About

Pada penelitian ini akan melakukan uji coba eksekusi sintaks SQL untuk mencari sintaks yang lebih optimal bedasarkan waktu eksekusi, lebih kecil waktu eksekusi maka lebih optimal.

Keterangan database yang digunakan

```
SHOW TABLES;
```

	Tables_in_kode_desa
0	desa
1	kab
2	kec
3	prov

Tabel prov

```
DESCRIBE prov;
```

	Field	Type	Null	Key	Default	Extra
0	id_prov	varchar(13)	NO	PRI	None	
1	nm_prov	text	YES		None	

	COUNT(*)
0	35

Tabel kab

```
DESCRIBE kab;
```

	Field	Type	Null	Key	Default	Extra
0	id_prov	varchar(13)	NO	MUL	None	
1	id_kab	varchar(13)	NO	PRI	None	
2	nm_kab	text	YES		None	

	COUNT(*)
0	515

Tabel kec

```
DESCRIBE kec;
```

	Field	Type	Null	Key	Default	Extra
0	id_prov	varchar(13)	NO	MUL	None	

	Field	Type	Null	Key	Default	Extra
1	id_kab	varchar(13)	NO	MUL	None	
2	id_kec	varchar(13)	NO	PRI	None	
3	nm_kec	text	YES		None	

	COUNT(*)
0	7203

Tabel desa

```
DESCRIBE desa;
```

	Field	Type	Null	Key	Default	Extra
0	id_desa	varchar(15)	NO	PRI	None	
1	id_prov	varchar(13)	NO	MUL	None	
2	id_kab	varchar(13)	NO	MUL	None	
3	id_kec	varchar(13)	NO	MUL	None	
4	nm_desa	text	YES		None	
5	st_desa	text	YES		None	

COUNT 83437

	COUNT(*)
0	83437

Kondisi sistem yang digunakan

System:

```
Kernel: 5.15.0-76-generic x86_64 bits: 64 compiler: gcc v: 11.3.0 Desktop:
Xfce 4.18.1
```

```
tk: Gtk 3.24.33 wm: xfwm dm: LightDM Distro: Linux Mint 21.2 Victoria base:
Ubuntu 22.04 jammy
```

Machine:

```
Type: Laptop System: LENOVO product: 81ST v: Lenovo IdeaPad S145-14AST

serial: <superuser required> Chassis: type: 10 v: Lenovo IdeaPad S145-14AST

serial: <superuser required>

Mobo: LENOVO model: LNVNB161216 v: SDK0Q55754WIN serial: <superuser required>
UEFI: LENOVO

v: AYCN21WW date: 03/05/2020
```

Battery:

```
ID-1: BAT0 charge: 13.6 Wh (54.8%) condition: 24.8/30.6 Wh (81.1%) volts: 7.5
min: 7.6

model: CPT-COS L16C2PB2 serial: <filter> status: Discharging
```

CPU:

```
Info: dual core model: AMD A4-9125 RADEON R3 4 COMPUTE CORES 2C+2G bits: 64
type: MCP

arch: Excavator rev: 0 cache: L1: 192 KiB L2: 2 MiB

Speed (MHz): avg: 2096 min/max: 1300/2300 boost: enabled cores: 1: 2096 2:
2096 bogomips: 9182

Flags: avx avx2 ht lm nx pae sse sse2 sse3 sse4_1 sse4_2 sse4a ssse3 svm
```

Graphics:

```
Device-1: AMD Stoney [Radeon R2/R3/R4/R5 Graphics] vendor: Lenovo driver:
amdgpu v: kernel

ports: active: eDP-1 empty: HDMI-A-1 bus-ID: 00:01.0 chip-ID: 1002:98e4

Device-2: IMC Networks Integrated Camera type: USB driver: uvcvideo bus-ID:
1-1.3:4
```

```
chip-ID: 13d3:5a08

Display: x11 server: X.Org v: 1.21.1.4 compositor: xfwm v: 4.18.0 driver: X:

loaded: amdgpu,ati unloaded: fbdev,modesetting,vesa gpu: amdgpu display-ID:
:0.0 screens: 1

Screen-1: 0 s-res: 1366x768 s-dpi: 96

Monitor-1: eDP res: 1366x768 dpi: 112 diag: 354mm (13.9")

OpenGL: renderer: STONEY (stoney LLVM 15.0.7 DRM 3.42 5.15.0-76-generic)
v: 4.5 Mesa 23.0.4-0ubuntu1~22.04.1 direct render: Yes
```

Audio:

```
Device-1: AMD vendor: Lenovo driver: snd_hda_intel v: kernel bus-ID: 00:01.1
chip-ID: 1002:15b3

Device-2: AMD Family 15h Audio vendor: Lenovo driver: snd_hda_intel v: kernel
bus-ID: 00:09.2
chip-ID: 1022:157a

Sound Server-1: ALSA v: k5.15.0-76-generic running: yes
Sound Server-2: PulseAudio v: 15.99.1 running: yes

Sound Server-3: PipeWire v: 0.3.48 running: yes
```

Network:

```
Device-1: Qualcomm Atheros QCA9377 802.11ac Wireless Network Adapter vendor:
Lenovo

driver: ath10k_pci v: kernel pcie: speed: 2.5 GT/s lanes: 1 bus-ID: 02:00.0
chip-ID: 168c:0042

IF: wlp2s0 state: up mac: <filter>
```

Bluetooth:

```
Device-1: Qualcomm Atheros type: USB driver: btusb v: 0.8 bus-ID: 1-1.2:3
chip-ID: 0cf3:e500

Report: hciconfig ID: hci0 rfk-id: 2 state: down bt-service: enabled,running
rfk-block:
```

```
hardware: no software: yes address: <filter>
```

Drives:

```
Local Storage: total: 238.47 GiB used: 33.81 GiB (14.2%)
ID-1: /dev/sda model: JOINT SATA 2.5 SSD H500 256GB size: 238.47 GiB speed:
6.0 Gb/s

serial: <filter>
```

Partition:

```
ID-1: / size: 156.53 GiB used: 33.77 GiB (21.6%) fs: ext4 dev: /dev/sda4

ID-2: /boot/efi size: 252 MiB used: 40.6 MiB (16.1%) fs: vfat dev: /dev/sda1
```

Swap:

```
ID-1: swap-1 type: file size: 2 GiB used: 59.5 MiB (2.9%) priority: -2 file:
/swapfile
```

USB:

```
Hub-1: 1-0:1 info: Full speed or root hub ports: 2 rev: 2.0 speed: 480 Mb/s
chip-ID: 1d6b:0002

Hub-2: 1-1:2 info: Advanced Micro Devices Root Hub ports: 4 rev: 2.0 speed:
480 Mb/s

chip-ID: 0438:7900

Device-1: 1-1.2:3 info: Qualcomm Atheros type: Bluetooth driver: btusb rev:
2.0 speed: 12 Mb/s

chip-ID: 0cf3:e500

Device-2: 1-1.3:4 info: IMC Networks Integrated Camera type: Video driver:
uvcvideo rev: 2.0

speed: 480 Mb/s chip-ID: 13d3:5a08

Device-3: 1-1.4:5 info: China Resource Semico Keyboard type: Keyboard,HID
```

```
driver: hid-generic,usbhid rev: 1.1 speed: 1.5 Mb/s chip-ID: 1a2c:2124
Hub-3: 2-0:1 info: Hi-speed hub with single TT ports: 4 rev: 2.0 speed: 480
Mb/s

chip-ID: 1d6b:0002

Device-1: 2-1:2 info: SHARKOON GmbH [Mediatrack Edge Mini Keyboard] type:
Keyboard,Mouse

driver: hid-generic,usbhid rev: 1.1 speed: 12 Mb/s chip-ID: 1ea7:0066

Hub-4: 3-0:1 info: Super-speed hub ports: 4 rev: 3.0 speed: 5 Gb/s chip-ID:
1d6b:0003
```

Sensors:

```
System Temperatures: cpu: 56.4 C mobo: N/A gpu: amdgpu temp: 56.0 C

Fan Speeds (RPM): N/A
```

Repos: Packages: apt: 2416

```
No active apt repos in: /etc/apt/sources.list

Active apt repos in: /etc/apt/sources.list.d/microsoft-edge.list
    1: deb [arch=amd64] https: //packages.microsoft.com/repos/edge/ stable
main

Active apt repos in: /etc/apt/sources.list.d/obsproject-obs-studio-jammy.list
    1: deb [signed-by=/etc/apt/keyrings/obsproject-obs-studio-jammy.gpg]
https: //ppa.launchpadcontent.net/obsproject/obs-studio/ubuntu jammy main

Active apt repos in: /etc/apt/sources.list.d/official-package-
repositories.list
    1: deb http: //packages.linuxmint.com victoria main upstream import
backport
    2: deb http: //archive.ubuntu.com/ubuntu jammy main restricted universe
multiverse
    3: deb http: //archive.ubuntu.com/ubuntu jammy-updates main restricted
universe multiverse
    4: deb http: //archive.ubuntu.com/ubuntu jammy-backports main restricted
universe multiverse
    5: deb http: //security.ubuntu.com/ubuntu/ jammy-security main restricted
universe multiverse

Active apt repos in: /etc/apt/sources.list.d/vscode.list
    1: deb [arch=amd64,arm64,armhf] http: //packages.microsoft.com/repos/code
stable main
```

Info:

```
Processes: 253 Uptime: 1h 24m Memory: 3.22 GiB used: 2.21 GiB (68.6%) Init:
systemd v: 249

runlevel: 5 Compilers: gcc: 11.3.0 alt: 11/12 Client: Unknown python3.10
client inxi: 3.3.13
```

DBMS:

```
database: Sqlite3
```

Eksekusi

SELECT

- Eksekusi 1

```
SELECT * FROM kab;
```

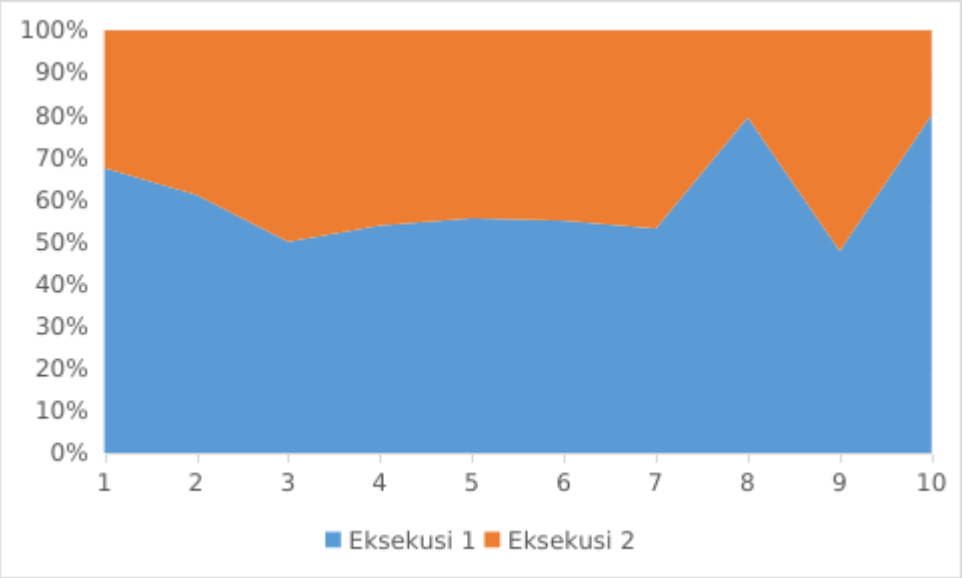
- Eksekusi 2

```
SELECT nm_kab FROM kab;
```

Result

time	Eksekusi 1	Eksekusi 2
1	0,029	0,014
2	0,022	0,014
3	0,012	0,012
4	0,014	0,012
5	0,020	0,016

time	Eksekusi 1	Eksekusi 2
6	0,011	0,009
7	0,017	0,015
8	0,027	0,007
9	0,011	0,012
10	0,024	0,006
sum	**0,187**	**0,117**



WHERE

Data Type Match

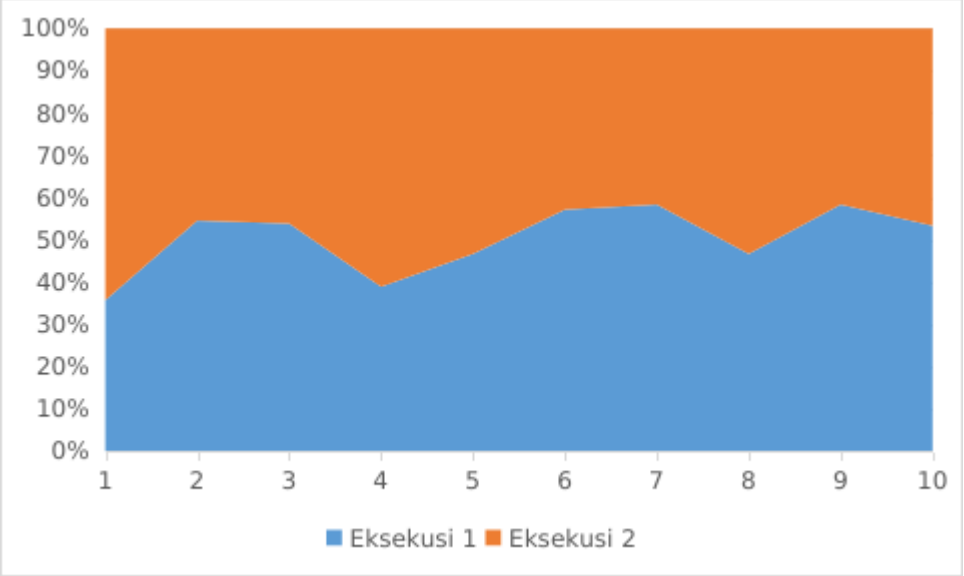
- Eksekusi 1

```
SELECT nm_kab FROM kab
WHERE id_prov='32';
```

- Eksekusi 2

```
SELECT nm_kab FROM kab
WHERE id_prov=32;
```

time	Eksekusi 1	Eksekusi 2
1	0,005	0,009
2	0,006	0,005
3	0,007	0,006
4	0,007	0,011
5	0,007	0,008
6	0,008	0,006
7	0,007	0,005
8	0,007	0,008
9	0,007	0,005
10	0,008	0,007
sum	**0,069**	**0,07**



ByteByteGo: Secret To Optimizing SQL Queries - Understand The SQL Execution Order

```
SELECT
FROM
JOIN
ON
```

```
WHERE
GROUP BY
HAVING
ORDER BY
LIMIT
```

Kode di atas merupakan saran Susunan Eksekusi untuk mengoptimalkan waktu yang dibutuhkan

WHERE | HAVING

Kesimpulan Umum

Dari kombinasi ekseskusi yang dilakukan berpengaruh terhadap waktu yang di butuhkan, hal tersebut menandakan memory temporary sangant berpengaruh.