LAPORAN TUGAS 10
PEMROGRAMAN JARINGAN

Oleh:

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Kelas : Pemrograman Jaringan B

Dosen Pengampu:

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Tugas 10

Deskripsi Tugas:

1. Pull update terbaru.
2. Jalankan async_server.py pada port 9002, 9003, 9004, 9005 (lihat pada BackendList)
3. Jalankan file lb.py, jalankan di port 44444
4. Jalankan browser, akseslahhttp://localhost:44444/page.html
5. Lihatlah di log program, bahwa setiap request akan dilayani oleh backend yang bergantian
6. Lakukan performance test seperti pada tugas 9, bandingkan penggunaan load balancer dengan async_server dengan server_thread_http pada folder progjar5
7. Buatlah tabel hasilnya

Percobaan:

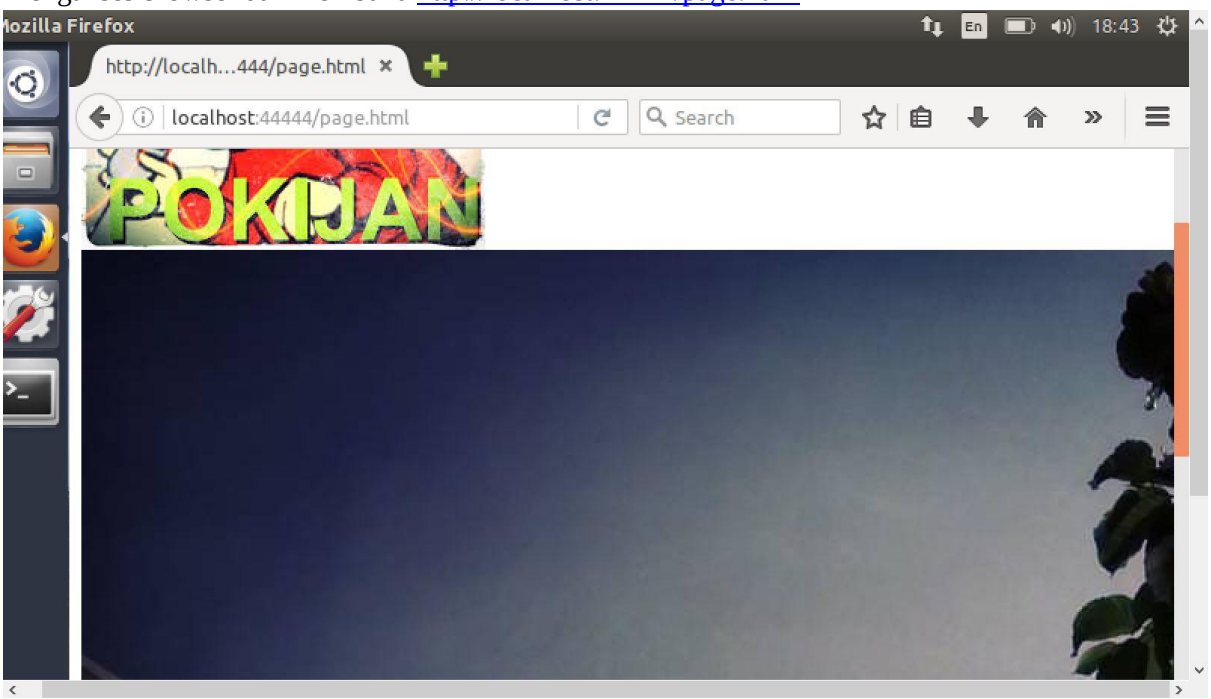
1. Menjalankan runserver.sh

```
ihdiannaja2911@ihdiannaja2911-VirtualBox:~/Documents/progjar/progjar6$ WARNING:r
oot:running on port 9002
WARNING:root:running on port 9005
WARNING:root:running on port 9003
WARNING:root:running on port 9004
```

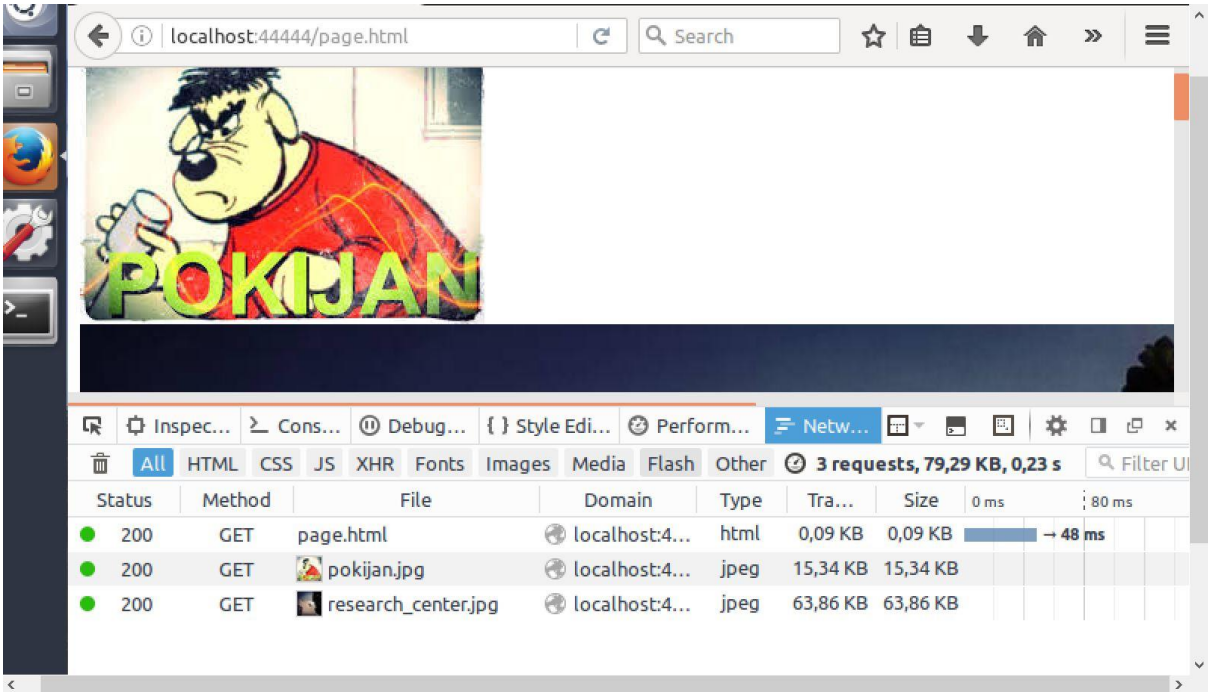
2. Menjalankan lb.py

```
ihdiannaja2911@ihdiannaja2911-VirtualBox:~/Documents/progjar/progjar6$ python3 l
b.py
WARNING:root:load balancer running on port 44444
```

3. Mengakses browser dan membuka http://localhost:44444/page.html



4. Setiap request dilayani oleh port yang berbeda



5. Respon dari file lb.py

```
ihdiannaja2911@ihdiannaja2911-VirtualBox:~/Documents/progjar/progjar6$ python3 l
b.py
WARNING:root:load balancer running on port 44444
WARNING:root:connection from ('127.0.0.1', 45548)
WARNING:root:koneksi dari ('127.0.0.1', 45548) diteruskan ke ('127.0.0.1', 9002)
WARNING:root:connection from ('127.0.0.1', 45552)
WARNING:root:koneksi dari ('127.0.0.1', 45552) diteruskan ke ('127.0.0.1', 9003)
WARNING:root:connection from ('127.0.0.1', 45556)
WARNING:root:koneksi dari ('127.0.0.1', 45556) diteruskan ke ('127.0.0.1', 9004)
WARNING:root:connection from ('127.0.0.1', 45560)
WARNING:root:koneksi dari ('127.0.0.1', 45560) diteruskan ke ('127.0.0.1', 9005)
WARNING:root:connection from ('127.0.0.1', 45564)
WARNING:root:koneksi dari ('127.0.0.1', 45564) diteruskan ke ('127.0.0.1', 9002)
WARNING:root:connection from ('127.0.0.1', 45568)
WARNING:root:koneksi dari ('127.0.0.1', 45568) diteruskan ke ('127.0.0.1', 9003)
```

6. Hasil performance test
   - Load balance dan server asynchronous

No test	Concurrency level	Time taken for test	Complete request	Failed request	Total transferred	Request per second	Time per request	Transfer rate
1.	1	1.945 seconds	1000	0	122000 bytes	514.25 [#/sec] (mean)	1.945 [ms] (mean)	61.27 [Kbytes/sec]
2.	5	2.117 seconds	1000	0	122000 bytes	472.38 [#/sec] (mean)	10.585 [ms]	56.28 [Kbytes/sec]
3	10	1.614 seconds	1000	0	122000 bytes	619.61 [#/sec] (mean)	16.139 [ms]	73.82 [Kbytes/sec]

4	25	2.609 seconds	1000	0	122000 bytes	383.28 [#/sec] (mean)	65.226 [ms]	84.59 [Kbytes/sec]

- Server asynchronous

No test	Concurrency level	Time taken for test	Complete request	Failed request	Total transferred	Request per second	Time per request	Transfer rate
1.	1	1.337 seconds	1000	0	122000 bytes	747.68 [#/sec] (mean)	1.337 [ms] (mean)	89.08 [Kbytes/sec]
2	5	1.411 seconds	1000	0	122000 bytes	708.50 [#/sec] (mean)	7.057 [ms]	84.41 [Kbytes/sec]
3	10	1.420 seconds	1000	0	122000 bytes	704.34 [#/sec] (mean)	14.198 [ms]	83.91 [Kbytes/sec]
4	25	1.433 seconds	1000	0	122000 bytes	698.01 [#/sec] (mean)	35.816 [ms]	83..16 [Kbytes/sec]

- Sever thread

No test	Concurrency level	Time taken for test	Complete request	Failed request	Total transferred	Request per second	Time per request	Transfer rate
1.	1	1.930 seconds	1000	0	122000 bytes	518.04 [#/sec] (mean)	1.930 [ms] (mean)	61.72 [Kbytes/sec]
2.	5	2.117 seconds	1000	0	122000 bytes	472.38 [#/sec] (mean)	10.585 [ms]	56.28 [Kbytes/sec]
3	10	2.322 seconds	1000	0	122000 bytes	430.62 [#/sec] (mean)	23.222 [ms]	51.30 [Kbytes/sec]
4	25	26.924 seconds	1000	0	122000 bytes	37.14 [#/sec] (mean)	673.096 [ms]	4.43 [Kbytes/sec]

Kesimpulan:
Berdasarkan uji coba menggunakan apache benchmark dengan 1000 request, dapat disimpulkan bahwa hasil yang paling optimal dihasilkan dari percobaan server asynchronous dan load balance dibandingkan dengan hanya menggunakan server asynchronous atau thread saja.