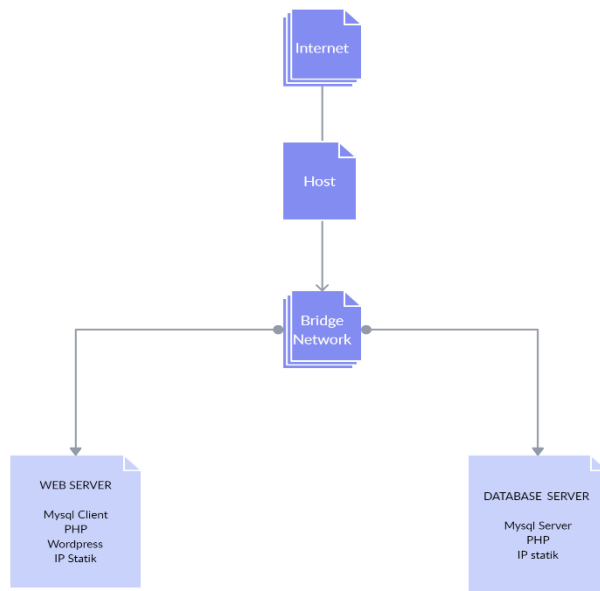# Keamanan Basis Data

Oleh:

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PROGRAM STUDI TEKNIK INFORMATIKA
JURUSAN REKAYASA KEAMANAN SIBER
POLITEKNIK NEGERI BATAM
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Keamanan Basis Data

TOPOLOGI

MENGINSTALL DI SERVER UBUNTU

1. Apt update

   Memperbarui system untuk memperbaru repository dengan perintah apt update.

2. Menginstall apache2

   Menggunakan perintah apt install apache2

   ```
   root@arianadb:~# apt install apache2
   Reading package lists... Done
   Building dependency tree... Done
   Reading state information... Done
   The following additional packages will be installed:
     apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3
     libaprutil1-ldap liblua5.3-0 mailcap mime-support ssl-cert
   Suggested packages:
   ```

3. Menginstall Mysql

   Menginstall dan Menggunakan mysql client, mysql client berguna untuk berkomunikasi dengan serveryang dikelola.

   ```
   ts are running outdated hypervisor (qemu)
   adb:~# apt install mysql-server
   ```

   Selanjutnya adalah mengamankan mysql dan memberikan password agar kita bisa login ke root. Dan akan menginstall mysql secure

4. Menginstall PHP

   Langkah selanjutnya adalah menginstall PHP, disini kita menggunakan PHP versi terbaru dengan apt install php

   ```
   No VM guests are running outdated hypervisor (qemu) binaries on this host.
   root@arianadb:~# apt install php
   Reading package lists... Done
   Building dependency tree... Done
   Reading state information... Done
   The following additional packages will be installed:
     libapache2-mod-php8.1 php-common php8.1 php8.1-cli php8.1-common php8.1-opcache php8.1-readline
   Suggested packages:
   ```

MENGINSTALL DI DATABASE SERVER

1. Apt Update
   Memperbarui system untuk memperbaru repository dengan perintah apt update

   ```
   Hit:1 http://id.archive.ubuntu.com/ubuntu jammy InRelease
   Hit:2 http://id.archive.ubuntu.com/ubuntu jammy-updates InRelease
   Hit:3 http://id.archive.ubuntu.com/ubuntu jammy-backports InRelease
   Hit:4 http://id.archive.ubuntu.com/ubuntu jammy-security InRelease
   Reading package lists... Done
   Building dependency tree... Done
   Reading state information... Done
   ```

2. Menginstall database paket
   Menginstall database paket dengan menjalankan perintah sudo apt install mysql-client

   ```
   ariana2@server:~$ sudo apt install mysql-client
   [sudo] password for ariana2:
   Reading package lists... Done
   Building dependency tree... Done
   Reading state information... Done
   mysql-client is already the newest version (8.0.30-0ubuntu0.22.04.1).
   0 upgraded, 0 newly installed, 0 to remove and 20 not upgraded.
   ariana2@server:~$
   ```

3. Mengatur bind address menjadi IP database server
   Mengganti bind-address menjadi IP database server dengan menjalankan perintah sudo nano
   /etc/mysql/mysql.conf.d/mysql.cnf

   ```
     GNU nano 6.2                    /etc/mysql/mysql.conf.d/mysqld.cnf
   #
   # The MySQL database server configuration file.
   #
   # One can use all long options that the program supports.
   # Run program with --help to get a list of available options and with
   # --print-defaults to see which it would actually understand and use.
   #
   # For explanations see
   # http://dev.mysql.com/doc/mysql/en/server-system-variables.html

   # Here is entries for some specific programs
   # The following values assume you have at least 32M ram

   [mysqld]
   #
   # * Basic Settings
   #
   user            = mysql
   # pid-file      = /var/run/mysqld/mysqld.pid
   # socket        = /var/run/mysqld/mysqld.sock
   # port          = 3306
   # datadir       = /var/lib/mysql


   # If MySQL is running as a replication slave, this should be
   # changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
   # tmpdir               = /tmp
   #
   # Instead of skip-networking the default is now to listen only on
   # localhost which is more compatible and is not less secure.
   bind-address            = 192.168.56.20
   mysqlx-bind-address     = 127.0.0.1
   #
                        [ Read 78 lines ]
   ^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo
   ^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo
   ```

   Setelah itu restart mysql dengan menjalankan perintah sudo systemctl restart
   mysql

Mengatur dan menginstall wordpress

1. Sudo apt install apache2

   Menginstall paket yang dibutuhkan

   ```
   ariana2@server:~$ sudo apt-get install apache2
   [sudo] password for ariana2:
   Reading package lists... Done
   Building dependency tree... Done
   Reading state information... Done
   apache2 is already the newest version (2.4.52-1ubuntu4.1).
   0 upgraded, 0 newly installed, 0 to remove and 20 not upgraded.
   ariana2@server:~$ _
   ```

2. Menginstall wordpress

   ```
   ariana2@server:~$ cd /tmp && wget https://wordpress.org/latest.tar.gz
   --2022-10-03 05:55:36--  https://wordpress.org/latest.tar.gz
   Resolving wordpress.org (wordpress.org)... 198.143.164.252
   Connecting to wordpress.org (wordpress.org)|198.143.164.252|:443... connected.
   HTTP request sent, awaiting response... 200 OK
   Length: 21172479 (20M) [application/octet-stream]
   Saving to: 'latest.tar.gz'

   latest.tar.gz          47%[===============>                ]   9.61M  1.01MB/s    eta 16s
   ```

3. Memindahkan file wordpress
   cp –R wordpress /var/www/html/

   Lalu memberikkan acces untuk user
   chown –R www-data:www-data /var/www/html/wordpress/

   Selanjutnya memberikan izin pada file
   chmod –R 755 /var/www/html/wordpress/

   Membuat direktori baru untuk menyimpan file dan mengubah izin direktori dengan menjalankan perintah
   sudo mkdir /var/www/html/wordpress/wp-content/uploads
   sudo –r www-data:www-data /var/www/html/wordpress/wp-content/uploads

   ```
   /tmp# cp -R wordpress /var/www/html/
   /tmp# chown -R www-data:www-data /var/www/html/wordpress/
   /tmp# chmod -R 755 /var/www/html/wordpress/
   /tmp# sudo mkdir /var/www/html/wordpress/wp-content/uploads
   /tmp# sudo -R www-data:www-data /var/www/html/wordpress/wp-content/uploads
   ```

4. Selanjutnya adalah mencoba apakah wordpress sudah terinstall atau belum.

UNION, SELECT ,WAIT DAN –

1. Union

Kegunaan union adalah untuk menggabungkan dua tabel dalam bentuk baris baru, dimana field yang di select antara satu dan lainnya harus sama.

```
ERROR 1222 (21000): The used SELECT statements have a different number of columns
MariaDB [wordpress_2]> select action_id from wp_actionscheduler_actions union select group_id from wp_actionscheduler_groups;
+-----------+
| action_id |
+-----------+
|       482 |
|       480 |
|       479 |
|       483 |
|       481 |
|       485 |
|       484 |
|         1 |
|         2 |
+-----------+
9 rows in set (0.010 sec)

MariaDB [wordpress_2]> _
```

2. Select

Select digunakan untuk menampilkan, mengambil, dan memilah informasi dari database atau data dari suatu tabel maupun beberapa tabel yang saling berelasi

```
MariaDB [wordpress_2]> select * from wp_actionscheduler_actions;
----+--------+---------------+
| action_id | hook                                                                      | status   | scheduled_date_gmt  | scheduled_date_local | args | schedule
                                                                                          | group_id | attempts | last_attempt_gmt    | last_attempt_lo
cal  | claim_id | extended_args |
----+--------+---------------+
|       479 | action_scheduler/migration_hook                                           | complete | 2022-09-15 03:57:38 | 2022-09-15 03:57:38 | [] | 0:30:"Action
Scheduler_SimpleSchedule":2:{s:22:" * scheduled_timestamp";i:1663214258;s:41:" ActionScheduler_SimpleSchedule timestamp";i:1663214258;}
                                                                                          |        1 |        1 | 2022-09-15 03:57:54 | 2022-09-15 03:5
7:54 |        0 | NULL          |
|       480 | woocommerce_cleanup_draft_orders                                          | complete | 2022-09-15 03:56:39 | 2022-09-15 03:56:39 | [] | 0:32:"Action
Scheduler_IntervalSchedule":5:{s:22:" * scheduled_timestamp";i:1663214199;s:18:" * first_timestamp";i:1663214199;s:13:" * recurrence";i:86400;s:49:" ActionScheduler_Interva
lSchedule start_timestamp";i:1663214199;s:53:" ActionScheduler_IntervalSchedule interval_in_seconds";i:86400;} |        0 |        1 | 2022-09-15 03:56:40 | 2022-09-15 03:5
6:40 |        0 | NULL          |
|       481 | woocommerce_cleanup_draft_orders                                          | complete | 2022-09-16 03:56:40 | 2022-09-16 03:56:40 | [] | 0:32:"Action
Scheduler_IntervalSchedule":5:{s:22:" * scheduled_timestamp";i:1663300600;s:18:" * first_timestamp";i:1663214199;s:13:" * recurrence";i:86400;s:49:" ActionScheduler_Interva
lSchedule start_timestamp";i:1663300600;s:53:" ActionScheduler_IntervalSchedule interval_in_seconds";i:86400;} |        0 |        1 | 2022-09-16 04:14:38 | 2022-09-16 04:1
4:38 |        0 | NULL          |
|       482 | woocommerce_admin/stored_state_setup_for_products/async/run_remote_notifications | complete | 0000-00-00 00:00:00 | 0000-00-00 00:00:00 | [] | 0:28:"Action
Scheduler_NullSchedule":0:{}
                                                                                          |        0 |        1 | 2022-09-15 03:57:54 | 2022-09-15 03:5
7:54 |        0 | NULL          |
|       483 | action_scheduler/migration_hook                                           | complete | 2022-09-15 03:58:55 | 2022-09-15 03:58:55 | [] | 0:30:"Action
Scheduler_SimpleSchedule":2:{s:22:" * scheduled_timestamp";i:1663214335;s:41:" ActionScheduler_SimpleSchedule timestamp";i:1663214335;}
                                                                                          |        1 |        1 | 2022-09-15 04:00:09 | 2022-09-15 04:0
0:09 |        0 | NULL          |
```

3. Wait

Digunakan untuk jeda output beberapa detik sesuai keinginan user

```
MariaDB [wordpress_2]> select sleep (5) ;
+----------+
| sleep (5) |
+----------+
|        0 |
+----------+
1 row in set (5.024 sec)
```

4. – bukan query, hanya command biasa.