# Performance Analysis

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GROUP 6 | DESIGN AND TESTING

# Content

# Our systems

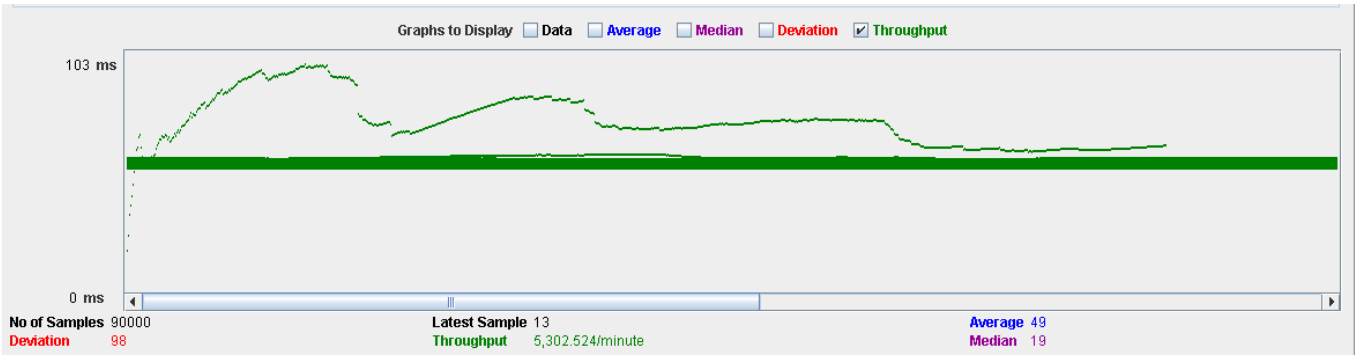
| | Alejandro's PC | Ezequiel's PC | Belén's Pc |
|---|---|---|---|
| CPU | Intel Core i7 6700 HQ | Intel Core i7 6700 HQ | Intel Core i7 4790 |
| RAM | 12,0 GB | 16,0 GB | 16,0 GB |
| Graphic Card | NVIDIA GeForce GTX 950M | NVIDIA GeForce GTX 960M | NVIDIA GeForce GTX 960 |

# Use Case Test 1

- A non-authenticated user registers as a hacker. Then, he logs into the system and creates a social network profile, as well as going to the inbox and sending a message to the trash.
- Number of threads: 50
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /actor/createHacke... | 5000 | 22 | 10 | 40 | 4 | 1243 | 0.00% | 4.9/sec | 35.7 |
| /actor/edit.do | 5000 | 36 | 22 | 65 | 13 | 750 | 0.00% | 4.9/sec | 35.7 |
| /j_spring_security_... | 10000 | 19 | 9 | 36 | 2 | 740 | 0.00% | 9.8/sec | 28.8 |
| / | 15000 | 17 | 7 | 33 | 3 | 1273 | 0.00% | 14.7/sec | 42.5 |
| /security/login.do | 5000 | 6 | 5 | 9 | 2 | 265 | 0.00% | 4.9/sec | 14.4 |
| /j_spring_security_... | 5000 | 51 | 17 | 123 | 6 | 2015 | 0.00% | 4.9/sec | 16.8 |
| /profile/list.do | 10000 | 48 | 34 | 91 | 6 | 1705 | 0.00% | 9.9/sec | 67.5 |
| /profile/create.do | 5000 | 24 | 8 | 45 | 3 | 1080 | 0.00% | 4.9/sec | 19.3 |
| /profile/edit.do | 5000 | 298 | 251 | 590 | 13 | 1998 | 0.00% | 4.9/sec | 27.2 |
| /box/list.do | 5000 | 39 | 24 | 78 | 5 | 1214 | 0.00% | 4.9/sec | 22.6 |
| /message/list.do | 10000 | 49 | 37 | 97 | 7 | 782 | 0.00% | 9.9/sec | 43.6 |
| /message/show.do | 5000 | 55 | 35 | 108 | 15 | 1534 | 0.00% | 4.9/sec | 23.2 |
| /message/dbox.do | 5000 | 65 | 36 | 132 | 12 | 1569 | 0.00% | 4.9/sec | 25.0 |
| TOTAL | 90000 | 49 | 19 | 105 | 2 | 2015 | 0.00% | 88.4/sec | 400.5 |

*1 Aggregate report of use case 1*



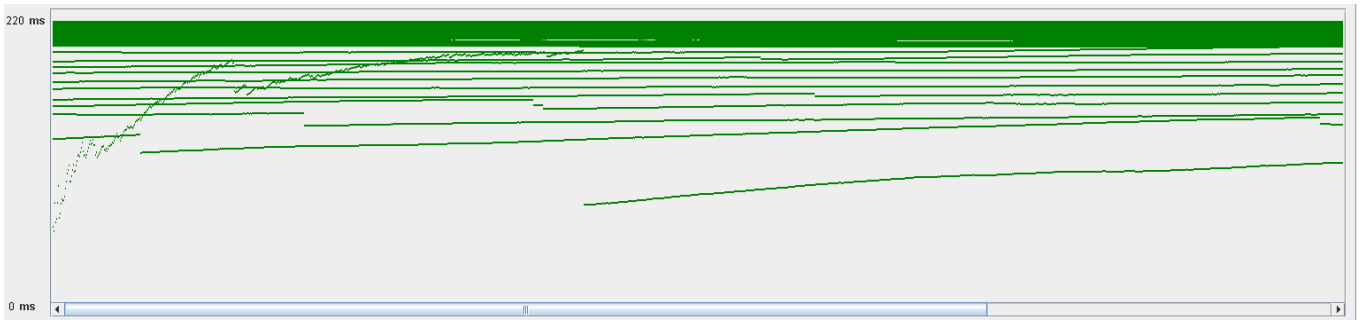

*2 Graph results of use case 1*

## Use Case Test 2

- A user authenticated as an administrator registers another administrator.
- Number of threads: 200
- Loop count: 100

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /security/login.do | 40000 | 7 | 6 | 10 | 2 | 2607 | 0.00% | 57.4/sec | 169.3 |
| /j_spring_security_check | 40000 | 139 | 55 | 364 | 3 | 3009 | 0.00% | 57.4/sec | 212.1 |
| / | 100000 | 68 | 19 | 179 | 2 | 2808 | 0.00% | 142.6/sec | 454.2 |
| /actor/createAdmin.do | 20000 | 105 | 31 | 271 | 5 | 3225 | 0.00% | 28.8/sec | 228.0 |
| /actor/edit.do | 20000 | 116 | 51 | 270 | 8 | 2654 | 0.00% | 28.8/sec | 230.2 |
| /j_spring_security_logout | 40000 | 78 | 24 | 200 | 2 | 2460 | 0.00% | 57.4/sec | 169.2 |
| /position/listCompanies.do | 20000 | 77 | 23 | 200 | 3 | 2387 | 0.00% | 28.8/sec | 124.1 |
| /position/list.do | 20000 | 73 | 23 | 184 | 4 | 2293 | 0.00% | 28.8/sec | 110.8 |
| /position/showCompany.do | 20000 | 69 | 21 | 176 | 5 | 2582 | 0.00% | 28.8/sec | 182.2 |
| TOTAL | 320000 | 77 | 21 | 201 | 2 | 3225 | 0.00% | 456.4/sec | 1868.2 |

*3 Aggregate report of use case 2*



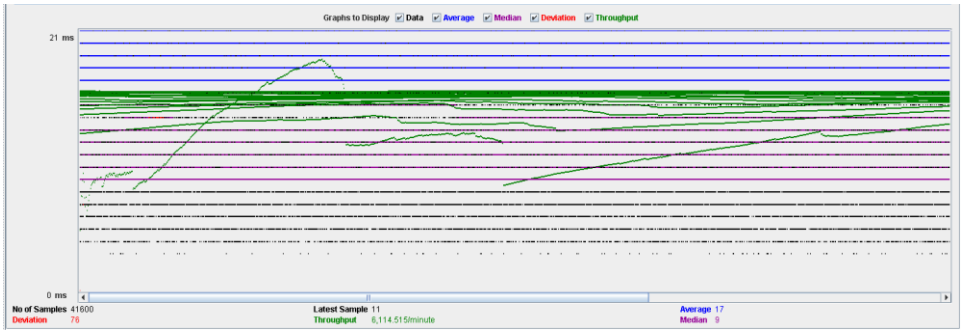

*4 Graph results of use case 2*

## Use Case Test 3

- A user authenticated as administrator edits the customisation system and checks the dashboard of the system, in addition, sends a broadcast message.
- Number of threads: 80
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| / | 9600 | 14 | 8 | 17 | 4 | 1302 | 0.00% | 23.5/sec | 66.1 |
| /security/login.do | 3200 | 7 | 6 | 11 | 3 | 68 | 0.00% | 8.0/sec | 24.0 |
| /j_spring_security_check | 3200 | 24 | 15 | 30 | 5 | 550 | 0.00% | 8.0/sec | 24.2 |
| /customisation/administrator/custom.do | 3200 | 10 | 9 | 15 | 3 | 364 | 0.00% | 8.0/sec | 25.5 |
| /customisation/administrator/edit.do | 3200 | 10 | 9 | 14 | 3 | 334 | 0.00% | 8.0/sec | 25.5 |
| /welcome/index.do | 3200 | 9 | 9 | 12 | 4 | 43 | 0.00% | 8.0/sec | 22.6 |
| /customisation/administrator/dashboard.do | 3200 | 10 | 9 | 13 | 3 | 297 | 0.00% | 8.0/sec | 25.5 |
| /message/create.do | 3200 | 37 | 6 | 10 | 3 | 2234 | 0.00% | 8.0/sec | 77.5 |
| /message/send.do | 3200 | 41 | 21 | 36 | 12 | 1814 | 0.00% | 8.1/sec | 78.0 |
| /message/list.do | 3200 | 6 | 6 | 11 | 3 | 44 | 0.00% | 8.1/sec | 78.0 |
| /j_spring_security_logout | 3200 | 22 | 11 | 22 | 6 | 1368 | 0.00% | 8.1/sec | 23.8 |
| TOTAL | 41600 | 17 | 9 | 20 | 3 | 2234 | 0.00% | 101.9/sec | 460.1 |

*5 Aggregate report of use case 3*



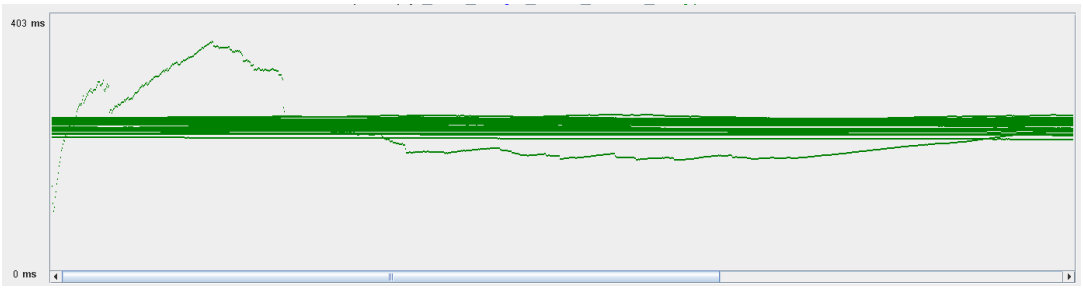

*6 Graph results of use case 3*

## Use Case Test 4

- A non-authenticated user searches for position. Then, he authenticates as a company and creates two problems, which he edits. In addition, he creates a position and then edits it.
- Number of threads: 50
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /position/finder.do | 2000 | 87 | 8 | 146 | 4 | 6650 | 0.00% | 1.8/sec | 5.9 |
| /position/search.do | 2000 | 84 | 13 | 125 | 7 | 5532 | 0.00% | 1.8/sec | 5.7 |
| /security/login.do | 2000 | 14 | 6 | 19 | 3 | 520 | 0.00% | 1.8/sec | 5.4 |
| /j_spring_security_check | 2000 | 153 | 16 | 380 | 8 | 5275 | 0.00% | 1.8/sec | 6.5 |
| / | 6000 | 65 | 8 | 102 | 4 | 5088 | 0.00% | 5.4/sec | 15.9 |
| /problem/company/list.do | 10000 | 203 | 93 | 400 | 17 | 5323 | 0.00% | 9.1/sec | 73.8 |
| /problem/company/creat... | 4000 | 123 | 24 | 242 | 9 | 7125 | 0.00% | 3.7/sec | 20.9 |
| /problem/company/edit.... | 8000 | 467 | 242 | 1058 | 12 | 8529 | 0.00% | 7.3/sec | 66.0 |
| /problem/company/upd... | 4000 | 314 | 190 | 633 | 28 | 5840 | 0.00% | 3.7/sec | 21.1 |
| /position/company/creat... | 2000 | 92 | 17 | 174 | 8 | 3420 | 0.00% | 1.9/sec | 11.1 |
| /position/edit.do | 2000 | 100 | 24 | 170 | 14 | 3879 | 0.00% | 1.9/sec | 11.4 |
| /position/list.do | 2000 | 92 | 16 | 151 | 9 | 5732 | 0.00% | 1.9/sec | 8.8 |
| /j_spring_security_logout | 4000 | 70 | 11 | 107 | 4 | 4859 | 0.00% | 3.7/sec | 10.9 |
| TOTAL | 50000 | 189 | 49 | 445 | 3 | 8529 | 0.00% | 45.3/sec | 260.4 |

*7 Aggregate report of use case 4*



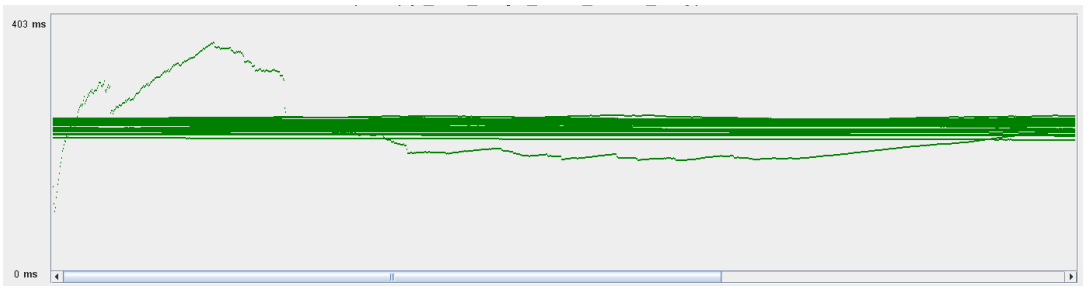

*8 Graph results of use case 4*

## Use Case Test 5

- A user authenticated as a company edits two problems, relating them to a problem, which is saved in final mode.
- Number of threads: 100
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /position/finder.do | 2000 | 87 | 8 | 146 | 4 | 6650 | 0.00% | 1.8/sec | 5.9 |
| /position/search.do | 2000 | 84 | 13 | 125 | 7 | 5532 | 0.00% | 1.8/sec | 5.7 |
| /security/login.do | 2000 | 14 | 6 | 19 | 3 | 520 | 0.00% | 1.8/sec | 5.4 |
| /j_spring_security_check | 2000 | 153 | 16 | 380 | 8 | 5275 | 0.00% | 1.8/sec | 6.5 |
| / | 6000 | 65 | 8 | 102 | 4 | 5088 | 0.00% | 5.4/sec | 15.9 |
| /problem/company/list.do | 10000 | 203 | 93 | 400 | 17 | 5323 | 0.00% | 9.1/sec | 73.8 |
| /problem/company/creat... | 4000 | 123 | 24 | 242 | 9 | 7125 | 0.00% | 3.7/sec | 20.9 |
| /problem/company/edit.... | 8000 | 467 | 242 | 1058 | 12 | 8529 | 0.00% | 7.3/sec | 66.0 |
| /problem/company/upd... | 4000 | 314 | 190 | 633 | 28 | 5840 | 0.00% | 3.7/sec | 21.1 |
| /position/company/creat... | 2000 | 92 | 17 | 174 | 8 | 3420 | 0.00% | 1.9/sec | 11.1 |
| /position/edit.do | 2000 | 100 | 24 | 170 | 14 | 3879 | 0.00% | 1.9/sec | 11.4 |
| /position/list.do | 2000 | 92 | 16 | 151 | 9 | 5732 | 0.00% | 1.9/sec | 8.8 |
| /j_spring_security_logout | 4000 | 70 | 11 | 107 | 4 | 4859 | 0.00% | 3.7/sec | 10.9 |
| TOTAL | 50000 | 189 | 49 | 445 | 3 | 8529 | 0.00% | 45.3/sec | 260.4 |

*9 Aggregate report of use case 5*



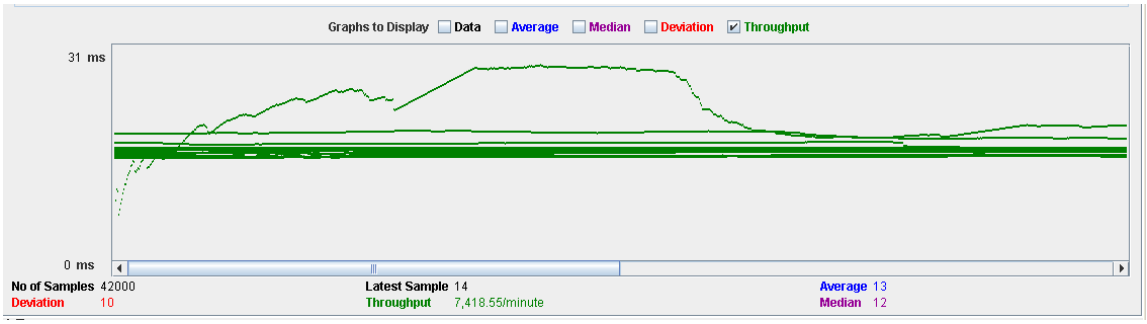

*10 Graph results of use case 5*

## Use Case Test 6

- A user authenticated as a hacker creates an application. Then he creates an answer and displays it. Finally, it also displays the application.
- Number of threads: 70
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /security/login.do | 2800 | 5 | 5 | 10 | 2 | 33 | 0.00% | 8.4/sec | 25.1 |
| /j_spring_security... | 2800 | 13 | 12 | 21 | 7 | 756 | 0.00% | 8.4/sec | 28.6 |
| / | 5600 | 6 | 6 | 9 | 4 | 32 | 0.00% | 16.5/sec | 48.8 |
| /position/list.do | 2800 | 8 | 7 | 10 | 5 | 44 | 0.00% | 8.4/sec | 30.8 |
| /application/hacke... | 2800 | 20 | 16 | 37 | 11 | 117 | 0.00% | 8.4/sec | 100.5 |
| /application/hacke... | 2800 | 36 | 33 | 50 | 25 | 187 | 0.00% | 8.4/sec | 57.8 |
| /application/hacke... | 5600 | 14 | 13 | 19 | 9 | 147 | 0.00% | 16.6/sec | 70.4 |
| /success.txt | 2800 | 12 | 12 | 15 | 9 | 55 | 0.00% | 8.4/sec | 3.1 |
| /problem/hacker/s... | 2800 | 10 | 8 | 19 | 5 | 50 | 0.00% | 8.4/sec | 81.8 |
| /answer/hacker/cr... | 2800 | 19 | 16 | 37 | 11 | 60 | 0.00% | 8.4/sec | 82.9 |
| /answer/hacker/e... | 2800 | 14 | 13 | 19 | 10 | 39 | 0.00% | 8.4/sec | 81.8 |
| /answer/hacker/s... | 2800 | 9 | 7 | 17 | 4 | 40 | 0.00% | 8.4/sec | 81.6 |
| /j_spring_security... | 2800 | 10 | 8 | 16 | 3 | 400 | 0.00% | 8.4/sec | 24.6 |
| TOTAL | 42000 | 13 | 12 | 27 | 2 | 756 | 0.00% | 123.6/sec | 706.9 |

*11 Aggregate report of use case 6*



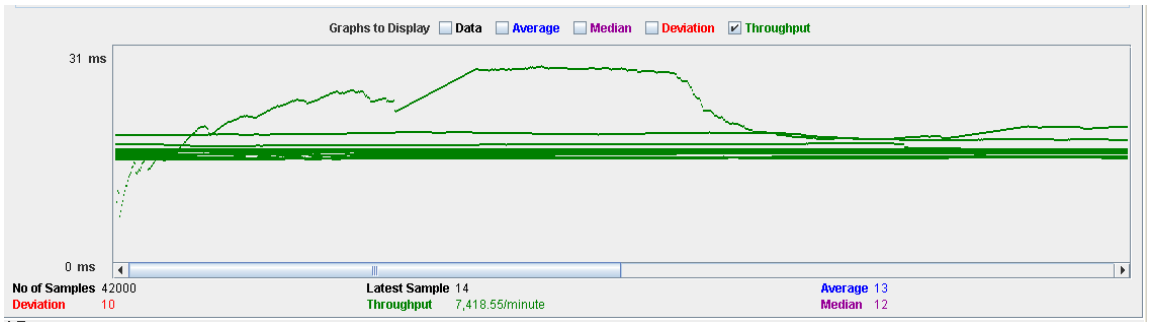

*12 Graph results of use case 6*

## Use Case Test 7

- A user authenticated as a hacker uses the search engine and finds some positions.
- Number of threads: 80
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /security/login.do | 3200 | 4 | 5 | 6 | 2 | 21 | 0.00% | 8.7/sec | 25.2 |
| /j_spring_security_check | 3200 | 13 | 13 | 16 | 5 | 57 | 0.00% | 8.7/sec | 29.4 |
| / | 6400 | 7 | 7 | 8 | 4 | 38 | 0.00% | 17.0/sec | 50.3 |
| /position/finder.do | 6400 | 9 | 10 | 11 | 6 | 45 | 0.00% | 17.1/sec | 85.5 |
| /position/search.do | 6400 | 34 | 16 | 20 | 10 | 4345 | 0.00% | 17.1/sec | 62.7 |
| /j_spring_security_logout | 3200 | 10 | 9 | 11 | 5 | 791 | 0.00% | 8.7/sec | 25.5 |
| TOTAL | 28800 | 14 | 10 | 17 | 2 | 4345 | 0.00% | 76.4/sec | 275.8 |

*13 Aggregate report of use case 7*



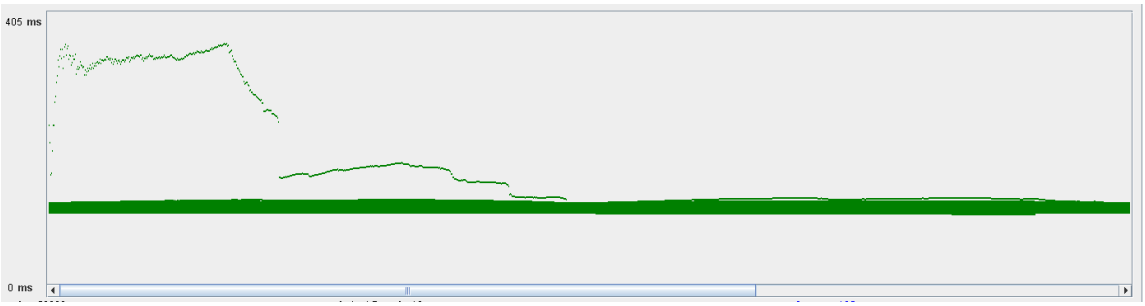

*14 Graph results of use case 7*

## Use Case Test 8

- A user authenticated as a hacker creates a resume, as well as a pair of education data, which then he edits and deletes one of them.
- Number of threads: 70
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /security/login.do | 2800 | 8 | 5 | 15 | 2 | 444 | 0.00% | 2.9/sec | 8.6 |
| /j_spring_security_check | 2800 | 135 | 14 | 266 | 4 | 6895 | 0.00% | 2.9/sec | 9.8 |
| / | 5600 | 81 | 7 | 116 | 3 | 8593 | 0.00% | 5.7/sec | 16.7 |
| /curricula/hacker/list.do | 5600 | 146 | 57 | 257 | 7 | 7001 | 0.00% | 5.8/sec | 40.5 |
| /curricula/hacker/create.... | 2800 | 107 | 12 | 166 | 6 | 6649 | 0.00% | 2.9/sec | 12.8 |
| /curricula/hacker/edit.do | 2800 | 251 | 67 | 552 | 7 | 8762 | 0.00% | 2.9/sec | 25.4 |
| /curricula/hacker/show.do | 11200 | 243 | 97 | 507 | 8 | 8078 | 0.00% | 11.4/sec | 105.0 |
| /posData/hacker/create.... | 2800 | 275 | 90 | 654 | 10 | 6517 | 0.00% | 2.9/sec | 16.7 |
| /posData/hacker/edit.do... | 8400 | 349 | 113 | 933 | 4 | 10771 | 0.00% | 8.6/sec | 65.9 |
| /posData/hacker/edit.do | 5600 | 175 | 14 | 470 | 3 | 6748 | 0.00% | 5.7/sec | 56.1 |
| /j_spring_security_logout | 2800 | 96 | 13 | 150 | 3 | 5590 | 0.00% | 2.9/sec | 8.5 |
| TOTAL | 53200 | 195 | 48 | 444 | 2 | 10771 | 0.00% | 53.7/sec | 360.9 |

*15 Aggregate report of use case 8*



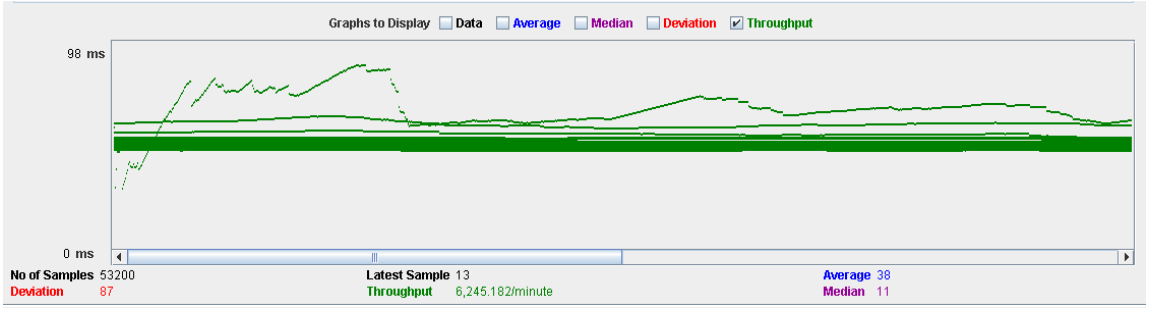

*16 Graph results of use case 8*

## Use Case Test 9

- An authenticated user notices some of your messages in the out box. Then, he creates a new box and copies the message to it.
- Number of threads: 70
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /security/login.do | 2800 | 6 | 5 | 10 | 2 | 69 | 0.00% | 5.6/sec | 16.7 |
| /j_spring_security... | 2800 | 36 | 12 | 64 | 5 | 1499 | 0.00% | 5.6/sec | 19.7 |
| / | 5600 | 13 | 6 | 14 | 3 | 831 | 0.00% | 11.0/sec | 33.1 |
| /images/arrow_do... | 2800 | 2 | 2 | 4 | 1 | 59 | 0.00% | 5.6/sec | 2.5 |
| /message/create.... | 2800 | 48 | 22 | 100 | 9 | 1365 | 0.00% | 5.6/sec | 29.4 |
| /message/send.do | 2800 | 188 | 132 | 338 | 28 | 3314 | 0.00% | 5.6/sec | 50.5 |
| /message/list.do | 8400 | 69 | 49 | 153 | 6 | 1194 | 0.00% | 16.6/sec | 130.9 |
| /message/show.do | 8400 | 27 | 12 | 40 | 8 | 1388 | 0.00% | 16.5/sec | 165.1 |
| /box/list.do | 5600 | 29 | 10 | 48 | 6 | 1576 | 0.00% | 11.1/sec | 59.0 |
| /box/create.do | 2800 | 19 | 6 | 32 | 3 | 775 | 0.00% | 5.6/sec | 19.8 |
| /box/edit.do?pare... | 2800 | 20 | 8 | 24 | 4 | 1114 | 0.00% | 5.6/sec | 20.5 |
| /message/dbox.do | 2800 | 14 | 10 | 22 | 6 | 520 | 0.00% | 5.6/sec | 61.2 |
| /j_spring_security... | 2800 | 12 | 8 | 14 | 6 | 1705 | 0.00% | 5.6/sec | 16.3 |
| TOTAL | 53200 | 38 | 11 | 103 | 1 | 3314 | 0.00% | 104.1/sec | 617.3 |

*17 Aggregate report of use case 9*




*18 Graph results of use case 9*

## Use Case Test 10

- An authenticated user exports their data and then deletes their account.
- Number of threads: 80
- Loop count: 40

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| / | 9600 | 7 | 7 | 8 | 4 | 26 | 0.00% | 32.7/sec | 89.2 |
| /security/login.do | 3200 | 4 | 5 | 6 | 3 | 27 | 0.00% | 11.2/sec | 32.6 |
| /j_spring_security_check | 3200 | 14 | 14 | 18 | 6 | 775 | 0.00% | 11.2/sec | 40.4 |
| /actor/personal.do | 3200 | 4 | 5 | 6 | 3 | 22 | 0.00% | 11.3/sec | 107.8 |
| /actor/export.do | 3200 | 4 | 5 | 6 | 3 | 21 | 0.00% | 11.2/sec | 107.2 |
| /actor/delete.do | 3200 | 4 | 5 | 6 | 2 | 27 | 0.00% | 11.2/sec | 107.2 |
| /j_spring_security_logout | 3200 | 9 | 9 | 11 | 6 | 40 | 0.00% | 11.2/sec | 32.9 |
| TOTAL | 28800 | 7 | 6 | 13 | 2 | 775 | 0.00% | 98.0/sec | 505.0 |

*19 Aggregate report of use case 10*

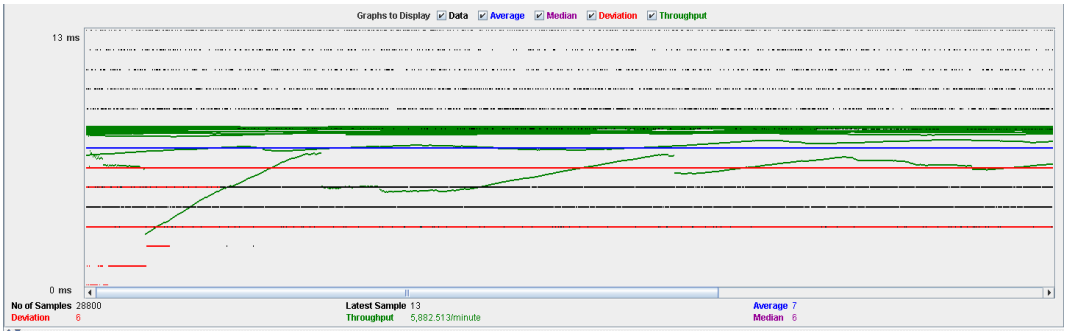

*20 Graph results of use case 10*

## Use Case Test 11

- A user authenticated as a company updates the status of an application.
- Number of threads: 100
- Loop count: 100

| Label | # Samples | Average | Median | 90% Line | Min | Max | Error % | Throughput | KB/sec |
|---|---|---|---|---|---|---|---|---|---|
| /security/login.do | 4000 | 5 | 5 | 9 | 2 | 30 | 0.00% | 8.9/sec | 26.7 |
| /j_spring_security... | 4000 | 12 | 11 | 20 | 6 | 449 | 0.00% | 8.9/sec | 31.4 |
| / | 8000 | 6 | 6 | 11 | 4 | 67 | 0.00% | 17.5/sec | 52.8 |
| /position/list.do | 4000 | 13 | 11 | 25 | 8 | 47 | 0.00% | 8.9/sec | 40.0 |
| /application/comp... | 12000 | 17 | 15 | 25 | 10 | 565 | 0.00% | 26.5/sec | 111.1 |
| /images/arrow_off... | 4000 | 2 | 2 | 3 | 1 | 13 | 0.00% | 8.9/sec | 3.9 |
| /answer/company/... | 4000 | 10 | 8 | 18 | 6 | 96 | 0.00% | 8.9/sec | 34.6 |
| /application/comp... | 4000 | 23 | 17 | 38 | 13 | 578 | 0.00% | 8.9/sec | 60.7 |
| /application/comp... | 4000 | 52 | 42 | 67 | 23 | 997 | 0.00% | 8.9/sec | 44.5 |
| /application/comp... | 4000 | 15 | 11 | 27 | 8 | 204 | 0.00% | 8.9/sec | 58.0 |
| /j_spring_security... | 4000 | 10 | 9 | 17 | 3 | 98 | 0.00% | 8.9/sec | 26.3 |
| TOTAL | 56000 | 15 | 11 | 31 | 1 | 997 | 0.00% | 122.4/sec | 481.6 |

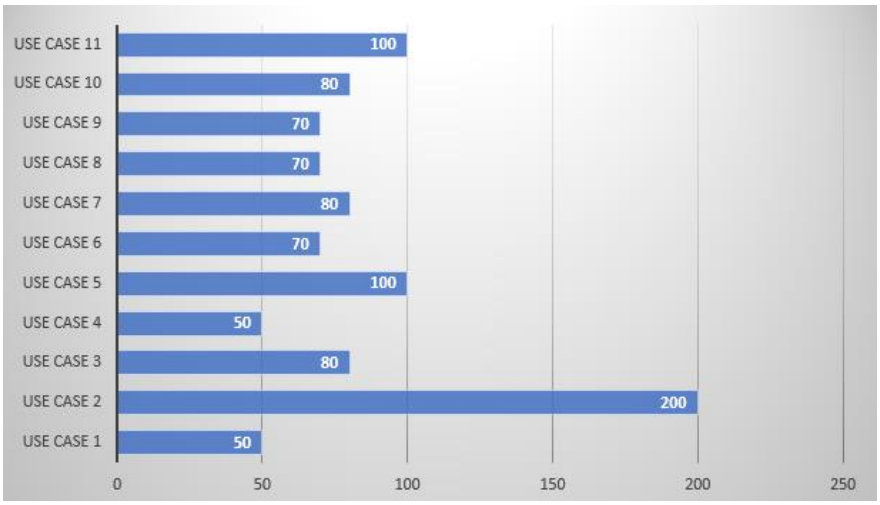
*21 Aggregate report of use case 11*




*22 Graph results of use case 11*

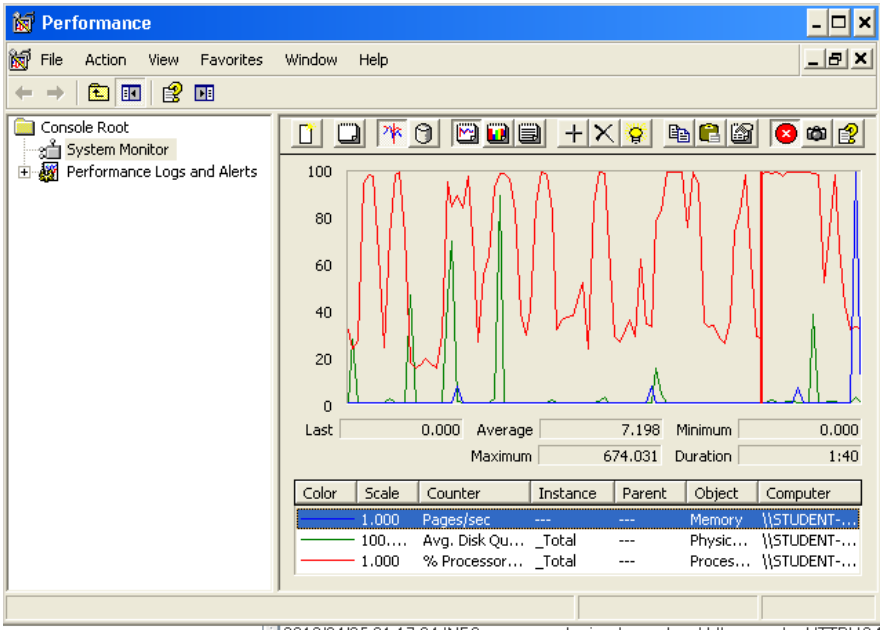
## Comparative Graph

✓ Following is a graph with the number of threads (users) for each use case, in a comparative in which it can be deduced that the cases of uses that have a worse performance are 1 and 4.




✓ Therefore, it can be ensured that the system sustains 50 users.

✓ To check that this is the limit, the "Performance" tool offered by Windows XP has been used and has given these results by running the performance test of the use case 1.




✓ We can see that the processor is at the limit of its capacity.