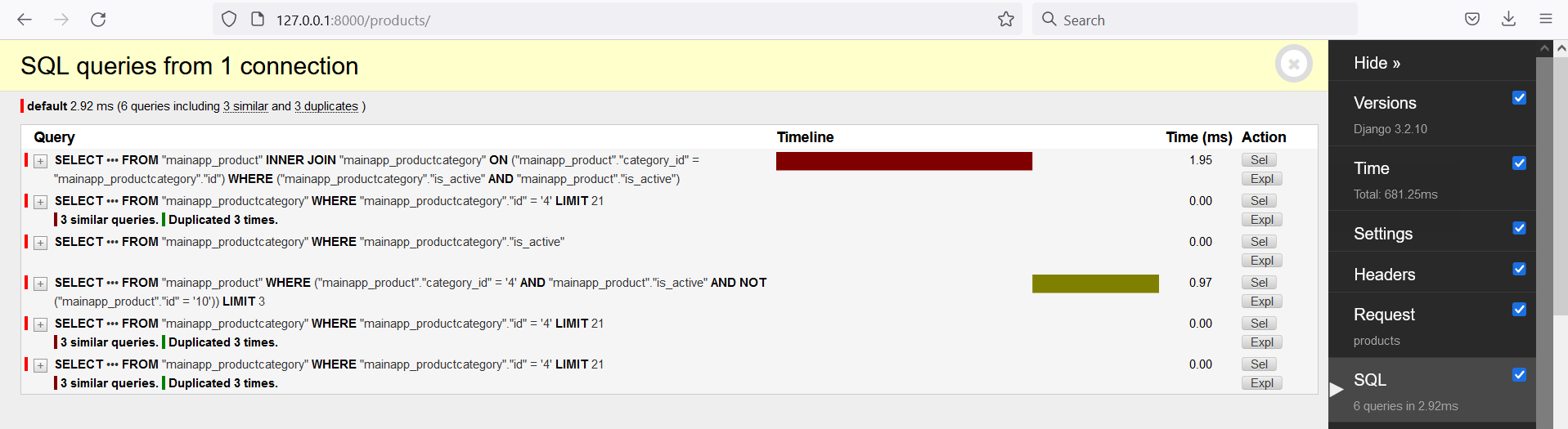
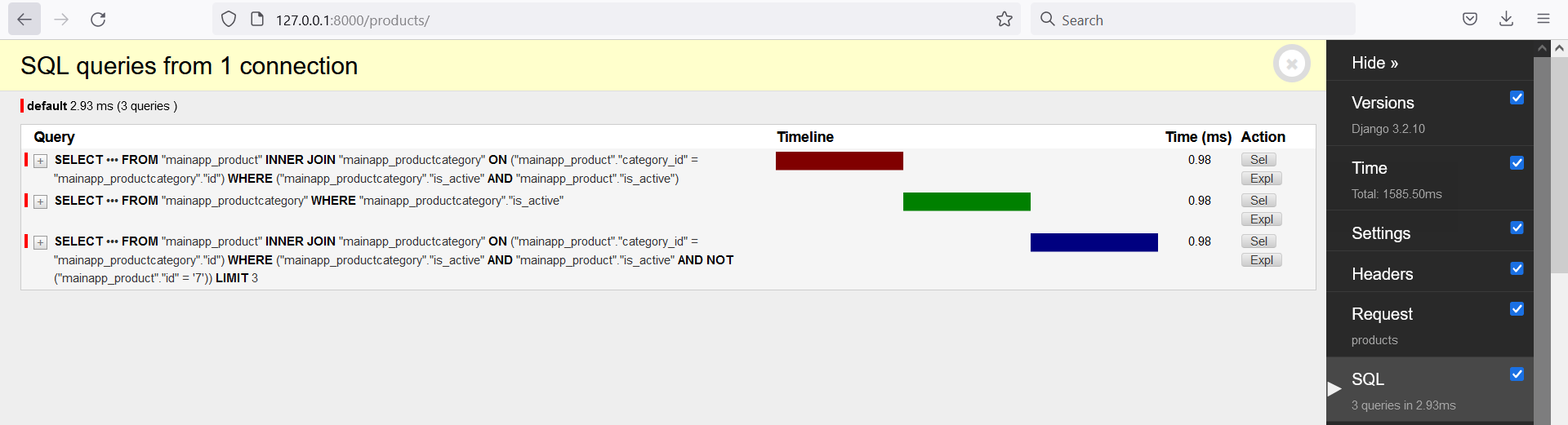
**Страница с продуктами**

До оптимизации:

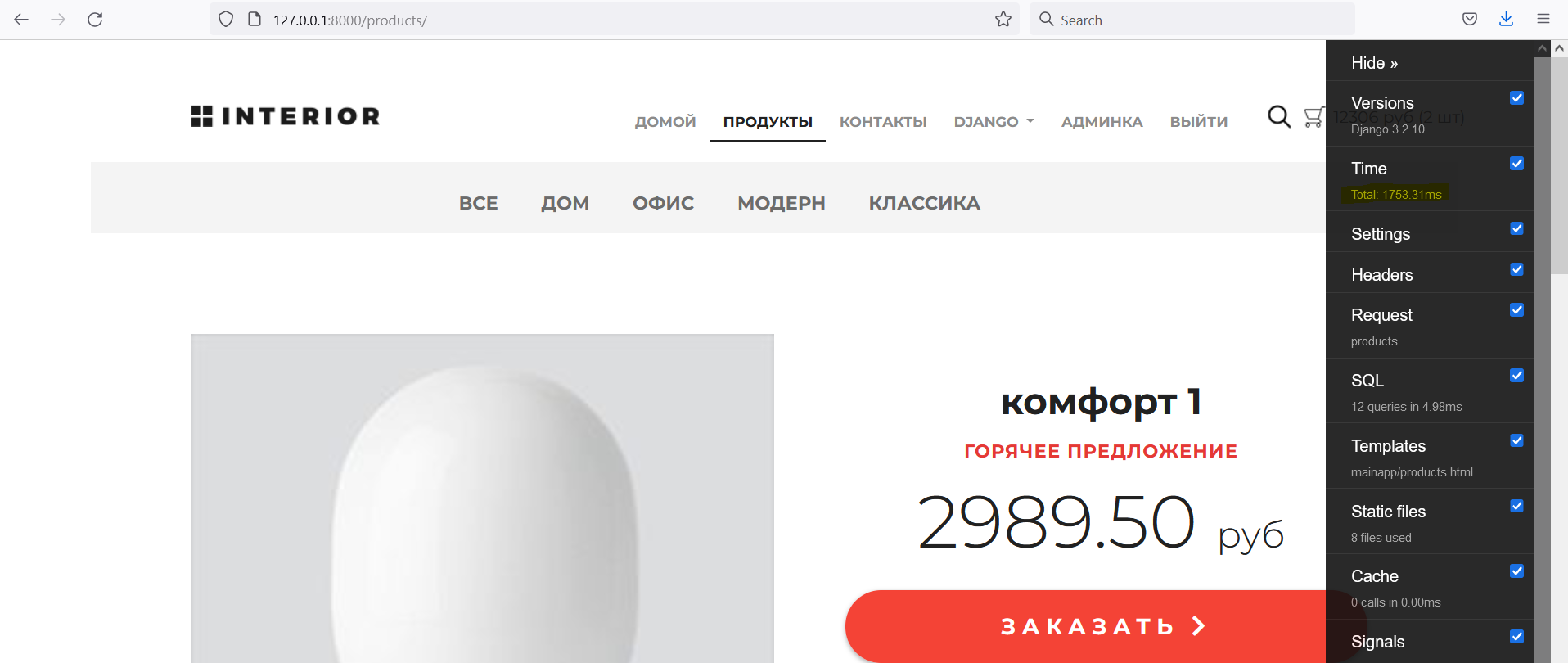


После оптимизации (select\_related) – меньше запросов:



**Самый медленный контроллер – для страницы «Продукты»:**

1753 мс



**Осада**

**Осада 1:**

http://185.46.8.111/

http://185.46.8.111/contact/

http://185.46.8.111/products/

http://185.46.8.111/products/category/1/

http://185.46.8.111/products/category/2/

http://185.46.8.111/products/category/3/

http://185.46.8.111/products/category/4/

http://185.46.8.111/basket/

http://185.46.8.111/auth/edit/

http://185.46.8.111/auth/register/

http://185.46.8.111/order/

http://185.46.8.111/order/update/3/

http://185.46.8.111/order/update/4/

http://185.46.8.111/order/update/5/

Результат 1:

root@s6250d342:/tmp# **siege -f /tmp/test\_urls.txt -d1 -r15 -c1**

New configuration template added to /root/.siege

Run siege -C to view the current settings in that file

\*\* SIEGE 4.0.4

\*\* Preparing 1 concurrent users for battle.

The server is now under siege...

Transactions: 106 hits

Availability: 98.15 %

Elapsed time: 10.36 secs

Data transferred: 4.23 MB

Response time: 0.06 secs

Transaction rate: 10.23 trans/sec

Throughput: 0.41 MB/sec

Concurrency: 0.61

Successful transactions: 103

Failed transactions: 2

Longest transaction: 0.10

Shortest transaction: 0.03

**Осада 2:**

http://185.46.8.111/order/

http://185.46.8.111/auth/edit/

http://185.46.8.111/contact/

Результат 2:

root@s6250d342:/tmp# **siege -f /tmp/test\_urls.txt -d1 -r1 -c1 --debug**

\*\* SIEGE 4.0.4: debugging enabled

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There is NO warranty; not even for MERCHANTABILITY or FITNESS

FOR A PARTICULAR PURPOSE.

\*\* Preparing 1 concurrent users for battle.

The server is now under siege...[debug] browser.c:870 attempting connection to 185.46.8.111:80

[debug] browser.c:885 creating new socket: 185.46.8.111:80

[debug] browser.c:905 good socket connection: 185.46.8.111:80

GET /order/ HTTP/1.1

Host: 185.46.8.111

Accept: \*/\*

Accept-Encoding: gzip, deflate

User-Agent: Mozilla/5.0 (pc-x86\_64-linux-gnu) Siege/4.0.4

Connection: close

HTTP/1.1 500 Internal Server Error

Server: nginx/1.18.0 (Ubuntu)

Date: Mon, 14 Feb 2022 20:21:02 GMT

Content-Type: text/html

Content-Length: 145

Connection: close

X-Frame-Options: DENY

Vary: Cookie

X-Content-Type-Options: nosniff

Referrer-Policy: same-origin

Transactions: 0 hits

Availability: 0.00 %

Elapsed time: 0.08 secs

Data transferred: 0.00 MB

Response time: 0.00 secs

Transaction rate: 0.00 trans/sec

Throughput: 0.00 MB/sec

Concurrency: 1.00

Successful transactions: 0

HTTP OK received: 0

Failed transactions: 1

Longest transaction: 0.08

Shortest transaction: 0.00

**Осада 3 (внесли изменения в код проекта):**

http://185.46.8.111/auth/login/

http://185.46.8.111/

http://185.46.8.111/contact/

http://185.46.8.111/products/

http://185.46.8.111/products/category/1/

http://185.46.8.111/products/category/2/

http://185.46.8.111/products/category/3/

http://185.46.8.111/products/category/4/

http://185.46.8.111/basket/

http://185.46.8.111/auth/edit/

http://185.46.8.111/auth/register/

http://185.46.8.111/order/

http://185.46.8.111/order/update/3/

http://185.46.8.111/order/update/4/

http://185.46.8.111/order/update/5/

Результат 3:

root@s6250d342:/tmp# **siege -f /tmp/test\_urls.txt -d1 -r1 -c1**

\*\* SIEGE 4.0.4

\*\* Preparing 1 concurrent users for battle.

The server is now under siege...

Transactions: 5 hits

Availability: 100.00 %

Elapsed time: 0.38 secs

Data transferred: 0.28 MB

Response time: 0.08 secs

Transaction rate: 13.16 trans/sec

Throughput: 0.73 MB/sec

Concurrency: 1.00

Successful transactions: 5

Failed transactions: 0

Longest transaction: 0.10

Shortest transaction: 0.05

**Осада 4 (с пользователем):**

http://185.46.8.111/auth/login/?next=/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/contact/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/products/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/products/category/1/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/products/category/2/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/products/category/3/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/products/category/4/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/basket/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/auth/edit/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/auth/register/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/order/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/order/update/3/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/order/update/4/ POST username=django&password=geekbrains

http://185.46.8.111/auth/login/?next=/order/update/5/ POST username=django&password=geekbrains

Результат 4:

root@s6250d342:/tmp# **siege -f /tmp/test\_urls.txt -d1 -r15 -c1**

\*\* SIEGE 4.0.4

\*\* Preparing 1 concurrent users for battle.

The server is now under siege...

Transactions: 210 hits

Availability: 100.00 %

Elapsed time: 27.60 secs

Data transferred: 6.98 MB

Response time: 0.09 secs

Transaction rate: 7.61 trans/sec

Throughput: 0.25 MB/sec

Concurrency: 0.67

Successful transactions: 210

Failed transactions: 0

Longest transaction: 0.57

Shortest transaction: 0.03

**Нагрузочное тестирование**

50 пользователей

root@s6250d342:~# **siege -f /tmp/test\_urls.txt -d1 -r15 -c50**

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 10500 hits

Availability: 100.00 %

Elapsed time: 314.80 secs

Data transferred: 349.08 MB

Response time: 1.45 secs

Transaction rate: 33.35 trans/sec

Throughput: 1.11 MB/sec

Concurrency: 48.28

Successful transactions: 10500

Failed transactions: 0

Longest transaction: 20.61

Shortest transaction: 0.03

150 пользователей

root@s6250d342:~# **siege -f /tmp/test\_urls.txt -d1 -r15 -c150**

\*\* SIEGE 4.0.4

\*\* Preparing 150 concurrent users for battle.

The server is now under siege...

Transactions: 31500 hits

Availability: 100.00 %

Elapsed time: 944.79 secs

Data transferred: 1047.24 MB

Response time: 4.43 secs

Transaction rate: 33.34 trans/sec

Throughput: 1.11 MB/sec

Concurrency: 147.64

Successful transactions: 31500

Failed transactions: 0

Longest transaction: 59.33

Shortest transaction: 0.03

На 250 пользователей не сделал, не сделал даже на 200 пользователей:

root@s6250d342:~# **siege -f /tmp/test\_urls.txt -d1 -r15 -c200**

[error] Inadequate resources to create pool crew.c:88: Resource temporarily unavailable

[fatal] unable to allocate memory for 200 simulated browser: Resource temporarily unavailable

Я делал осаду с другого виртуального сервера, на котором 3 Гб памяти – ресурсов не хватило.

**Оптимизация работы с базой данных**

До оптимизации (по одному запросу на пользователя):

root@s6250d342:~# **siege -f /tmp/test\_urls.txt -d1 -r1 -c50**

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 700 hits

Availability: 100.00 %

Elapsed time: 22.59 secs

Data transferred: 23.27 MB

Response time: 1.48 secs

Transaction rate: 30.99 trans/sec

Throughput: 1.03 MB/sec

Concurrency: 45.96

Successful transactions: 700

Failed transactions: 0

Longest transaction: 20.35

Shortest transaction: 0.03

**Провели оптимизацию:**

- context\_processors.py

- ordersapp/views.py

- ordersapp/forms.py

Скопировали файлы на сервер, перезапустили gunicorn.

После оптимизации (по одному запросу на пользователя)::

root@s6250d342:~# **siege -f /tmp/test\_urls.txt -d1 -r1 -c50**

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 700 hits

Availability: 100.00 %

Elapsed time: 23.13 secs

Data transferred: 23.27 MB

Response time: 1.51 secs

Transaction rate: 30.26 trans/sec

Throughput: 1.01 MB/sec

Concurrency: 45.73

Successful transactions: 700

Failed transactions: 0

Longest transaction: 20.54

Shortest transaction: 0.03

**Вывод**:

- Elapsed time почему-то увеличился

- Transaction rate почему-то уменьшился с 30,99 до 30,26

- Throughput почему-то уменьшился с 1,03 до 1.01

То есть результаты не соответствуют ожиданиям. В этом случае требуется проводить дополнительные замеры, на большем количестве попыток, чтобы уменьшить влияния различных колебаний. Но рамках этого ДЗ времени на это совсем нет.

**Провели оптимизацию:**

- db\_index=True

root@s6250d342:~# **siege -f /tmp/test\_urls.txt -d1 -r1 -c50**

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 700 hits

Availability: 100.00 %

Elapsed time: 22.80 secs

Data transferred: 23.27 MB

Response time: 1.49 secs

Transaction rate: 30.70 trans/sec

Throughput: 1.02 MB/sec

Concurrency: 45.74

Successful transactions: 700

Failed transactions: 0

Longest transaction: 20.32

Shortest transaction: 0.03

**Вывод:** результаты стали лучше, чем в предыдущий раз, но всё равно хуже, чем до оптимизации в рамках этого раздела.