that can be used as a load testing tool for analyzing and measuring the performance of a variety of services, with a focus on web applications.

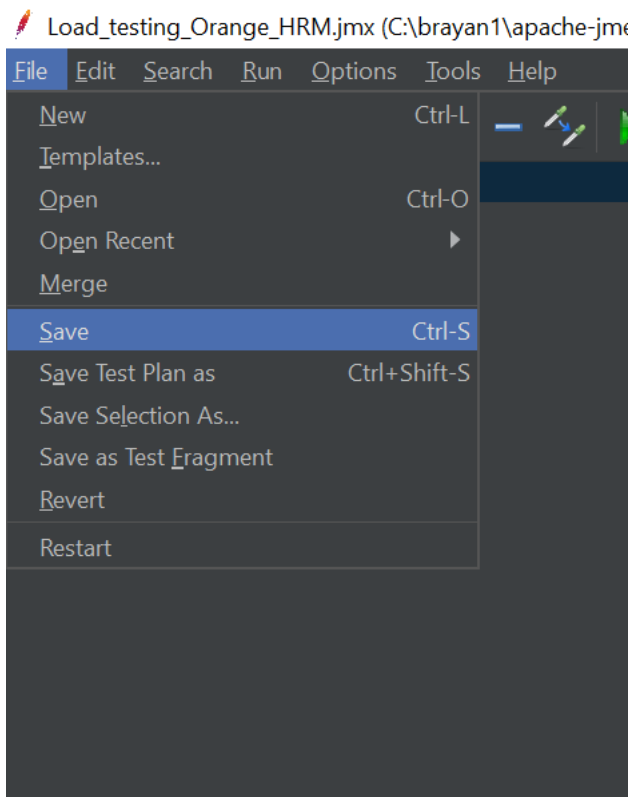
Below image depicts the interface of JMeter. JMeter can't be used without having Java in your system.



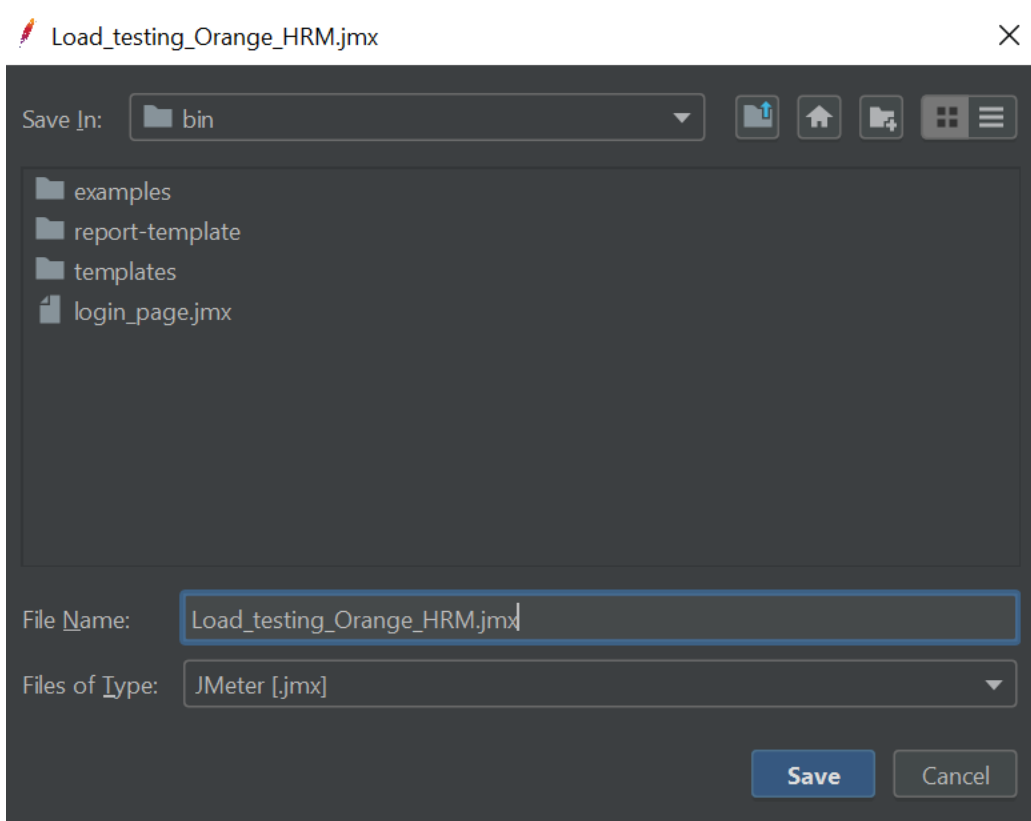
Set the name of the JMeter project



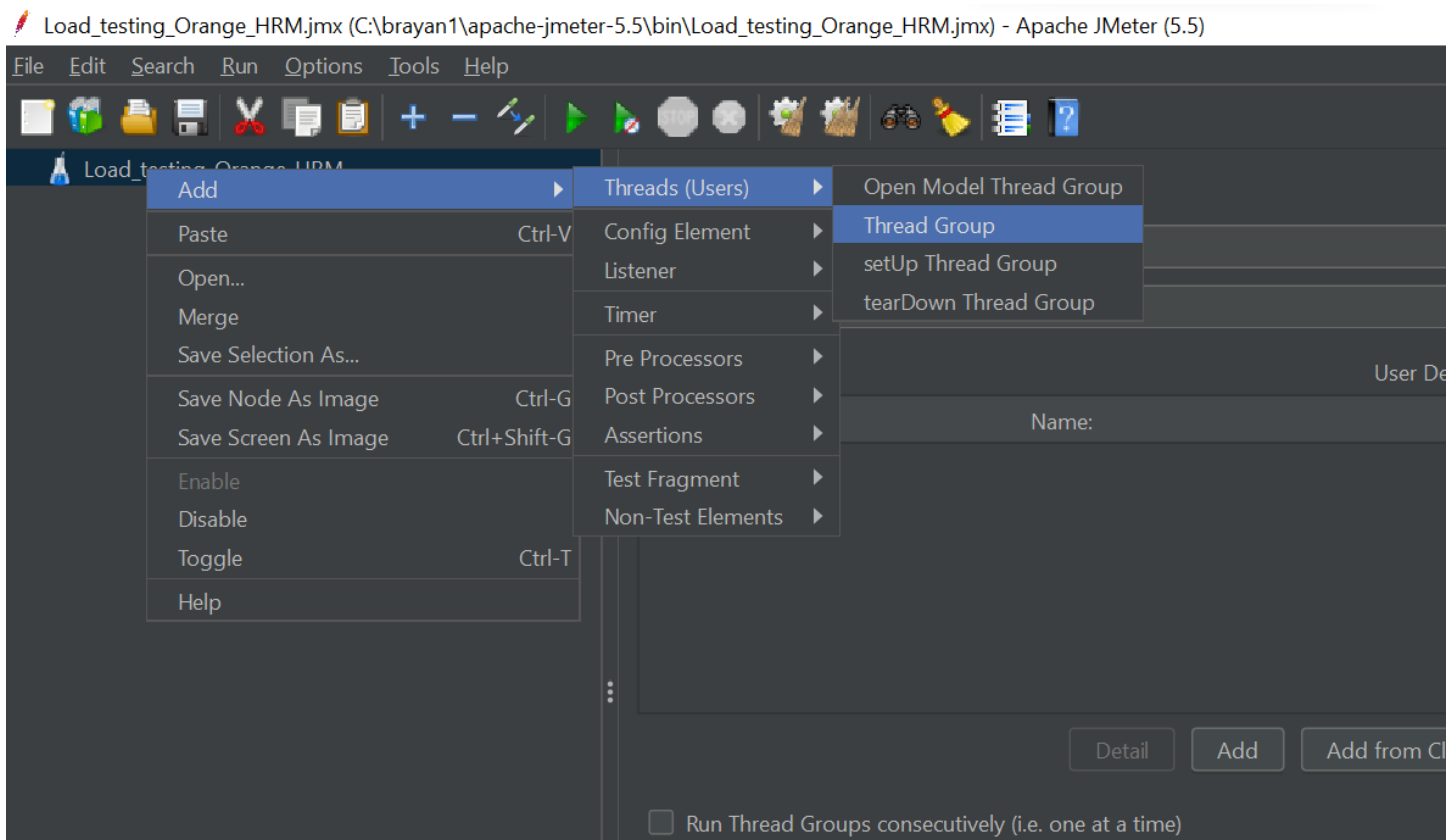
Save the newly created project



You can browse the location where you want to save the JMeter file. The extension is .jmx



Now that a project is made, click on add Threads (users) and then thread group



In the thread group, add the number of users per round, and the loop count i.e., number of rounds. So, if 20 users test in a round, two rounds will make it to 40 user tests (20 repeating)

Thread Group

Name:

Thread Group

Comments:

Action to be taken after a Sampler error

☒ Continue

☐ Start Next Thread Loop

☐ Stop Thread

☐ Stop Test

☐ Stop Test Now

Thread Properties

Number of Threads (users):

20

Ramp-up period (seconds):

1

Loop Count:

☐ Infinite

2

☒ Same user on each iteration

☐ Delay Thread creation until needed

☐ Specify Thread lifetime

Duration (seconds):

Startup delay (seconds):

**Adding an HTTP request:** This is nothing but adding the URL for a website to be tested

ng\_Orange\_HRM

Thread Group

Add

Add Think Times to children

Start

Start no pauses

Validate

Cut

Copy

Paste

Duplicate

Remove

Open...

Merge

Save Selection As...

Save Node As Image

Save Screen As Image

Enable

Disable

Toggle

Help

Ctrl-X

Ctrl-C

Ctrl-V

Ctrl+Shift-C

Delete

Ctrl-G

Ctrl+Shift-G

Ctrl-T

Sampler

Logic Controller

Pre Processors

Post Processors

Assertions

Timer

Test Fragment

Config Element

Listener

period (seconds):

1

unt:

☐ Infinite

2

ne user on each iteration

ay Thread creation until

ify Thread lifetime

(seconds):

elay (seconds):

Flow Control Action

HTTP Request

Debug Sampler

JSR223 Sampler

AJP/1.3 Sampler

Access Log Sampler

BeanShell Sampler

Bolt Request

FTP Request

GraphQL HTTP Request

JDBC Request

JMS Point-to-Point

JMS Publisher

JMS Subscriber

JUnit Request

Java Request

LDAP Extended Request

LDAP Request

Mail Reader Sampler

OS Process Sampler

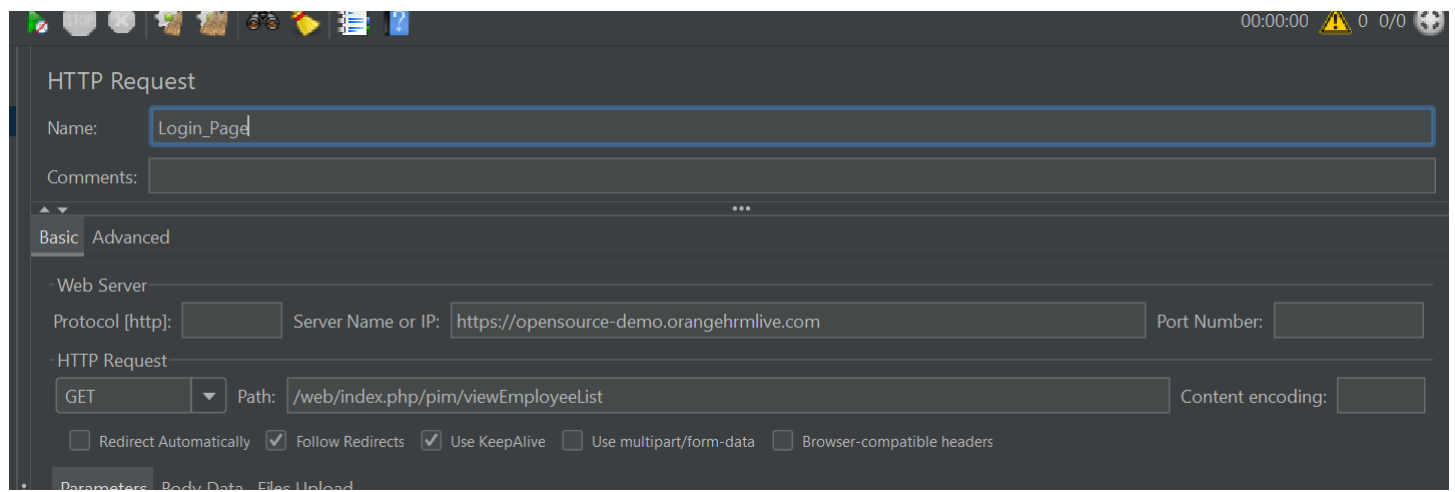
SMTP Sampler

TCP Sampler

☐ Stop Test

☐ Stop Test Now

Inside the HTTP request, enter the page name to be tested



HTTP Request

Name: Login\_Page

Comments:

Basic Advanced

Web Server

Protocol [http]: Server Name or IP: https://opensource-demo.orangehrmlive.com Port Number:

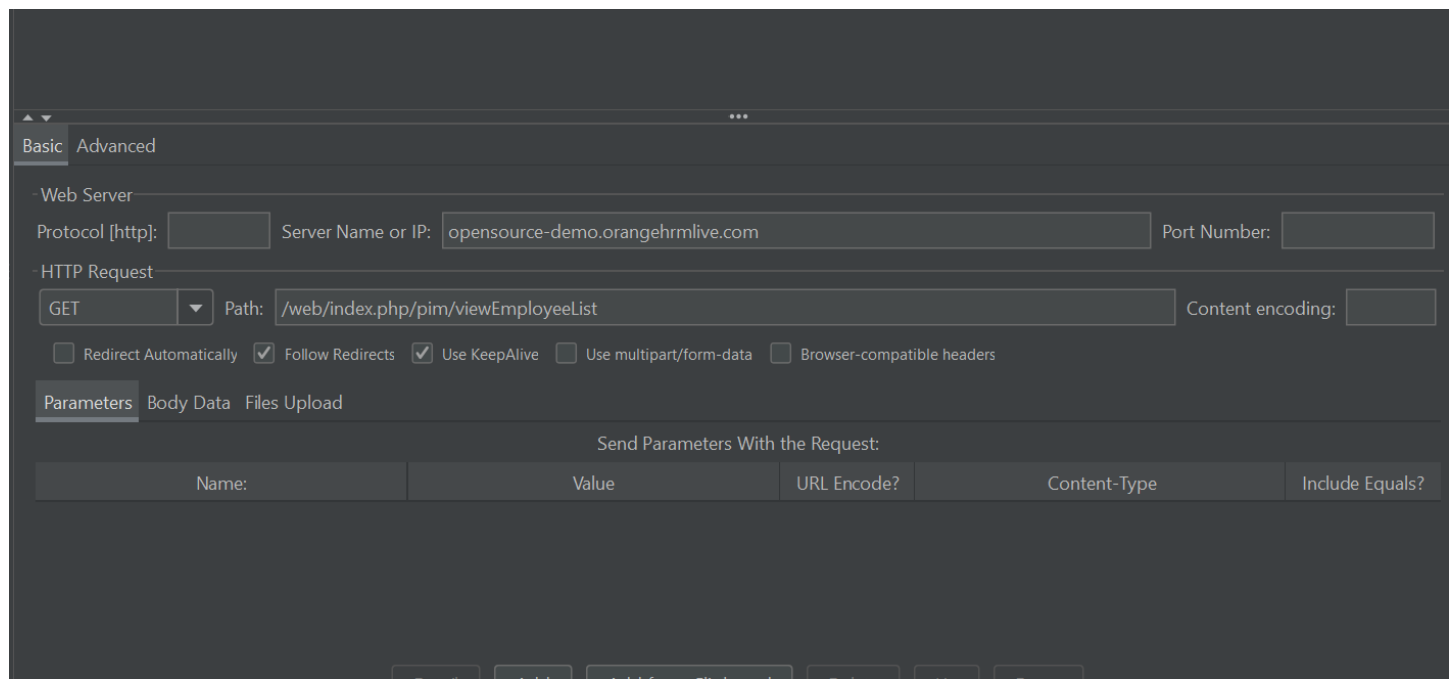
HTTP Request

GET Path: /web/index.php/pim/viewEmployeeList Content encoding:

☐ Redirect Automatically ☒ Follow Redirects ☒ Use KeepAlive ☐ Use multipart/form-data ☐ Browser-compatible headers

Parameters Body Data Files Upload

The protocol is already set as HTTP, so just add the website name without the 'http//' part and without the path. (if any). For the path field, add the path of the website.



Basic Advanced

Web Server

Protocol [http]: Server Name or IP: opensource-demo.orangehrmlive.com Port Number:

HTTP Request

GET Path: /web/index.php/pim/viewEmployeeList Content encoding:

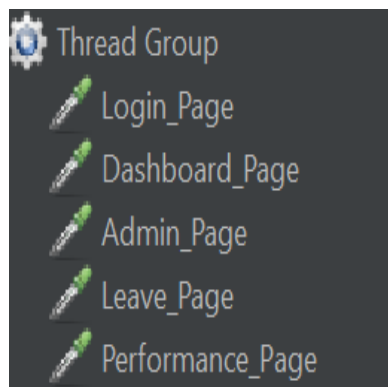
☐ Redirect Automatically ☒ Follow Redirects ☒ Use KeepAlive ☐ Use multipart/form-data ☐ Browser-compatible headers

Parameters Body Data Files Upload

Send Parameters With the Request:

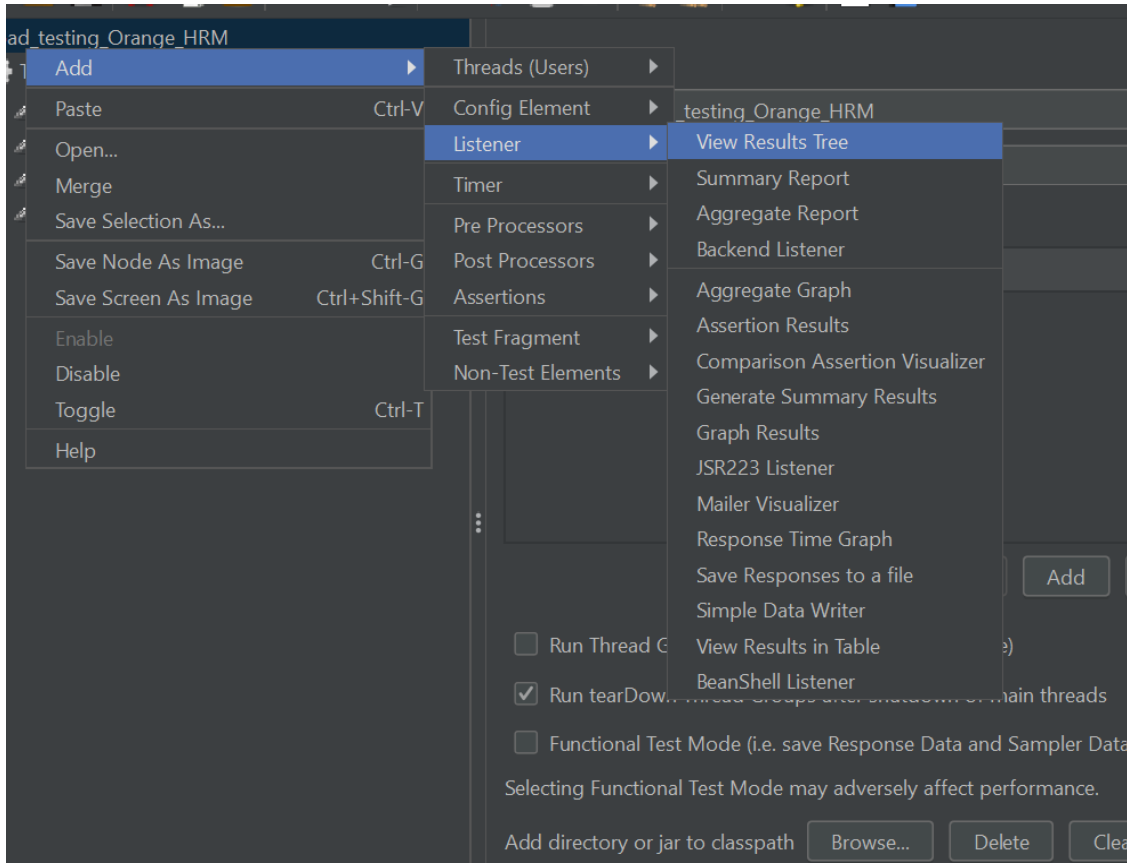
| Name: | Value | URL Encode? | Content-Type | Include Equals? |
|-------|-------|-------------|--------------|-----------------|
|-------|-------|-------------|--------------|-----------------|

Now that all the pages are added, this is how the folder structure will look like

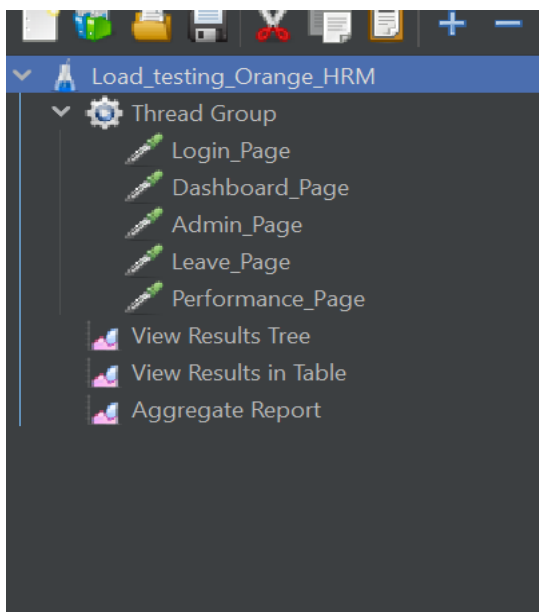


Now it's time to add the listener, or the output windows, so right click on the project name and go to listeners, there add

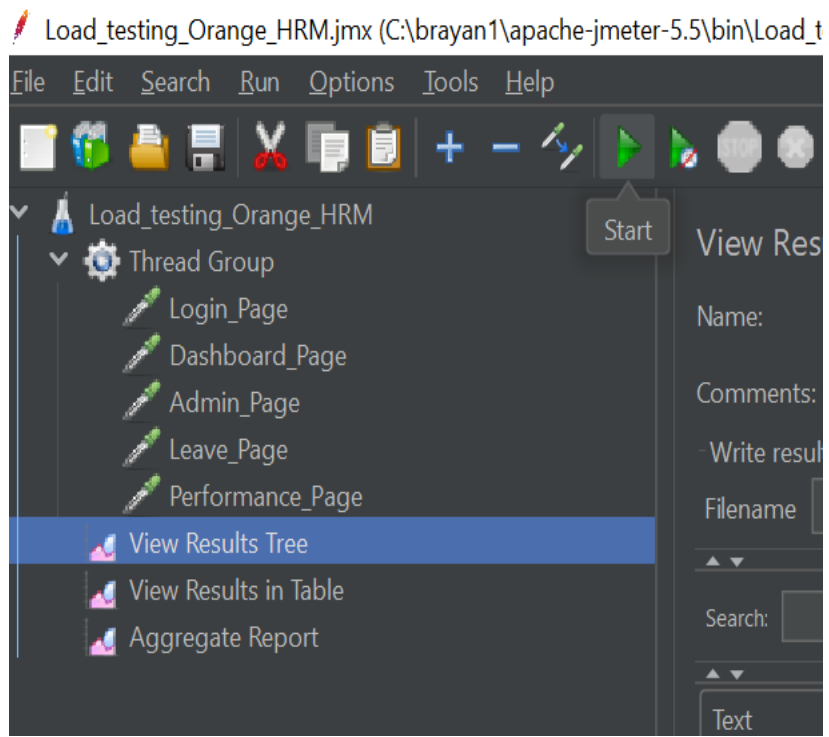
- i) View results tree
- ii) Aggregate report
- iii) View results in table



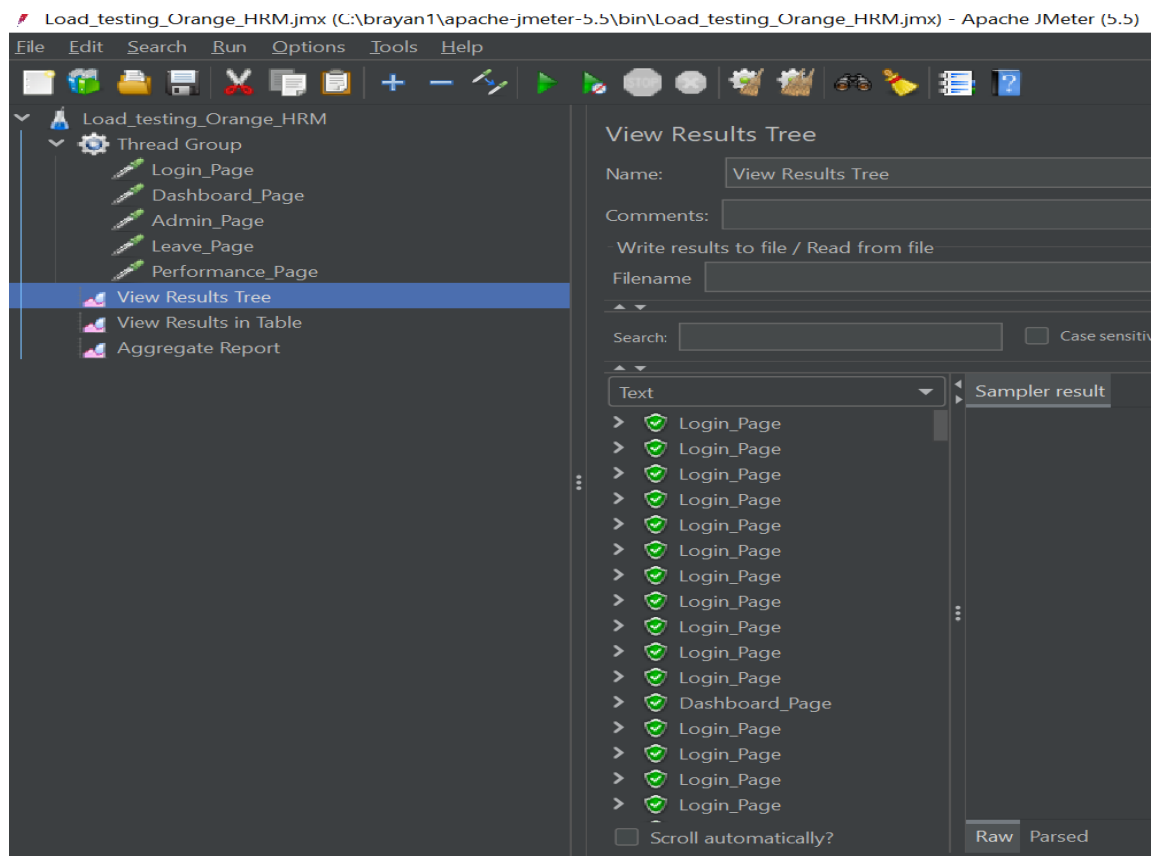
Once the listeners have been added, the final folder structure looks like this



Now click on start button to perform the load testing



Load testing results as seen in the results tree



This is the results as shown on the results table.

As shown at the bottom, the total number of samples are 200 because we are testing 5 web pages, and each webpage is tested with a load of 20 users twice (loop count is 2).

So, it becomes 40 for each web page.

(40 \* 5) becomes 200 which is the total cumulative load on all the web pages combined

Dashboard\_Page

Admin\_Page

Leave\_Page

Performance\_Page

View Results Tree

View Results in Table

Aggregate Report

Filename

Browse...

Log/Display Only: ☐ Errors ☐ Successes 

Configure

| Sample # | Start Time   | Thread Name       | Label          | Sample Time... | Status | Bytes | Sent Bytes | Latency | Connect Tim... |
|----------|--------------|-------------------|----------------|----------------|--------|-------|------------|---------|----------------|
| 28       | 13:57:49.354 | Thread Group 1-8  | Dashboard_P... | 1071           |        | 6556  | 503        | 180     | 0              |
| 29       | 13:57:49.409 | Thread Group 1-9  | Dashboard_P... | 1129           |        | 6553  | 503        | 199     | 0              |
| 30       | 13:57:49.708 | Thread Group 1-4  | Admin_Page     | 832            |        | 6576  | 505        | 141     | 0              |
| 31       | 13:57:49.456 | Thread Group 1-5  | Dashboard_P... | 1116           |        | 6547  | 503        | 235     | 0              |
| 32       | 13:57:49.481 | Thread Group 1-6  | Dashboard_P... | 1148           |        | 6561  | 503        | 226     | 0              |
| 33       | 13:57:49.824 | Thread Group 1-17 | Dashboard_P... | 896            |        | 6555  | 503        | 157     | 0              |
| 34       | 13:57:49.845 | Thread Group 1-13 | Dashboard_P... | 967            |        | 6572  | 503        | 222     | 0              |
| 35       | 13:57:49.871 | Thread Group 1-12 | Dashboard_P... | 966            |        | 6563  | 503        | 242     | 0              |
| 36       | 13:57:49.945 | Thread Group 1-16 | Dashboard_P... | 952            |        | 6562  | 503        | 168     | 0              |
| 37       | 13:57:50.063 | Thread Group 1-3  | Admin_Page     | 905            |        | 6577  | 505        | 243     | 0              |
| 38       | 13:57:50.064 | Thread Group 1-1  | Admin_Page     | 904            |        | 6550  | 505        | 243     | 0              |
| 39       | 13:57:50.184 | Thread Group 1-2  | Admin_Page     | 791            |        | 6566  | 505        | 222     | 0              |
| 40       | 13:57:49.945 | Thread Group 1-14 | Dashboard_P... | 1043           |        | 6564  | 503        | 219     | 0              |
| 41       | 13:57:50.259 | Thread Group 1-10 | Admin_Page     | 825            |        | 6577  | 505        | 147     | 0              |
| 42       | 13:57:50.307 | Thread Group 1-11 | Admin_Page     | 786            |        | 6573  | 505        | 145     | 0              |
| 43       | 13:57:50.203 | Thread Group 1-18 | Dashboard_P... | 969            |        | 6549  | 503        | 150     | 0              |
| 44       | 13:57:50.326 | Thread Group 1-20 | Dashboard_P... | 896            |        | 6575  | 503        | 151     | 0              |
| 45       | 13:57:50.236 | Thread Group 1-19 | Dashboard_P... | 997            |        | 6572  | 503        | 150     | 0              |
| 46       | 13:57:50.259 | Thread Group 1-15 | Dashboard_P... | 1014           |        | 6576  | 503        | 216     | 0              |
| 47       | 13:57:50.385 | Thread Group 1-7  | Admin_Page     | 888            |        | 6562  | 505        | 228     | 0              |

☐ Scroll automatically? ☐ Child samples? No of Samples 200 Latest Sample 912 Average 1000 Deviation 243

Load testing result as shown in the aggregate report

Admin\_Page

Leave\_Page

Performance\_Page

View Results Tree

View Results in Table

Aggregate Report

Comments:

Write results to file / Read from file

Filename

Browse...

Log/Display Only: ☐ Errors ☐ Successes 

Configure

| Label       | # Samples | Average | Median | 90% Line | 95% Line | 99% Line | Min | Maximum | Error % | Throughp... | Received ... | Sent KB/sec |
|-------------|-----------|---------|--------|----------|----------|----------|-----|---------|---------|-------------|--------------|-------------|
| Login_Page  | 40        | 1289    | 1069   | 1859     | 1900     | 2107     | 831 | 2107    | 0.00%   | 5.2/sec     | 33.06        | 2.53        |
| Dashboar... | 40        | 1003    | 969    | 1148     | 1210     | 1301     | 755 | 1301    | 0.00%   | 5.4/sec     | 34.66        | 2.66        |
| Admin_Pa... | 40        | 907     | 904    | 1011     | 1039     | 1070     | 766 | 1070    | 0.00%   | 5.4/sec     | 34.30        | 2.64        |
| Leave_Page  | 40        | 903     | 914    | 1000     | 1032     | 1074     | 736 | 1074    | 0.00%   | 5.3/sec     | 33.77        | 2.58        |
| Performa... | 40        | 895     | 888    | 1022     | 1044     | 1113     | 754 | 1113    | 0.00%   | 5.2/sec     | 33.33        | 2.78        |
| TOTAL       | 200       | 1000    | 945    | 1219     | 1568     | 1900     | 736 | 2107    | 0.00%   | 17.3/sec    | 110.64       | 8.63        |