

Федеральное государственное автономное образовательное учреждение высшего
образования
«Национальный исследовательский университет ИТМО»
(Университет ИТМО)

Факультет программной инженерии и компьютерной техники

Лабораторная работа №4
по дисциплине
«Тестирование программного обеспечения»

Вариант на 336892

Студент:
Группа № Р33101

Павлова А.И.

Предподаватель:

Машина.Е.А.

г.Санкт-Петербург 2024

1 Задание

С помощью программного пакета Apache JMeter провести нагрузочное и стресс-тестирование веб-приложения в соответствии с вариантом задания.

В ходе нагрузочного тестирования необходимо протестировать 3 конфигурации аппаратного обеспечения и выбрать среди них наиболее дешёвую, удовлетворяющую требованиям по максимальному времени отклика приложения при заданной нагрузке (в соответствии с вариантом).

В ходе стресс-тестирования необходимо определить, при какой нагрузке выбранная на предыдущем шаге конфигурация перестает удовлетворять требованиям по максимальному времени отклика. Для этого необходимо построить график зависимости времени отклика приложения от нагрузки.

Параметры тестируемого веб-приложения:

- URL первой конфигурации (\$ 2500) - <http://stload.se.ifmo.ru:8080?token=492558830&user=-2136303767&config=1>;
- URL первой конфигурации (\$ 2500) - <http://stload.se.ifmo.ru:8080?token=492558830&user=-2136303767&config=1>;
- URL третьей конфигурации (\$ 2800) - <http://stload.se.ifmo.ru:8080?token=492558830&user=-2136303767&config=3>;
- Максимальное количество параллельных пользователей - 11;
- Средняя нагрузка, формируемая одним пользователем - 40 запр. в мин.;
- Максимально допустимое время обработки запроса - 800 мс.

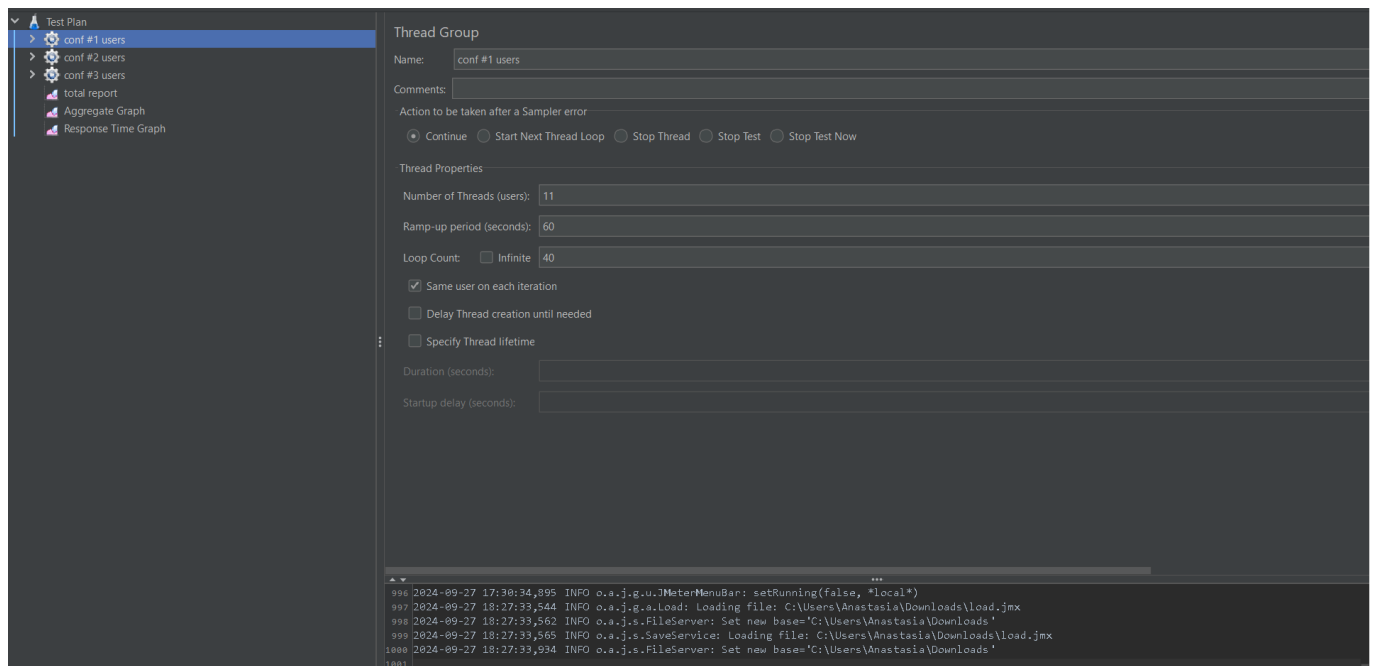


Рис. 1: Conf 1 settings 1

HTTP Request

Name: conf #1 req

Comments:

Basic

Advanced

Web Server

Protocol [http]: http

Server Name or IP: localhost

Port Number: 5123

HTTP Request

GET

Path: /

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?
token	492558830	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
user	-2136303767	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
conf	1	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>

Detail

Add

Add from Clipboard

Delete

Up

Down

Рис. 2: Confl settings HTTP

Изначально мною был поставлен отклик в 800 миллисекунд, как сказано в задании, однако, возможно из-за портфорвардинга ответ от каждой из конфигурации был слишком долгим, поэтому я увеличила до 1500 миллисекунд.

```

1727446460989,1524,conf #3 req,200,OK,conf #3 users 3-1,text,false,"The operation lasted too long: It took 1,524 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446460989,1550,conf #1 req,200,OK,conf #1 users 1-1,text,false,"The operation lasted too long: It took 1,550 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446460989,1550,conf #2 req,200,OK,conf #2 users 2-1,text,false,"The operation lasted too long: It took 1,550 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446462527,1321,conf #3 req,200,OK,conf #3 users 3-1,text,false,"The operation lasted too long: It took 1,321 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446462542,1371,conf #1 req,200,OK,conf #1 users 1-1,text,false,"The operation lasted too long: It took 1,371 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446462542,1371,conf #2 req,200,OK,conf #2 users 2-1,text,false,"The operation lasted too long: It took 1,371 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446464028,1342,conf #3 req,200,OK,conf #3 users 3-1,text,false,"The operation lasted too long: It took 1,342 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446464042,1407,conf #2 req,200,OK,conf #2 users 2-1,text,false,"The operation lasted too long: It took 1,407 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446464042,1407,conf #1 req,200,OK,conf #1 users 1-1,text,false,"The operation lasted too long: It took 1,407 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,1,3,http://lo
1727446465528,1331,conf #3 req,200,OK,conf #3 users 3-1,text,false,"The operation lasted too long: It took 1,331 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446465545,1397,conf #2 req,200,OK,conf #2 users 2-1,text,false,"The operation lasted too long: It took 1,397 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446465545,1397,conf #1 req,200,OK,conf #1 users 1-1,text,false,"The operation lasted too long: It took 1,397 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446466120,1373,conf #1 req,200,OK,conf #1 users 1-2,text,false,"The operation lasted too long: It took 1,373 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446466147,1412,conf #3 req,200,OK,conf #3 users 3-2,text,false,"The operation lasted too long: It took 1,412 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446466132,1427,conf #2 req,200,OK,conf #2 users 2-2,text,false,"The operation lasted too long: It took 1,427 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446467030,1345,conf #3 req,200,OK,conf #3 users 3-1,text,false,"The operation lasted too long: It took 1,345 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446467045,1401,conf #1 req,200,OK,conf #1 users 1-1,text,false,"The operation lasted too long: It took 1,401 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446467621,1336,conf #1 req,200,OK,conf #1 users 1-2,text,false,"The operation lasted too long: It took 1,336 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446467634,1393,conf #2 req,200,OK,conf #2 users 2-2,text,false,"The operation lasted too long: It took 1,393 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446467649,1378,conf #3 req,200,OK,conf #3 users 3-2,text,false,"The operation lasted too long: It took 1,378 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446468529,1341,conf #3 req,200,OK,conf #3 users 3-1,text,false,"The operation lasted too long: It took 1,341 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446468545,1409,conf #1 req,200,OK,conf #1 users 1-1,text,false,"The operation lasted too long: It took 1,409 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
1727446468545,1409,conf #2 req,200,OK,conf #2 users 2-1,text,false,"The operation lasted too long: It took 1,409 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo
17274464689120,1342,conf #1 req,200,OK,conf #1 users 1-2,text,false,"The operation lasted too long: It took 1,342 milliseconds, but should not have lasted longer than 800 milliseconds.",231,152,2,6,http://lo

```

Рис. 3: один из CSV файлов с логами

3

Duration Assertion

Name:
Duration Assertion

Comments:

Apply to:
☐ Main sample and sub-samples
☒ Main sample only
☐ Sub-samples only

Duration to Assert

Duration in milliseconds:
1500

Рис. 4: Enter Caption

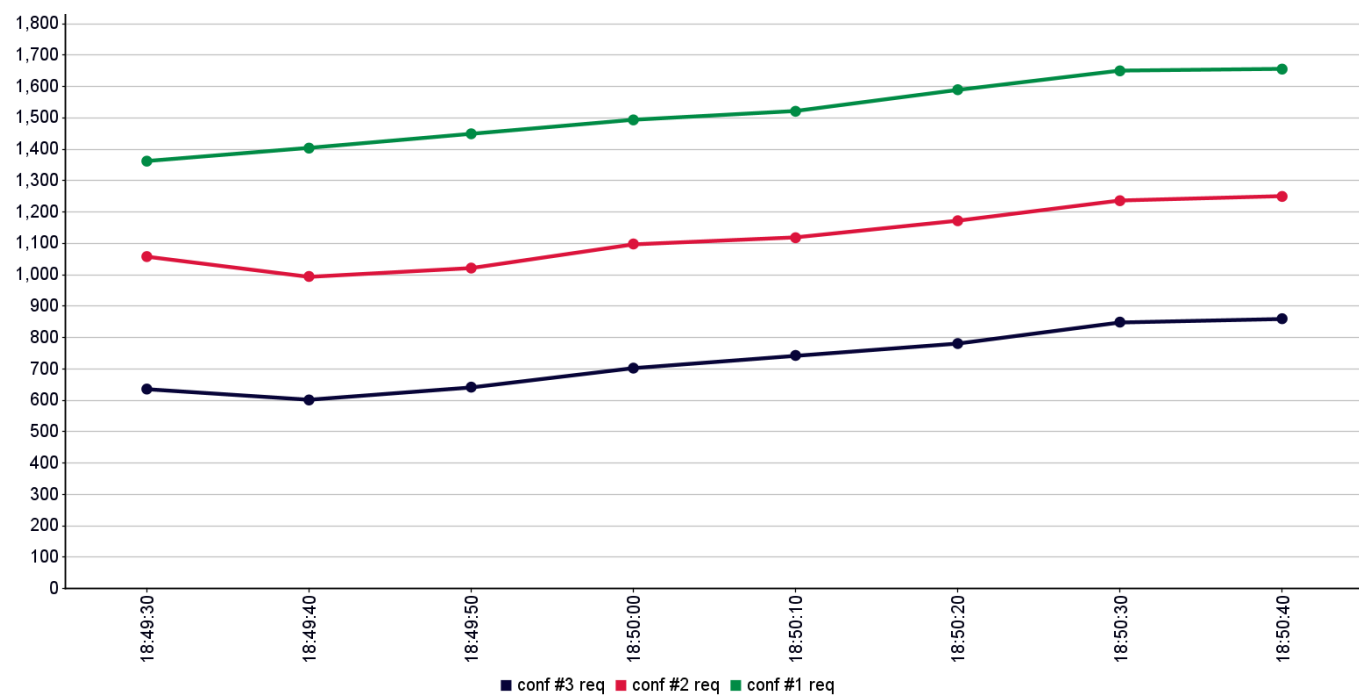


Рис. 5: ResponseTime

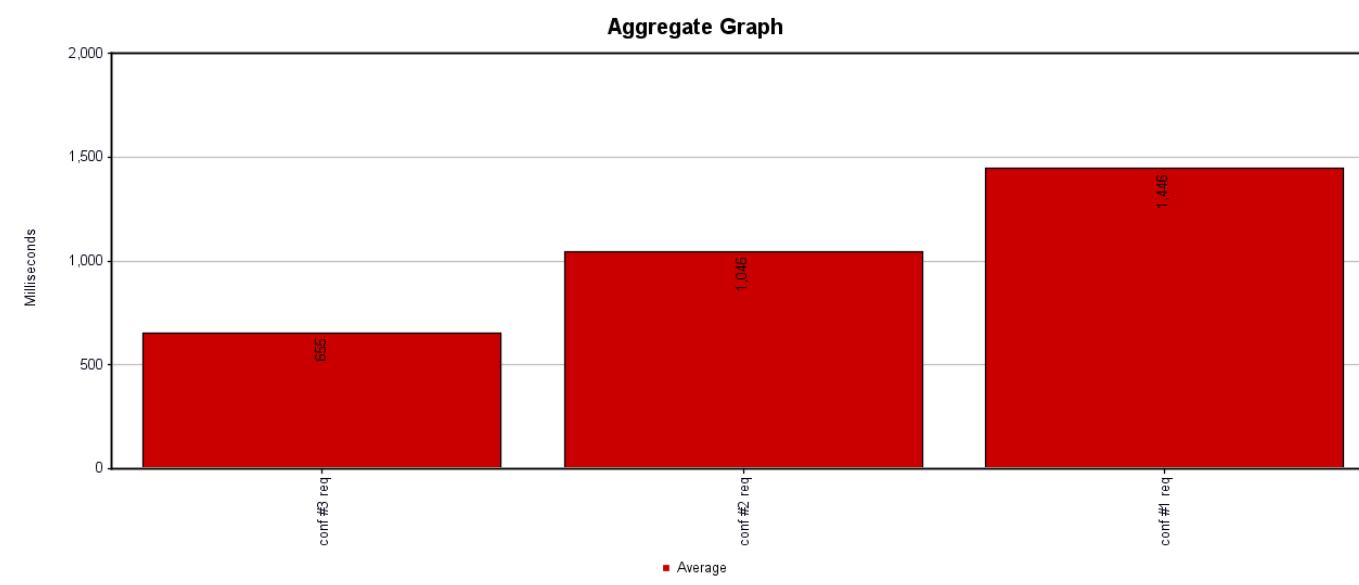


Рис. 6: AggregateGraph

Заметим что наилучшим способом ведет себя конфигурация 3. У нее самый быстрый отклик. При этом она

самая дорогая. Я бы переплатила так как, показатели в 2 и 3 раза лучше чем у других.

2 Стресс тестирование

481	18:57:06.017	conf #1 users 1...	conf #1 req	24843		231	154	24843	1
482	18:57:06.022	conf #1 users 1...	conf #1 req	24870		231	154	24870	1
483	18:57:06.026	conf #1 users 1...	conf #1 req	24985		231	154	24985	1
484	18:57:06.030	conf #1 users 1...	conf #1 req	24982		231	154	24982	1
485	18:57:06.034	conf #1 users 1...	conf #1 req	25040		231	154	25040	1
486	18:57:06.038	conf #1 users 1...	conf #1 req	25067		231	154	25067	1
487	18:57:06.042	conf #1 users 1...	conf #1 req	25137		231	154	25137	1
488	18:57:06.047	conf #1 users 1...	conf #1 req	25160		231	154	25160	1
489	18:57:06.049	conf #1 users 1...	conf #1 req	25231		231	154	25231	1
490	18:57:06.054	conf #1 users 1...	conf #1 req	25334		231	154	25334	1
491	18:57:06.058	conf #1 users 1...	conf #1 req	25330		231	154	25330	1
492	18:57:06.062	conf #1 users 1...	conf #1 req	25396		231	154	25396	1
493	18:57:06.066	conf #1 users 1...	conf #1 req	25727		231	154	25727	1
494	18:57:06.071	conf #1 users 1...	conf #1 req	25722		231	154	25722	1
495	18:57:06.073	conf #1 users 1...	conf #1 req	25720		231	154	25720	2
496	18:57:06.078	conf #1 users 1...	conf #1 req	25715		231	154	25715	1
497	18:57:06.082	conf #1 users 1...	conf #1 req	25711		231	154	25711	1
498	18:57:06.091	conf #1 users 1...	conf #1 req	25732		231	154	25732	1
499	18:57:06.086	conf #1 users 1...	conf #1 req	25737		231	154	25737	1
500	18:57:06.094	conf #1 users 1...	conf #1 req	25761		231	154	25761	2

Рис. 7: 500 пользователей

2587	19:03:11.947	conf #3 users 1...	conf #3 req	48187		231	154	48187	1
2588	19:03:11.948	conf #3 users 1...	conf #3 req	48230		231	154	48230	1
2589	19:03:11.953	conf #3 users 1...	conf #3 req	48260		231	154	48260	1
2590	19:03:11.956	conf #3 users 1...	conf #3 req	48369		231	154	48369	1
2591	19:03:11.956	conf #3 users 1...	conf #3 req	48369		231	154	48369	1
2592	19:03:11.957	conf #3 users 1...	conf #3 req	48396		231	154	48396	0
2593	19:03:11.959	conf #3 users 1...	conf #3 req	48429		231	154	48429	1
2594	19:03:11.962	conf #3 users 1...	conf #3 req	48455		231	154	48455	1
2595	19:03:11.963	conf #3 users 1...	conf #3 req	48487		231	154	48487	1
2596	19:03:11.967	conf #3 users 1...	conf #3 req	48512		231	154	48512	1
2597	19:03:11.970	conf #3 users 1...	conf #3 req	48581		231	154	48581	1
2598	19:03:11.973	conf #3 users 1...	conf #3 req	48692		231	154	48692	1
2599	19:03:11.975	conf #3 users 1...	conf #3 req	48691		231	154	48691	1
2600	19:03:11.981	conf #3 users 1...	conf #3 req	48788		231	154	48788	1

Рис. 8: Пользователей больше 2000

Конфигурация перестала отвечать после того как количество пользователей достигло 2600.