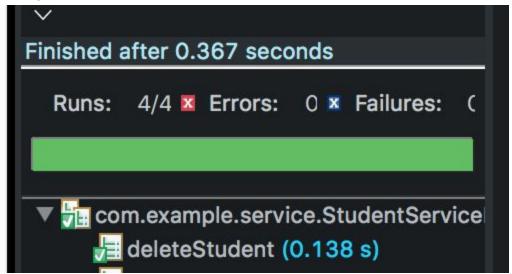
Nama: Muhammad Kamal

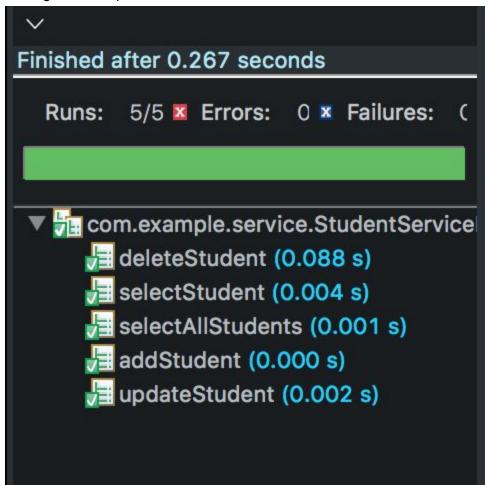
NPM: 1606954905

Tutorial 06

- Tambahkan code berikut pada StudentServiceDatabaseTest dan jelaskan apa yang terjadi pada method tersebut berikut dengan hasil testing-nya! (Screenshot hanya opsional dan tidak akan mempengaruhi nilai)
 - a. Pada testing ini, melakukan testing dengan menyiapkan object list all dari student, pada code //given, disiapkan object list student model serta return list of student model, dan pada code //when di initiate object yang melakukan panggil select all student.
 - Pada code //then, dilakukan pengecekan, yaitu not null, cek isi konten apakah sama atau tidak, lalu size dari yang direturn, apakah sama atau tidak. Hasilnya adalah testing pass
- 2. Pada testing ini, melakukan testing untuk insert add student, hasilnya dilakukan pengecekan apakah hasil return true atau tidak, untuk menentukan apakah berhasil atau tidak melakukan insert data student baru.
- 3. Testing method delete student



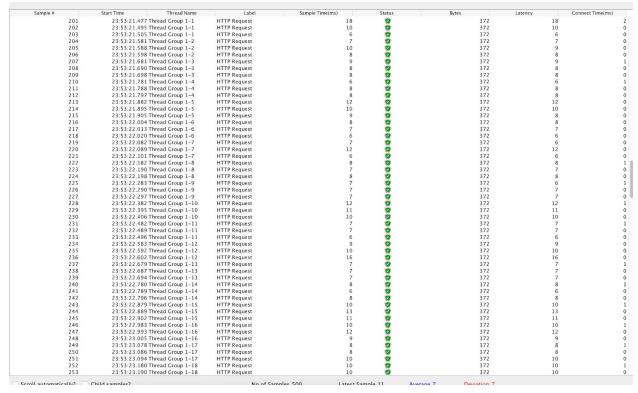
4. Testing method update student



Latihan load testing

- 1. Jmeter load testing sebelum dipotimasi
 - a. jmeter_selectStudentBerhasilMenggunakan select student url berikut :

http://localhost:8080/student/view/1506737823



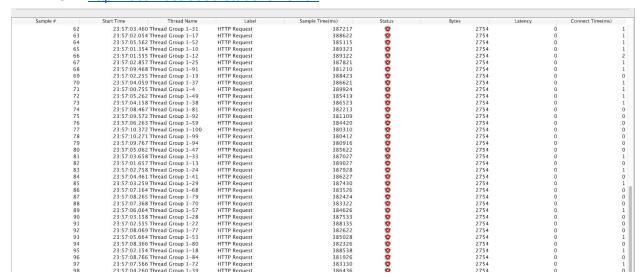
b. jmeter_selectStudentGagal

http://localhost:8080/student/view/150673782 - not found

Scroll automatically? C	hild samples?	No of Samples 800	Latest Samp	le 9 Ave	erage 7 Deviation 6		
549	23:54:56.270 Thread Group 1-17	HTTP Request	6	a	341	6	
548	23:54:56.182 Thread Group 1-16	HTTP Request	7		341	7	
547	23:54:56.176 Thread Group 1-16	HTTP Request	6		341	6	
546	23:54:56.169 Thread Group 1-16	HTTP Request	7		341	7	
545	23:54:56.081 Thread Group 1-15	HTTP Request	7		341	7	
544	23:54:56.075 Thread Group 1-15	HTTP Request	6		341	6	
543	23:54:56.067 Thread Group 1-15	HTTP Request	8		341	7	
542	23:54:55.980 Thread Group 1-14	HTTP Request	8	Ø	341	8	
541	23:54:55.974 Thread Group 1-14	HTTP Request	6	0	341	5	
540	23:54:55.967 Thread Group 1-14	HTTP Request	6	0	341	6	
539	23:54:55.885 Thread Group 1-13	HTTP Request	6	0	341	6	
538	23:54:55.876 Thread Group 1-13	HTTP Request	8	0	341	8	
537	23:54:55.869 Thread Group 1-13	HTTP Request	6	Ø	341	6	
536	23:54:55.778 Thread Group 1-12	HTTP Request	5	0	341	5	
535	23:54:55.773 Thread Group 1-12	HTTP Request	5	9	341	5	
534	23:54:55.767 Thread Group 1-12	HTTP Request	5	9	341	5	
533	23:54:55.686 Thread Group 1-11	HTTP Request	6	0	341	6	
532	23:54:55.678 Thread Group 1-11	HTTP Request	8	0	341	8	
531	23:54:55.669 Thread Group 1-11	HTTP Request	9	0	341	9	
530	23:54:55.580 Thread Group 1-10	HTTP Request	7	9	341	7	
529	23:54:55.574 Thread Group 1-10	HTTP Request	6	0	341	6	
528	23:54:55.567 Thread Group 1-10	HTTP Request	7	2	341	7	
527	23:54:55.478 Thread Group 1-9	HTTP Request	7	0	341	7	
526	23:54:55.472 Thread Group 1-9	HTTP Request	6	~	341		
	23:54:55.466 Thread Group 1-9	HTTP Request		0		6	
524 525	23:54:55.381 Thread Group 1-8	HTTP Request	6	0	341 341	6	
523		HTTP Request	6	0	341 341	6	
523	23:54:55.368 Thread Group 1-8 23:54:55.375 Thread Group 1-8	HTTP Request	6	ĕ	341	6	
521		HTTP Request	7	8	341	7	
521	23:54:55.274 Thread Group 1-7 23:54:55.280 Thread Group 1-7		8	8	341	8	
520	23:54:55.267 Thread Group 1-7 23:54:55.274 Thread Group 1-7	HTTP Request	6	8	341	6	
519	23:54:55.267 Thread Group 1-7	HTTP Request	7	8	341	7	
518	23:54:55.180 Thread Group 1-6	HTTP Request	7	8	341	7	
517	23:54:55.175 Thread Group 1-6	HTTP Request	5	0	341	5	
516	23:54:55.168 Thread Group 1-6	HTTP Request	7	ŏ	341	7	
515	23:54:55.081 Thread Group 1-5	HTTP Request	10	ŏ	341	10	
514	23:54:55.075 Thread Group 1-5	HTTP Request	5	ŏ	341	5	
513	23:54:55.068 Thread Group 1-5	HTTP Request	6	ŏ	341	6	
512	23:54:54.979 Thread Group 1-4	HTTP Request	8	ĕ	341	7	
511	23:54:54.977 Thread Group 1-4	HTTP Request	5	0	341	5	
510	23:54:54.967 Thread Group 1-4	HTTP Request	6	0	341	6	
509	23:54:54.881 Thread Group 1-3	HTTP Request	6	0	341	6	
508	23:54:54.874 Thread Group 1-3	HTTP Request	7	Ö	341	7	
507	23:54:54.866 Thread Group 1-3	HTTP Request	7	0	341	7	
506	23:54:54.778 Thread Group 1-2	HTTP Request	4	ö	341	4	
505	23:54:54.772 Thread Group 1-2	HTTP Request	5	Ö	341	5	
504	23:54:54.766 Thread Group 1-2	HTTP Request	6	Ø	341	6	
503	23:54:54.683 Thread Group 1-1	HTTP Request	7	Ø	341	7	
502	23:54:54.674 Thread Group 1-1	HTTP Request	9	8	341 341	9	
501	23:54:54.663 Thread Group 1-1	HTTP Request	11			11	

c. jmeter_selectAllStudents

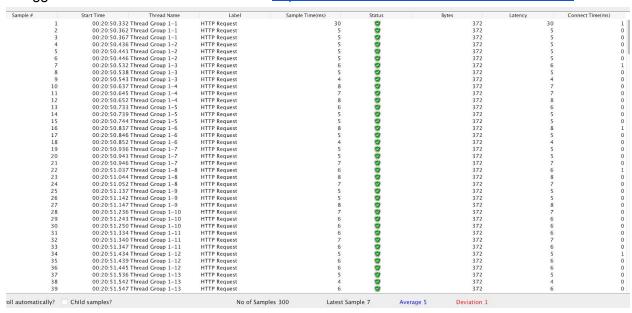
Url: http://localhost:8080/student/viewall



Setelah optimasi, menambahkan index

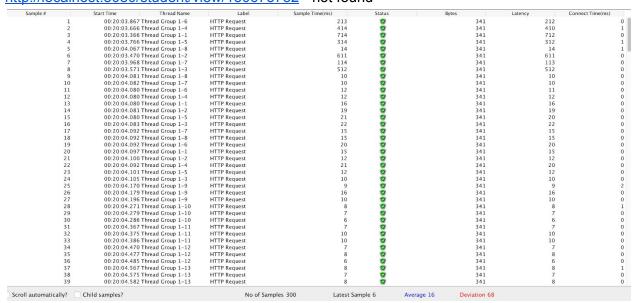
1. jmeter_selectStudentBerhasil

Menggunakan select student url berikut : http://localhost:8080/student/view/1506737823



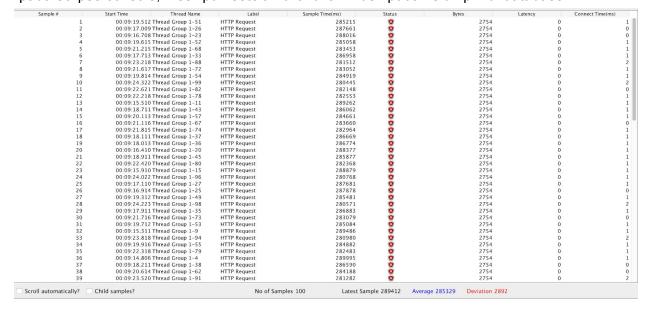
2. jmeter_selectStudentGagal

http://localhost:8080/student/view/150673782 - not found



3. jmeter_selectAllStudents

Setelah di index, masih tetap gagal, ada kemungkinan akses yang masih timeout - muncul error 'java.lang.OutOfMemoryError: GC overhead limit exceeded ' pada eclipse console, meskipun setelah dilakukan index pada field npm di database



Dari tutorial ini, dapat dipelajari bagaimana melakukan proses unit testing dan load testing terhadap aplikasi yang kita bangun.