1. **Server Jalan**

```
        transactional.id.expiration.ms = 604800000
        unclean.leader.election.enable = false
        unclean.leader.election.interval.ms = 300000
        unstable.api.versions.enable = false
        unstable.feature.versions.enable = false
 (org.apache.kafka.common.config.AbstractConfig)
[2026-03-10 09:38:20,352] INFO [BrokerServer id=1] Waiting for the broker to be unfenced (kafka.server.BrokerServer)
[2026-03-10 09:38:20,388] INFO [BrokerLifecycleManager id=1] The broker has been unfenced. Transitioning from RECOVERY t
o RUNNING. (kafka.server.BrokerLifecycleManager)
[2026-03-10 09:38:20,389] INFO [BrokerServer id=1] Finished waiting for the broker to be unfenced (kafka.server.BrokerSe
rver)
[2026-03-10 09:38:20,390] INFO authorizerStart completed for endpoint PLAINTEXT. Endpoint is now READY. (org.apache.kafk
a.server.network.EndpointReadyFutures)
[2026-03-10 09:38:20,390] INFO [SocketServer listenerType=BROKER, nodeId=1] Enabling request processing. (kafka.network.
SocketServer)
[2026-03-10 09:38:20,391] INFO Awaiting socket connections on 0.0.0.0:9092. (kafka.network.DataPlaneAcceptor)
[2026-03-10 09:38:20,392] INFO [BrokerServer id=1] Waiting for all of the authorizer futures to be completed (kafka.serv
er.BrokerServer)
[2026-03-10 09:38:20,392] INFO [BrokerServer id=1] Finished waiting for all of the authorizer futures to be completed (k
afka.server.BrokerServer)
[2026-03-10 09:38:20,392] INFO [BrokerServer id=1] Waiting for all of the SocketServer Acceptors to be started (kafka.se
rver.BrokerServer)
[2026-03-10 09:38:20,392] INFO [BrokerServer id=1] Finished waiting for all of the SocketServer Acceptors to be started
(kafka.server.BrokerServer)
[2026-03-10 09:38:20,393] INFO [BrokerServer id=1] Transition from STARTING to STARTED (kafka.server.BrokerServer)
[2026-03-10 09:38:20,394] INFO Kafka version: 4.2.0 (org.apache.kafka.common.utils.AppInfoParser)
[2026-03-10 09:38:20,394] INFO Kafka commitId: a18251bae0b825c6 (org.apache.kafka.common.utils.AppInfoParser)
[2026-03-10 09:38:20,394] INFO Kafka startTimeMs: 1773110300393 (org.apache.kafka.common.utils.AppInfoParser)
[2026-03-10 09:38:20,397] INFO [KafkaRaftServer nodeId=1] Kafka Server started (kafka.server.KafkaRaftServer)
```

Buat topik baru

```
PS C:\kafka> .\bin\windows\kafka-topics.bat --create --topic quickstart-events --bootstrap-server localhost:9092
2026-03-10T02:39:25.769607500Z main ERROR Reconfiguration failed: No configuration found for '2c7b84de' at 'null' in 'nu
ll'
Created topic quickstart-events.
```

Berdasarkan tangkapan layar, server sudah berjalan ketika ada transisi dari STARTING ke STARTED ketika menjalankan server. Topic baru berhasil terbuat ketika ada pesan “Created topic quickstart-events” muncul di layar.

2. **Consumer menerima event**

```
PS C:\kafka> .\bin\windows\kafka-console-consumer.bat --topic quickstart-events --from-beginning --bootstrap-server loca
lhost:9092
2026-03-10T02:40:02.035169700Z main ERROR Reconfiguration failed: No configuration found for '2c7b84de' at 'null' in 'nu
ll'
test
a
a
a
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```
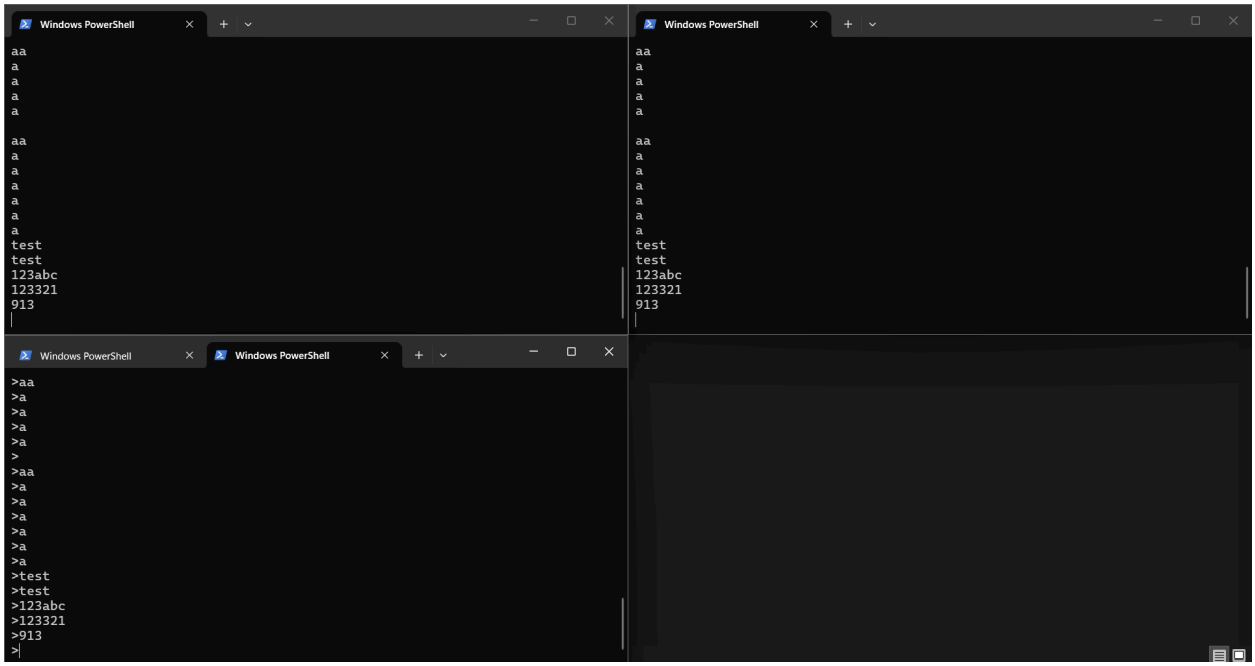
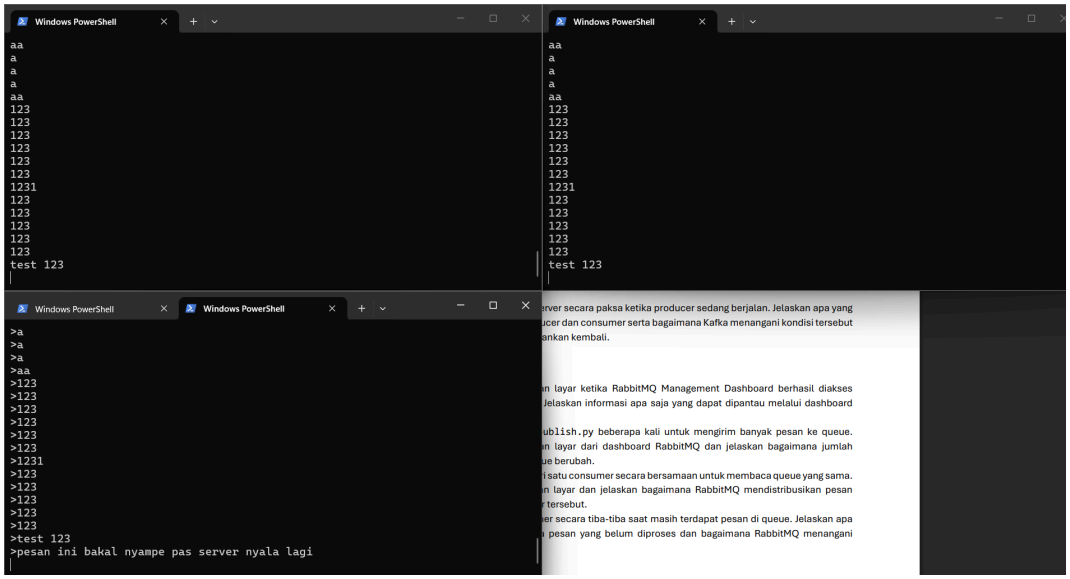

Ketika mengirim banyak data, terdapat semacam *delay* yang dapat diobservasi, meskipun *delay*-nya sebentar ketika data diterima oleh consumer. Ketika producer mengirim data dalam jumlah yang besar berterus-terus, maka consumer akan tetap memproses data sesuai dengan kemampuannya sehingga jarak antara data yang dikirim producer dan data yang diproses consumer bisa semakin menjauh. Namun, data yang dikirim tidak akan hilang dan masih akan bisa diproses oleh consumer.

3. Mengirim ke dua consumer

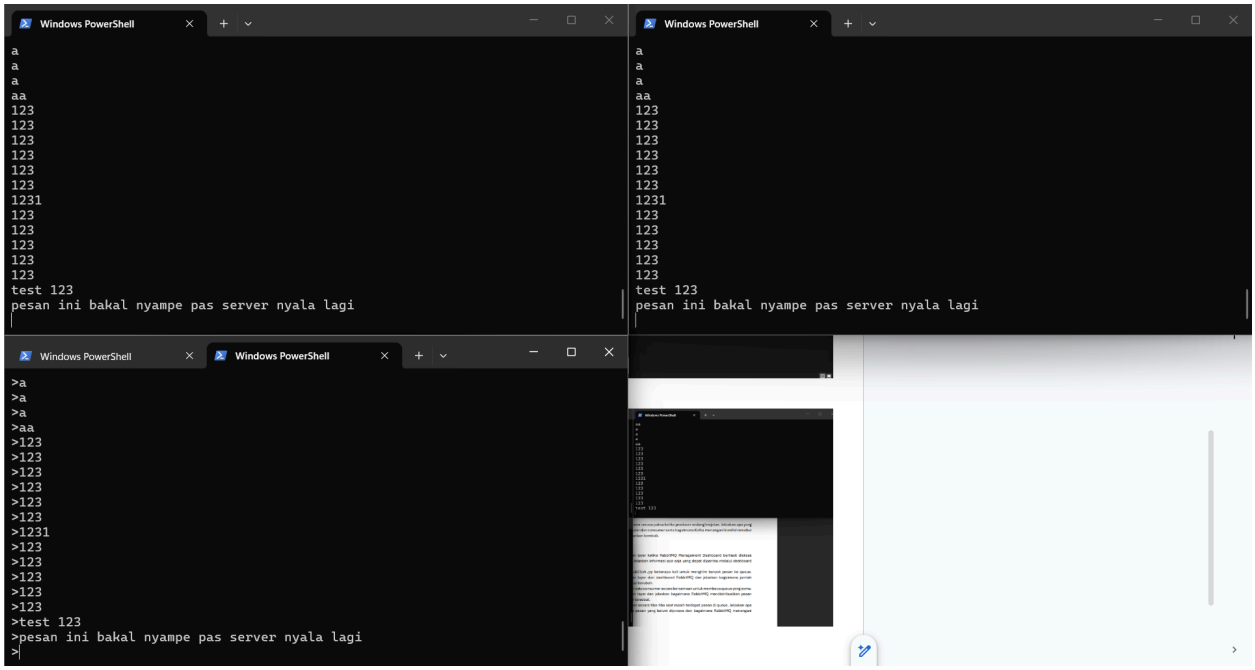


Pada skenario ini, tiap-tiap consumer dapat membaca data yang sama yang dikirim oleh producer seperti skenario subscriber-publisher karena ketika membuat dua consumer yang berbeda tanpa parameter *group*, maka Kafaka akan meng-*assign* kedua consumer tersebut ke *group* yang berbeda.

4. Server dimatikan



Server dinyalakan kembali



Pada saat server mati, producer tetap mencoba untuk mengirimkan pesan dan consumer akan tetap mencoba menyambung kembali ke server. Namun, pesan yang dikirim saat server mati akan tetap ada di disk sehingga ketika server menyala kembali, producer dan consumer akan secara otomatis mendeteksi server sudah aktif, membaca log file yang ada di disk dan melanjutkan aktivitasnya masing-masing.

5. Informasi Dashboard

- **Overview:**

  health check RabbitMQ, termasuk penggunaan RAM, kapasitas disk, jumlah proses erlang, dan message rate

- **Connections:**

  Daftar aplikasi (producer/consumer) yang terhubung pada RabbitMQ

- **Channels:**

  Memantau saluran dalam sebuah koneksi TCP.

- **Exchanges:**

  Router yang bertugas menerima pesan dari Producer dan mengarahkan ke queue berdasarkan routing

- **Queues and Streams:**

Tempat untuk memantau queue, dapat dilihat statusnya, yaitu ready dan unacked serta total pesan dari tiap queue

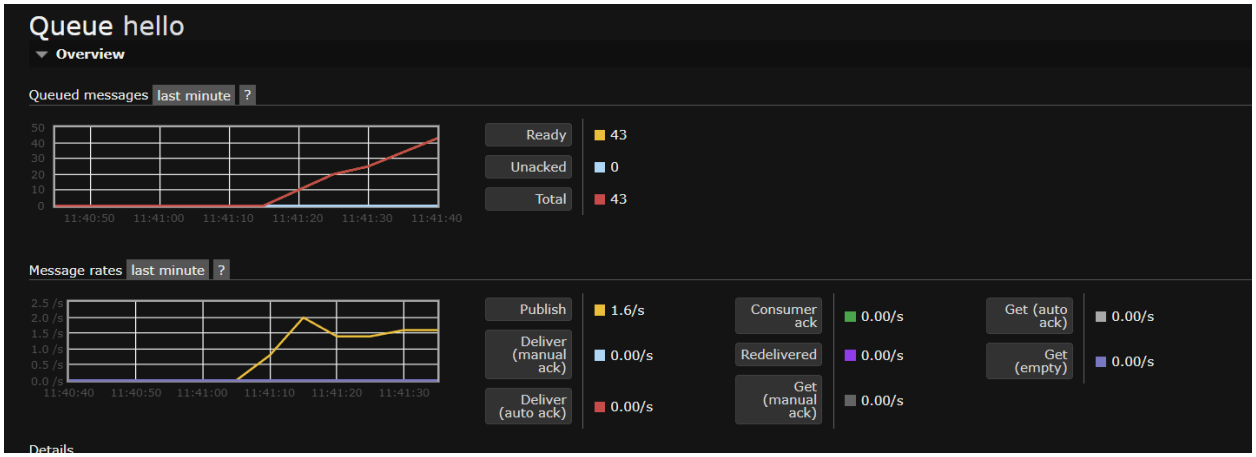
- **Admin:**

  Tempat mengelola users dan hak akses.

  Referensi:

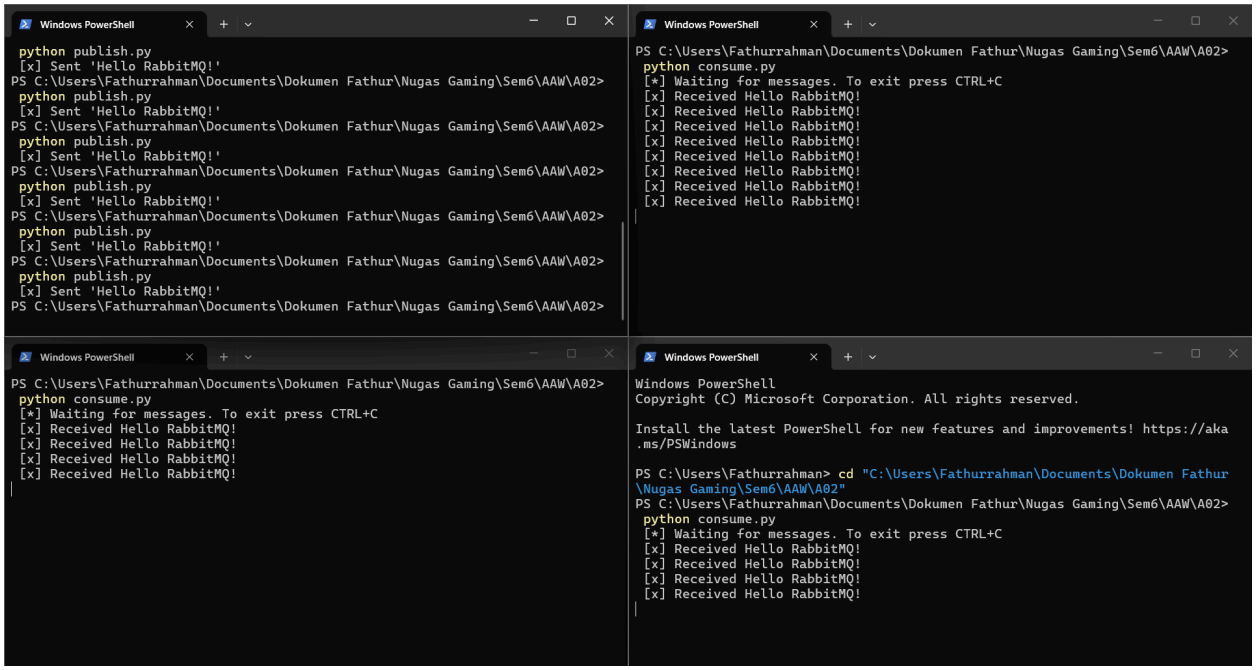
  https://www.rabbitmq.com/docs

6. **Menjalankan publish.py**



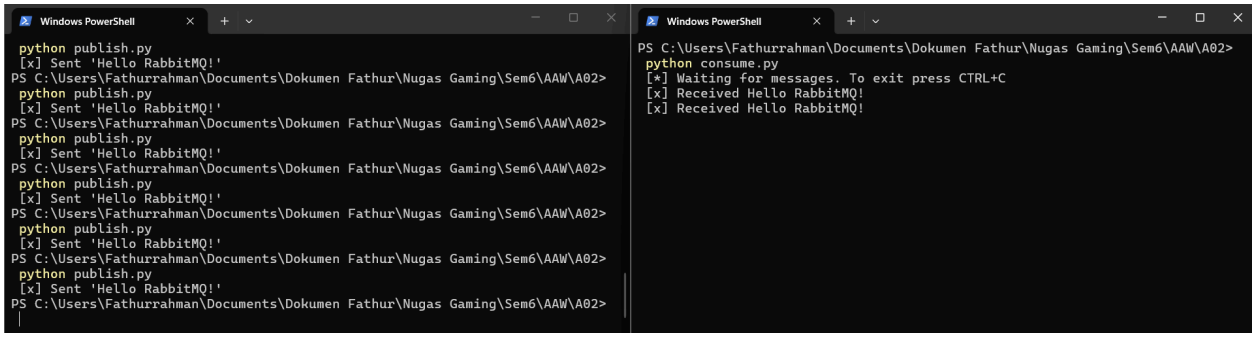
Grafik Ready dan Total akan naik seiring publish.py dijalankan. Ketika producer mengirim pesan tanpa ada yang membaca, RabbitMQ berperan sebagai *buffer* dan disimpan sampai ada consumer yang terhubung.

7. **Distribusi pesan**



Distribusi pesan dilakukan secara round-robin atau bergantian antarconsumer. Pesan pertama diberikan ke consumer satu, pesan kedua diberikan ke consumer dua, pesan ketiga diberikan ke consumer tiga, pesan keempat diberikan ke consumer satu, dan seterusnya. Pembagian seperti ini berguna untuk load balancing, terutama jika Waktu proses satu pesan memakan waktu lama.

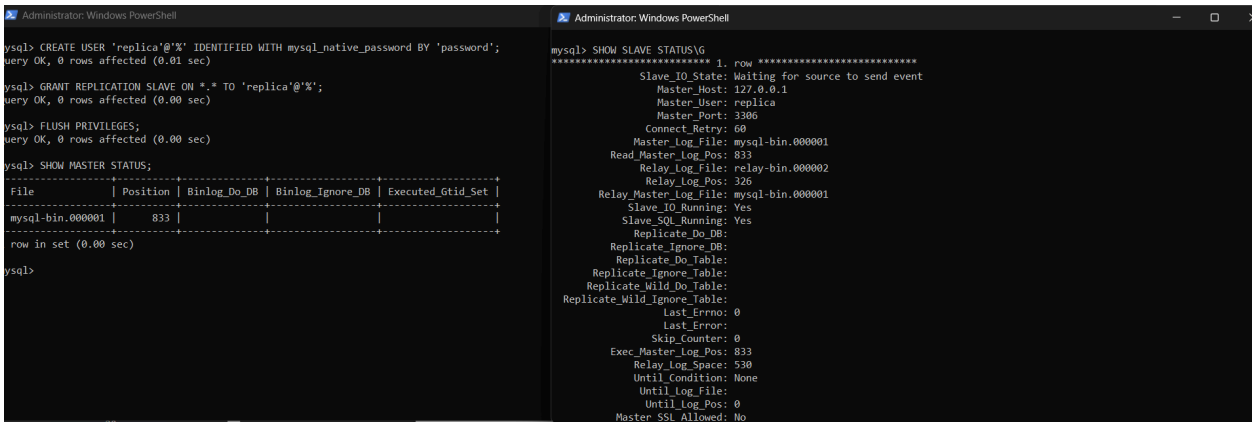
8. Consumer berhenti

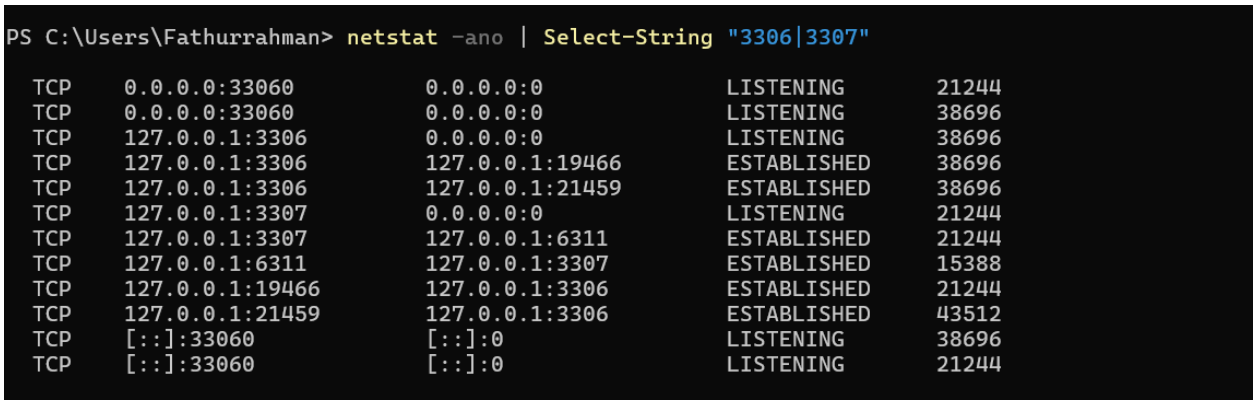


Saat RabbitMQ memberikan pesan ke consumer, Ketika consumer mati secara paksa, pesan tersebut ditandai sebagai unacked karena consumer mati sebelum pesan ack. Dengan mekanisme dari RabbitMQ, pesan akan diantrekan Kembali ke queue dan

mengganti status menjadi ready secara otomatis. Jadi, Ketika consumer sudah menyala Kembali, pesan yang ready akan dikirimkan ke consumer dan akan muncul pada layar.

9.Memastikan database berjalan bersama





Master dan Slave berhasil dijalankan. Melakukan login ke database dan melakukan netstat pada port 3306 dan 3307 juga memastikan bahwa kedua database tersebut sudah berjalan secara bersamaan.

10. Insert di Master

```
PS C:\Program Files\MySQL\MySQL Server 8.0\bin> ./mysql -u root -h 127.0.0.1 -P 3306
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.45 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use testdb;
Database changed
mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
+------+------+
1 row in set (0.00 sec)

mysql> INSERT INTO users VALUES(2,'Test');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO users VALUES(3,'Test');
Query OK, 1 row affected (0.00 sec)

mysql>
```

```
+------+----------------+
2 rows in set (0.00 sec)

mysql> use testdb;
Database changed
mysql> delete from users where id ==2;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server ver
 for the right syntax to use near '==2' at line 1
mysql> delete from users where id =2;
Query OK, 1 row affected (0.05 sec)

mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
+------+------+
1 row in set (0.00 sec)

mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
|    2 | Test |
|    3 | Test |
+------+------+
3 rows in set (0.00 sec)

mysql>
```

Insert di master juga muncul di slave

11.Mematikan Master

```
Administrator: Windows PowerShell
Your MySQL connection id is 10
Server version: 8.0.45 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use testdb;
Database changed
mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
+------+------+
1 row in set (0.00 sec)

mysql> INSERT INTO users VALUES(2,'Test');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO users VALUES(3,'Test');
Query OK, 1 row affected (0.00 sec)

mysql> exit
Bye
PS C:\Program Files\MySQL\MySQL Server 8.0\bin>
```

```
Administrator: Windows PowerShell

mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
+------+------+
1 row in set (0.00 sec)

mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
|    2 | Test |
|    3 | Test |
+------+------+
3 rows in set (0.00 sec)

mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
|    2 | Test |
|    3 | Test |
+------+------+
3 rows in set (0.00 sec)

mysql>
```

Ketika master dimatikan, Slave masih bisa diakses dan masih bisa melakukan query di testdb. Hal ini bisa terjadi karena adanya replikasi ke database Slave.

12.Insert di Slave

```
Administrator: Windows PowerShell
mysql> exit
Bye
PS C:\Program Files\MySQL\MySQL Server 8.0\bin> ./mysql -u root -h 127.0.0.1 -P 3306
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.45 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> select * from users;
ERROR 1046 (3D000): No database selected
mysql> use testdb;
Database changed
mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
|    2 | Test |
|    3 | Test |
+------+------+
3 rows in set (0.00 sec)

mysql>
```

```
Administrator: Windows PowerShell
|    2 | Test |
|    3 | Test |
+------+------+
3 rows in set (0.00 sec)

mysql> select * from users;
+------+------+
| id   | name |
+------+------+
|    1 | Test |
|    2 | Test |
|    3 | Test |
+------+------+
3 rows in set (0.00 sec)

mysql> INSERT INTO users VALUES(2, 'User_Dari_Slave');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM users;
+------+----------------+
| id   | name           |
+------+----------------+
|    1 | Test           |
|    2 | Test           |
|    3 | Test           |
|    2 | User_Dari_Slave |
+------+----------------+
4 rows in set (0.00 sec)

mysql>
```

Operasi query insert di Slave hanya berlaku pada Slave dan tidak muncul pada database Master karena sifat Master Slave hanya berlaku satu arah, yaitu dari Master ke Slave.