

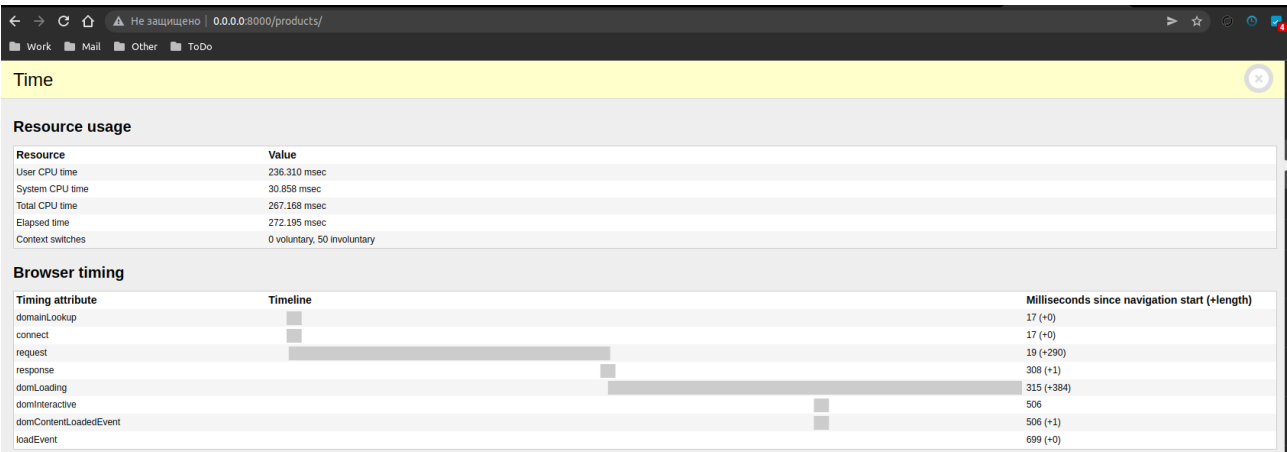
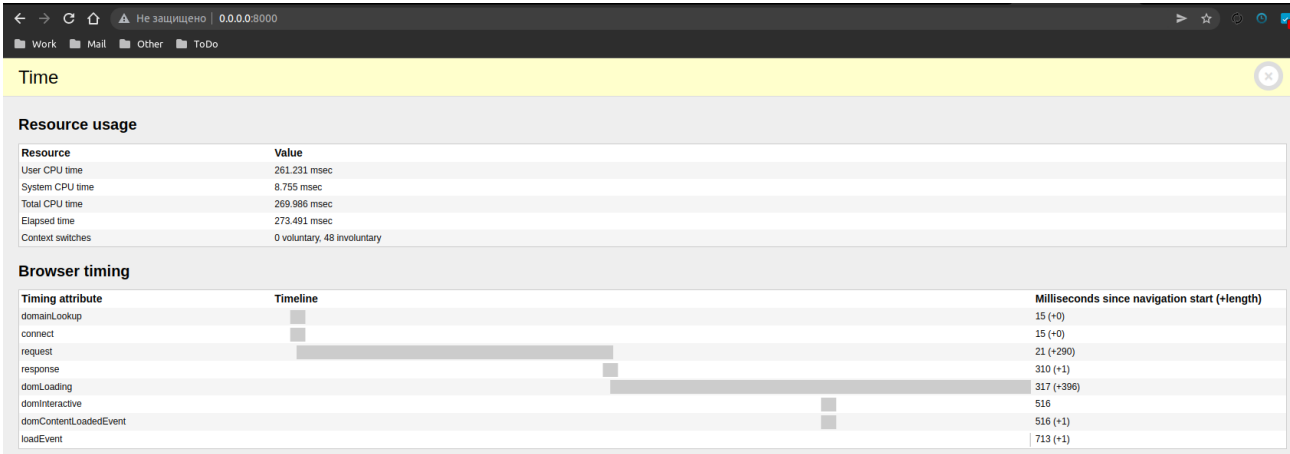
1. Установить приложение django-debug-toolbar. Оценить время загрузки страниц. Найти самые медленные контроллеры. Сделать скриншоты с учётом адресной строки браузера с замерами.

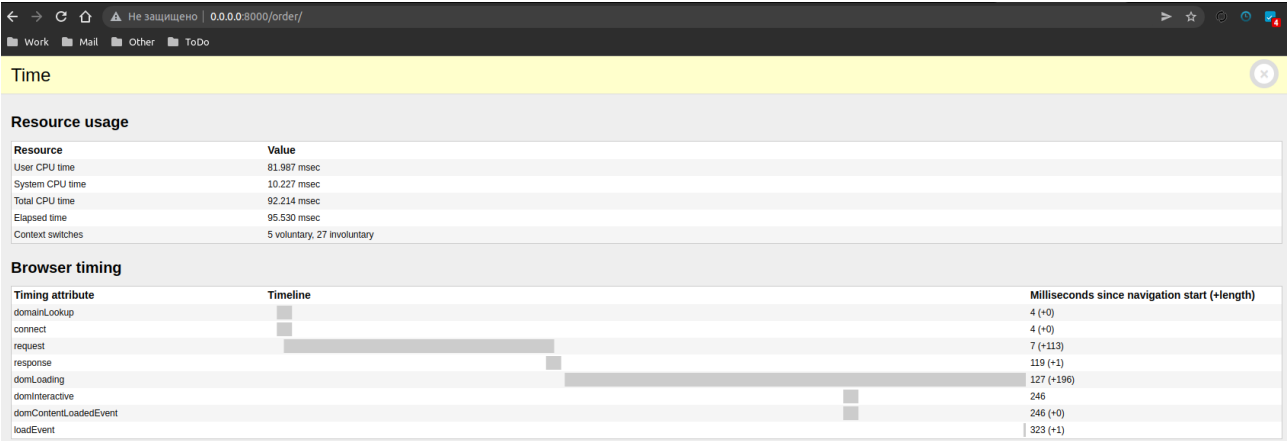
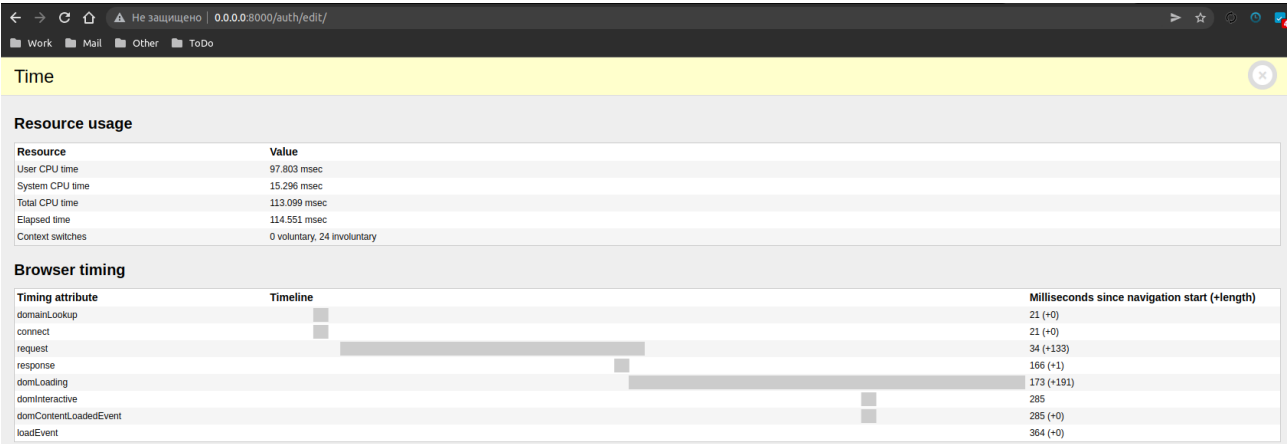
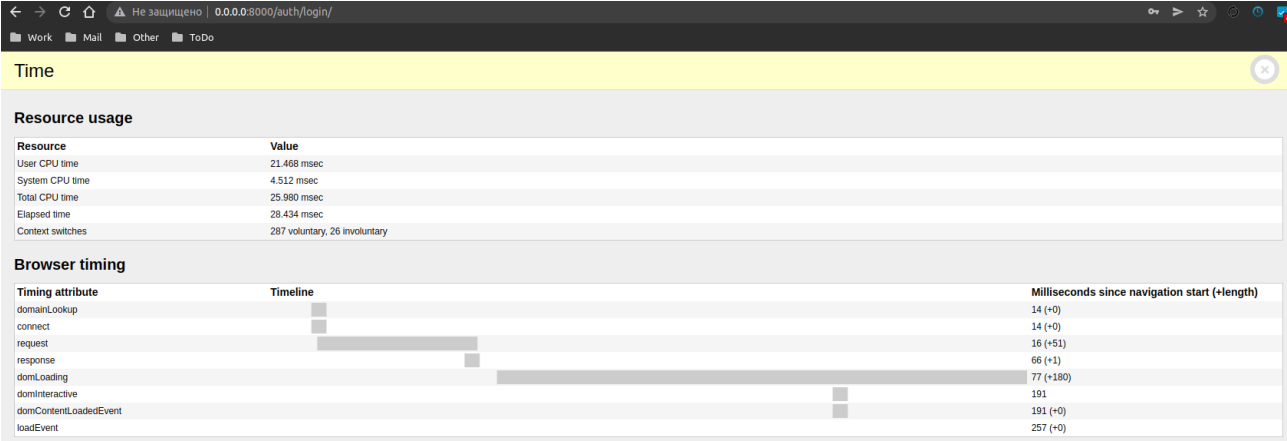
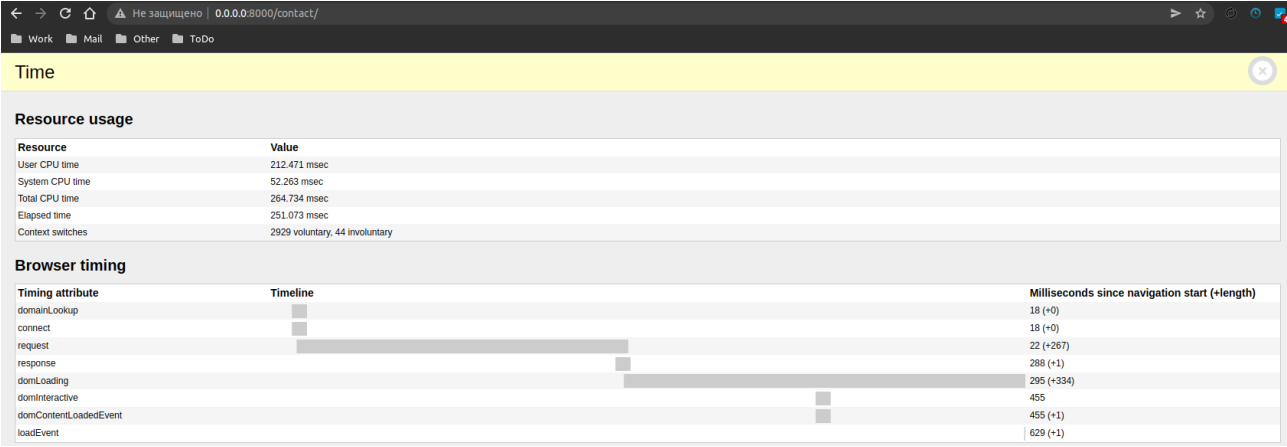
Приложение django-debug-toolbar установлено.

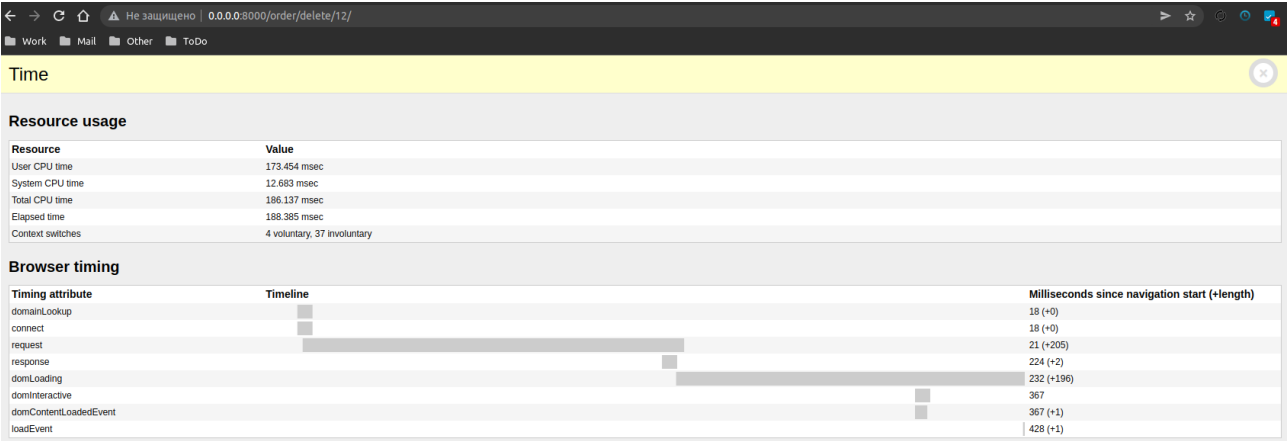
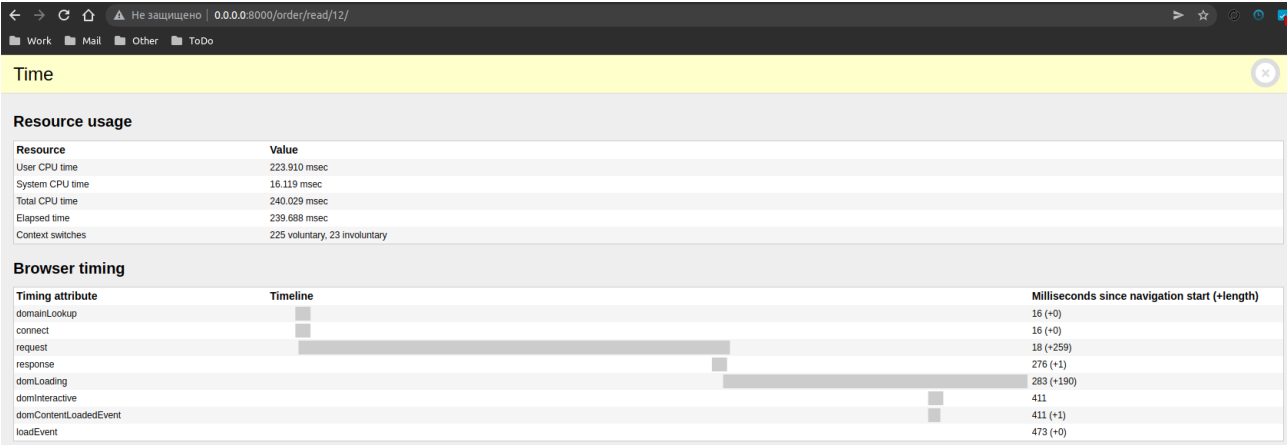
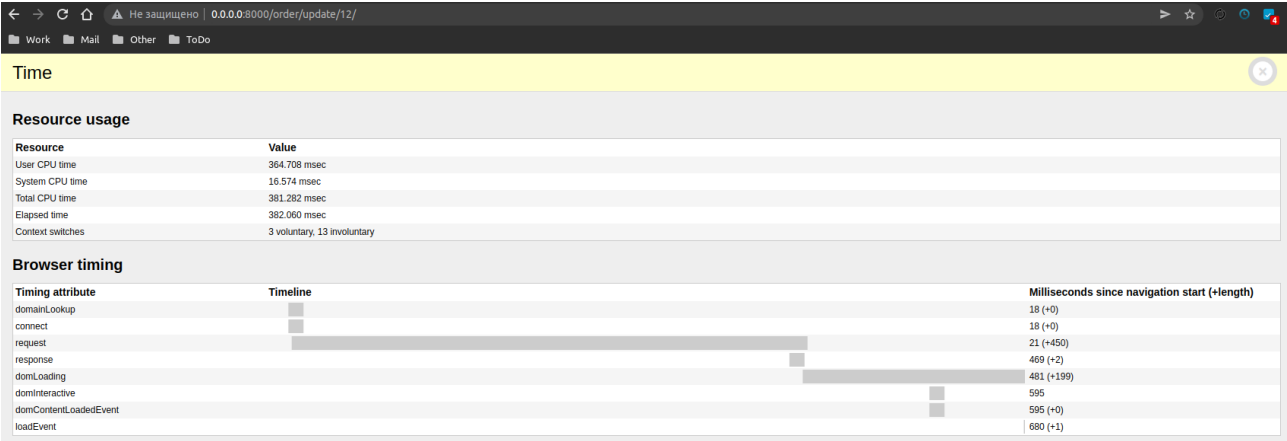
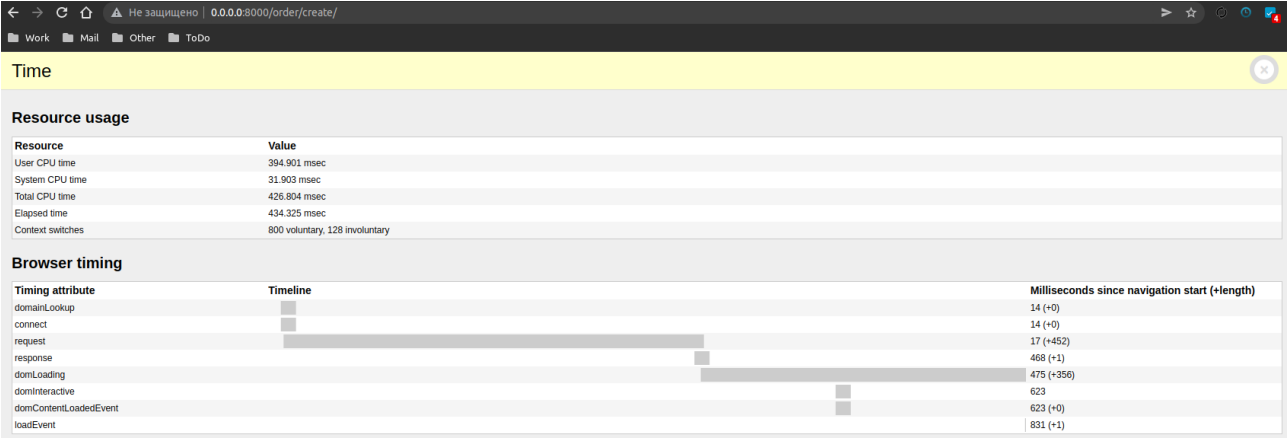
Время загрузки страниц
(проверка проведена при условии залогиненного пользователя, кроме auth/login, 2 товарами в корзине и 2 товарами в заказе)

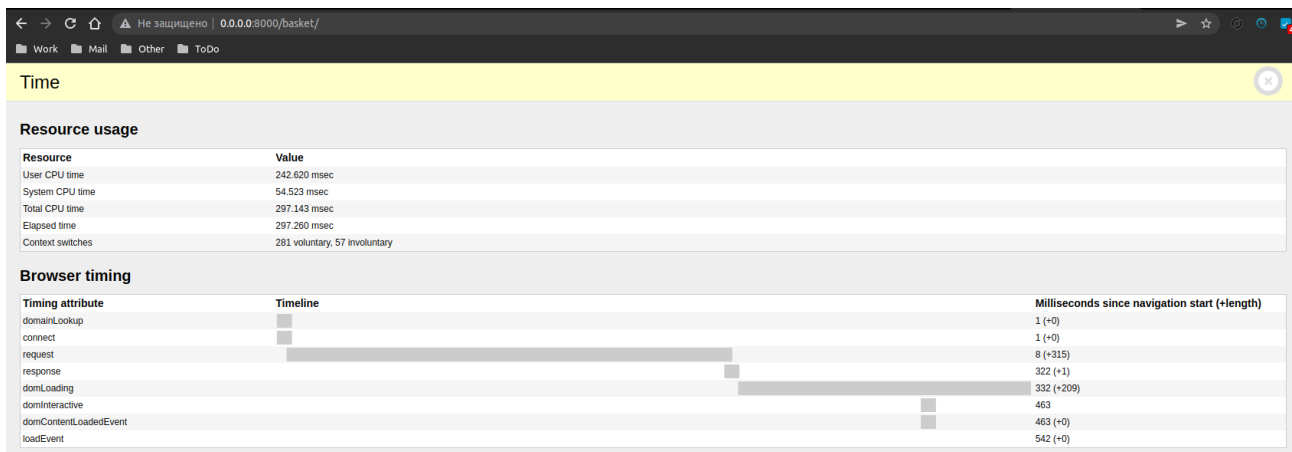
Адрес	Время, msec
0.0.0.0:8000/	269.986
0.0.0.0:8000/products/	267.168
0.0.0.0:8000/contacts/	264.734
0.0.0.0:8000/auth/login/	25.980
0.0.0.0:8000/auth/edit/	113.099
0.0.0.0:8000/order/	92.214
0.0.0.0:8000/order/create/	426.804
0.0.0.0:8000/order/update/12/	381.282
0.0.0.0:8000/order/read/12/	240.029
0.0.0.0:8000/order/delete/12/	186.137
0.0.0.0:8000/basket/	297.143

Самое долгое время загрузки показали страницы создания и редактирования заказа – 426.804 мс и 381.282 мс соответственно.









2. Установить утилиту siege и провести нагрузочное тестирование. Зафиксировать результаты в скриншотах, а так же выявить какие контроллеры работали с ошибками. На скриншотах зафиксировать:

1. Адреса с которыми проводилась осада
2. Результаты до оптимизации (в том числе с фиксацией ошибок перехода на недоступные адреса)
3. Результат после оптимизации

Утилита siege установлена.

Тестирование проведено после добавления LoginRequiredMixin в OrderList, login_required в authnapp/views.py edit и select_related() в get_hot_product_list.

Адреса с которыми проводилась осада

```
http://89.108.78.50/auth/login/?next=/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/contact/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/products/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/products/category/1/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/products/category/2/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/products/category/3/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/products/category/4/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/basket/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/auth/edit/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/auth/register/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/order/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/order/update/3/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/order/update/4/ POST username=admin&password=admin
http://89.108.78.50/auth/login/?next=/order/update/5/ POST username=admin&password=admin
```

Тест на 10 пользователей выполнен успешно.

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop lesson_13 z siege -f /home/vlad/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r15 -c10
** SIEGE 4.0.4
** Preparing 10 concurrent users for battle.
The server is now under siege...
Transactions:      2100 hits
Availability:      100.00 %
Elapsed time:      67.89 secs
Data transferred:  68.46 MB
Response time:     0.28 secs
Transaction rate:  30.93 trans/sec
Throughput:        1.01 MB/sec
Concurrency:       8.65
Successful transactions: 2100
Failed transactions: 0
Longest transaction: 4.65
Shortest transaction: 0.04
```

Тест на 15 пользователей выполнен успешно.

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop lesson_13 z siege -f /home/vlad/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r15 -c15
** SIEGE 4.0.4
** Preparing 15 concurrent users for battle.
The server is now under siege...
Transactions:      3150 hits
Availability:      100.00 %
Elapsed time:      90.13 secs
Data transferred:  102.70 MB
Response time:     0.42 secs
Transaction rate:  32.10 trans/sec
Throughput:        1.05 MB/sec
Concurrency:       13.57
Successful transactions: 3150
Failed transactions: 0
Longest transaction: 5.93
Shortest transaction: 0.04
```

Тесты выше проведены на Mint 20.3.

3.Провести оптимизацию работы с БД в проекте. Зафиксировать результат в скриншотах: до оптимизации, после оптимизации.

Тестирование до оптимизации

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop lesson_13 z siege -f /home/vlad/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop/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:      23.23 secs
Data transferred:  22.82 MB
Response time:     1.52 secs
Transaction rate:  30.13 trans/sec
Throughput:        0.98 MB/sec
Concurrency:       45.86
Successful transactions: 700
Failed transactions: 0
Longest transaction: 20.43
Shortest transaction: 0.04
```

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop lesson_13 z siege -f /home/vlad/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r1 -c150
** SIEGE 4.0.4
** Preparing 150 concurrent users for battle.
The server is now under siege...
Transactions:      2100 hits
Availability:      100.00 %
Elapsed time:      66.34 secs
Data transferred:  68.46 MB
Response time:     4.50 secs
Transaction rate:  31.66 trans/sec
Throughput:        1.03 MB/sec
Concurrency:       142.36
Successful transactions: 2100
Failed transactions: 0
Longest transaction: 50.18
Shortest transaction: 0.04
```

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop lesson_13 z siege -f /home/vlad/Yandex.Disk/GeekBrains/Git/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r1 -c250
** SIEGE 4.0.4
** Preparing 250 concurrent users for battle.
The server is now under siege...
Transactions:      750 hits
Availability:      79.41 %
Elapsed time:      103.56 secs
Data transferred:  24.68 MB
Response time:     25.50 secs
Transaction rate:  7.30 trans/sec
Throughput:        0.24 MB/sec
Concurrency:       186.17
Successful transactions: 855
Failed transactions: 196
Longest transaction: 60.10
Shortest transaction: 0.04
```

Тестирование после добавления select_related()

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop lesson_13 ± siege -f /home/vlad/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop/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:      23.57 secs
Data transferred:  22.82 MB
Response time:     1.55 secs
Transaction rate:  29.70 trans/sec
Throughput:        0.97 MB/sec
Concurrency:       45.96
Successful transactions: 700
Failed transactions: 0
Longest transaction: 20.65
Shortest transaction: 0.04
```

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop lesson_13 ± siege -f /home/vlad/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r1 -c150
** SIEGE 4.0.4
** Preparing 150 concurrent users for battle.
The server is now under siege...
Transactions:      2100 hits
Availability:      100.00 %
Elapsed time:      60.62 secs
Data transferred:  60.46 MB
Response time:     4.50 secs
Transaction rate:  31.52 trans/sec
Throughput:        1.03 MB/sec
Concurrency:       141.72
Successful transactions: 2100
Failed transactions: 0
Longest transaction: 50.20
Shortest transaction: 0.04
```

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop lesson_13 ± siege -f /home/vlad/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r1 -c250
** SIEGE 4.0.4
** Preparing 250 concurrent users for battle.
The server is now under siege...
Transactions:      720 hits
Availability:      70.62 %
Elapsed time:      101.41 secs
Data transferred:  23.77 MB
Response time:     26.38 secs
Transaction rate:  7.04 trans/sec
Throughput:        0.23 MB/sec
Concurrency:       185.70
Successful transactions: 827
Failed transactions: 198
Longest transaction: 60.11
Shortest transaction: 0.04
```

Тестирование после добавления индексов

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop lesson_13 ± siege -f /home/vlad/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop/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:      23.61 secs
Data transferred:  22.82 MB
Response time:     1.54 secs
Transaction rate:  29.65 trans/sec
Throughput:        0.97 MB/sec
Concurrency:       45.79
Successful transactions: 700
Failed transactions: 0
Longest transaction: 20.65
Shortest transaction: 0.04
```

```
(venv) o vlad@moroz ~/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop lesson_13 ± siege -f /home/vlad/Yandex.Disk/GeekBrains/6it/python/django_repeat/geekshop/tmp/test_urls.txt -d1 -r1 -c150
** SIEGE 4.0.4
** Preparing 150 concurrent users for battle.
The server is now under siege...
Transactions:      2086 hits
Availability:      99.95 %
Elapsed time:      67.86 secs
Data transferred:  60.01 MB
Response time:     4.60 secs
Transaction rate:  30.74 trans/sec
Throughput:        1.00 MB/sec
Concurrency:       141.33
Successful transactions: 2086
Failed transactions: 1
Longest transaction: 60.09
Shortest transaction: 0.04
```

```

(venv) vlad@moroz:~/Yandex.Disk/GeekBrains/git/python/django-repeat/geekshop$ lesson_13$ siege -f /home/vlad/Yandex.Disk/GeekBrains/git/python/django-repeat/geekshop/tmp/test_urls.txt -d1 -p1 -c250
** SIEGE 4.0.4
** Preparing 250 concurrent users for battle.
The server is now under siege...
Transactions:      756 hits
Availability:      79.41 %
Elapsed time:      103.83 secs
Data transferred:  24.68 MB
Response time:     25.51 secs
Transaction rate:  7.28 trans/sec
Throughput:        0.24 MB/sec
Concurrency:       185.72
Successful transactions: 855
Failed transactions: 196
Longest transaction: 60.11
Shortest transaction: 0.04

```

Общие результаты оптимизации

	-c150	-c150 + s_r()	-c150 + db_inx	Δ	-c250	-c250 + s_r()	-c250 + db_idx	Δ
Transactions	2100	2100	2086	-14	756	728	756	-
Availability	100%	100%	99.95%	-0.05%	79.41%	78.62%	79.41%	-
Elapsed time	66.34	66.62	67.86	+1.52 c	103.56	103.41	103.83	+0.27
Successful transactions	2100	2100	2086	-14	855	827	855	-
Failed transactions	0	0	1	+1	196	198	196	-

4.(*) Визуализировать структуру моделей проекта при помощи django_extensions.

