

TUGAS INDIVIDU 1 APAP

Proses Pengembangan

Dalam melakukan *coding*, saya mulai pada fitur-fitur yang mudah terlebih dahulu dan hanya mengimplementasi fungsi inti terlebih dahulu di awal waktu. Seperti ketika sedang mengimplementasikan fitur tambah penduduk, saya hanya men-*generate* NIK sampai 12 angka pertama dan langsung melanjutkan ke fitur setelahnya tanpa menyelesaikan fitur tambah penduduk terlebih dahulu, baru kemudian dilakukan iterasi ke fitur-fitur yang belum selesai. Hal ini saya lakukan karena saya berharap dapat menyelesaikannya lebih cepat, tapi ternyata saya salah karena saya rasa justru memperlambat dikarenakan ada hal-hal yang perlu diganti dari implementasi semula, bisa dibilang seperti kerja dua kali.

Optimasi Database

Optimasi yang saya lakukan pada *database* adalah penambahan *index* untuk atribut-atribut yang biasanya muncul dalam *query* seperti atribut-atribut id dan nomor identitas (NKK dan NIK).

Berikut adalah atribut-atribut yang saya jadikan *index*:

- Tabel Penduduk
 - id
 - nik
 - tanggal_lahir (untuk fitur lihat data penduduk termuda dan tertua)
- Tabel Keluarga
 - id
 - nomor_kk
 - id_kelurahan
- Tabel Kelurahan
 - id
 - id_kecamatan
- Tabel Kecamatan
 - id
 - id_kota
- Tabel Kota
 - Id

Stress Testing

Saya mencoba melakukan *stress testing* dengan 100 *number of threads* dan 10 *ramp-up periode*. Saya menguji halaman yang tercepat diakses seperti halaman **lihat data penduduk** dan **lihat data keluarga**, juga halaman yang paling lama diakses seperti halaman **lihat data penduduk berdasarkan kelurahan** (terdapat fitur menampilkan penduduk termuda dan tertua juga). Secara keseluruhan, web yang saya buat cukup *reliable* dengan status JMeter selalu hijau, namun mungkin untuk *response-time* belum begitu optimal karena untuk halaman yang berat seperti halaman **lihat data penduduk berdasarkan kelurahan** diperlukan waktu yang cukup lama, yakni dengan rata-rata hingga 37 detik.

Halaman /penduduk/cari?kt=1&kc=1&kl=1

Apache JMeter (3.2 r1790748)

File Edit Search Run Options Help

Test Plan
Thread Group
HTTP Request
View Results in Table
WorkBench

View Results in Table

Name: View Results in Table

Comments:

Write results to file / Read from file

Filename: Browse...

Log/Display Only: ☐ Errors ☐ Successes

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
1	21:34.46.721	Thread Group 1-10	HTTP Request	36992	✓	519596	146	36956	0
2	21:34.47.121	Thread Group 1-14	HTTP Request	36592	✓	519596	146	36556	1
3	21:34.46.018	Thread Group 1-3	HTTP Request	37665	✓	519596	146	37648	1
4	21:34.46.520	Thread Group 1-8	HTTP Request	37204	✓	519596	146	37180	1
5	21:34.46.118	Thread Group 1-4	HTTP Request	37612	✓	519596	146	37548	0
6	21:34.46.821	Thread Group 1-11	HTTP Request	36916	✓	519596	146	36894	1
7	21:34.46.921	Thread Group 1-12	HTTP Request	36820	✓	519596	146	36795	1
8	21:34.46.418	Thread Group 1-7	HTTP Request	37363	✓	519596	146	37318	1
9	21:34.46.217	Thread Group 1-5	HTTP Request	37695	✓	519596	146	37542	1
10	21:34.47.424	Thread Group 1-17	HTTP Request	36539	✓	519596	146	36501	1
11	21:34.46.620	Thread Group 1-9	HTTP Request	37353	✓	519596	146	37308	1
12	21:34.46.318	Thread Group 1-6	HTTP Request	37686	✓	519596	146	37643	0
13	21:34.45.917	Thread Group 1-2	HTTP Request	38097	✓	519596	146	38070	60
14	21:34.45.872	Thread Group 1-1	HTTP Request	38153	✓	519596	146	38134	105
15	21:34.47.222	Thread Group 1-15	HTTP Request	36805	✓	519596	146	36787	1
16	21:34.47.323	Thread Group 1-16	HTTP Request	36709	✓	519596	146	36690	1
17	21:34.47.021	Thread Group 1-13	HTTP Request	37017	✓	519596	146	36999	1
18	21:34.49.229	Thread Group 1-35	HTTP Request	36827	✓	519596	146	36773	0
19	21:34.50.931	Thread Group 1-52	HTTP Request	36118	✓	519596	146	36096	1
20	21:34.51.030	Thread Group 1-53	HTTP Request	36045	✓	519596	146	35020	1
21	21:34.49.329	Thread Group 1-36	HTTP Request	37770	✓	519596	146	37742	1
22	21:34.51.832	Thread Group 1-61	HTTP Request	35318	✓	519596	146	35299	1
23	21:34.48.225	Thread Group 1-25	HTTP Request	38929	✓	519596	146	38907	1
24	21:34.51.932	Thread Group 1-62	HTTP Request	35241	✓	519596	146	35200	1
25	21:34.49.829	Thread Group 1-41	HTTP Request	37427	✓	519596	146	37328	1
26	21:34.47.726	Thread Group 1-20	HTTP Request	39536	✓	519596	146	39356	1
27	21:34.47.825	Thread Group 1-21	HTTP Request	39437	✓	519596	146	39346	0
28	21:34.52.033	Thread Group 1-63	HTTP Request	35239	✓	519596	146	35225	0
29	21:34.47.624	Thread Group 1-19	HTTP Request	39675	✓	519596	146	39655	1
30	21:34.50.129	Thread Group 1-44	HTTP Request	37270	✓	519596	146	37181	1
31	21:34.50.431	Thread Group 1-47	HTTP Request	37000	✓	519596	146	36870	0
32	21:34.49.428	Thread Group 1-37	HTTP Request	38050	✓	519596	146	37988	1
33	21:34.48.024	Thread Group 1-23	HTTP Request	39454	✓	519596	146	39433	1
34	21:34.48.325	Thread Group 1-26	HTTP Request	39188	✓	519596	146	39163	0

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Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
1	22:19.43.642	Thread Group 1-1	HTTP Request	13	✓	4256	147	13	1
2	22:19.43.740	Thread Group 1-2	HTTP Request	7	✓	4256	147	7	1
3	22:19.43.840	Thread Group 1-3	HTTP Request	9	✓	4256	147	9	1
4	22:19.43.941	Thread Group 1-4	HTTP Request	13	✓	4256	147	13	1
5	22:19.44.042	Thread Group 1-5	HTTP Request	11	✓	4256	147	11	0
6	22:19.44.142	Thread Group 1-6	HTTP Request	12	✓	4256	147	12	1
7	22:19.44.242	Thread Group 1-7	HTTP Request	8	✓	4256	147	8	1
8	22:19.44.343	Thread Group 1-8	HTTP Request	13	✓	4256	147	13	1
9	22:19.44.442	Thread Group 1-9	HTTP Request	15	✓	4256	147	14	1
10	22:19.44.542	Thread Group 1-10	HTTP Request	7	✓	4256	147	7	0
11	22:19.44.642	Thread Group 1-11	HTTP Request	9	✓	4256	147	9	1
12	22:19.44.742	Thread Group 1-12	HTTP Request	8	✓	4256	147	8	1
13	22:19.44.843	Thread Group 1-13	HTTP Request	7	✓	4256	147	6	0
14	22:19.44.943	Thread Group 1-14	HTTP Request	7	✓	4256	147	7	1
15	22:19.45.042	Thread Group 1-15	HTTP Request	7	✓	4256	147	7	1
16	22:19.45.144	Thread Group 1-16	HTTP Request	13	✓	4256	147	13	1
17	22:19.45.244	Thread Group 1-17	HTTP Request	13	✓	4256	147	13	1
18	22:19.45.345	Thread Group 1-18	HTTP Request	9	✓	4256	147	9	1
19	22:19.45.445	Thread Group 1-19	HTTP Request	10	✓	4256	147	10	1
20	22:19.45.544	Thread Group 1-20	HTTP Request	7	✓	4256	147	7	1
21	22:19.45.644	Thread Group 1-21	HTTP Request	8	✓	4256	147	8	1
22	22:19.45.745	Thread Group 1-22	HTTP Request	8	✓	4256	147	8	1
23	22:19.45.845	Thread Group 1-23	HTTP Request	7	✓	4256	147	7	1
24	22:19.45.945	Thread Group 1-24	HTTP Request	7	✓	4256	147	7	1
25	22:19.46.046	Thread Group 1-25	HTTP Request	7	✓	4256	147	7	0
26	22:19.46.146	Thread Group 1-26	HTTP Request	7	✓	4256	147	7	0
27	22:19.46.246	Thread Group 1-27	HTTP Request	9	✓	4256	147	9	0
28	22:19.46.345	Thread Group 1-28	HTTP Request	7	✓	4256	147	7	1
29	22:19.46.445	Thread Group 1-29	HTTP Request	14	✓	4256	147	14	1
30	22:19.46.547	Thread Group 1-30	HTTP Request	6	✓	4256	147	6	0
31	22:19.46.647	Thread Group 1-31	HTTP Request	16	✓	4256	147	15	1
32	22:19.46.746	Thread Group 1-32	HTTP Request	13	✓	4256	147	13	1
33	22:19.46.846	Thread Group 1-33	HTTP Request	11	✓	4256	147	11	2
34	22:19.46.947	Thread Group 1-34	HTTP Request	8	✓	4256	147	8	1

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Configure

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(ms)
1	22:21:42.949	Thread Group 1-2	HTTP Request	486	✓	5549	152	486	1
2	22:21:42.849	Thread Group 1-1	HTTP Request	586	✓	5549	152	586	1
3	22:21:43.050	Thread Group 1-3	HTTP Request	385	✓	5549	152	385	0
4	22:21:43.350	Thread Group 1-6	HTTP Request	1418	✓	5549	152	1418	1
5	22:21:43.450	Thread Group 1-7	HTTP Request	1318	✓	5549	152	1318	1
6	22:21:43.150	Thread Group 1-4	HTTP Request	1618	✓	5549	152	1618	1
7	22:21:43.249	Thread Group 1-5	HTTP Request	1521	✓	5549	152	1521	1
8	22:21:43.550	Thread Group 1-8	HTTP Request	1826	✓	5549	152	1826	1
9	22:21:43.650	Thread Group 1-9	HTTP Request	1734	✓	5549	152	1733	1
10	22:21:44.150	Thread Group 1-14	HTTP Request	2740	✓	5549	152	2740	1
11	22:21:43.951	Thread Group 1-12	HTTP Request	2939	✓	5549	152	2939	1
12	22:21:44.751	Thread Group 1-20	HTTP Request	2140	✓	5549	152	2139	1
13	22:21:44.651	Thread Group 1-19	HTTP Request	2243	✓	5549	152	2243	1
14	22:21:45.252	Thread Group 1-25	HTTP Request	1642	✓	5549	152	1642	1
15	22:21:44.952	Thread Group 1-22	HTTP Request	1945	✓	5549	152	1945	1
16	22:21:45.061	Thread Group 1-23	HTTP Request	1842	✓	5549	152	1842	1
17	22:21:44.351	Thread Group 1-16	HTTP Request	2552	✓	5549	152	2552	1
18	22:21:44.451	Thread Group 1-17	HTTP Request	2453	✓	5549	152	2452	1
19	22:21:45.152	Thread Group 1-24	HTTP Request	1758	✓	5549	152	1758	0
20	22:21:44.051	Thread Group 1-13	HTTP Request	2861	✓	5549	152	2861	1
21	22:21:43.753	Thread Group 1-10	HTTP Request	3163	✓	5549	152	3163	1
22	22:21:44.853	Thread Group 1-21	HTTP Request	2063	✓	5549	152	2063	1
23	22:21:43.849	Thread Group 1-11	HTTP Request	3069	✓	5549	152	3069	1
24	22:21:44.251	Thread Group 1-15	HTTP Request	2668	✓	5549	152	2668	1
25	22:21:45.352	Thread Group 1-26	HTTP Request	1570	✓	5549	152	1570	1
26	22:21:44.551	Thread Group 1-18	HTTP Request	2403	✓	5549	152	2403	0
27	22:21:45.454	Thread Group 1-27	HTTP Request	2680	✓	5549	152	2680	1
28	22:21:45.952	Thread Group 1-32	HTTP Request	2993	✓	5549	152	2993	1
29	22:21:45.652	Thread Group 1-29	HTTP Request	3293	✓	5549	152	3293	1
30	22:21:45.758	Thread Group 1-30	HTTP Request	3188	✓	5549	152	3188	1
31	22:21:45.852	Thread Group 1-31	HTTP Request	3097	✓	5549	152	3096	1
32	22:21:46.053	Thread Group 1-33	HTTP Request	2900	✓	5549	152	2900	1
33	22:21:45.553	Thread Group 1-28	HTTP Request	3405	✓	5549	152	3405	1
34	22:21:47.054	Thread Group 1-43	HTTP Request	2811	✓	5549	152	2811	0

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No of Samples 100 Latest Sample 3210 Average 3912 Deviation 1555