

## **LAPORAN TUGAS 2 INDIVIDU**

**“Deployment Aplikasi Web dengan IaaS (*Infrastructure as a Service*)”**



**Disusun untuk Memenuhi Tugas Mata Kuliah**

**Komputasi Awan yang diampu oleh**

**Ibu Yunila Dwi Putri Ariyanti S.Kom., M.Kom.**

**Disusun Oleh:**

Labiba Adinda Zahwana

24060121140111

**DEPARTEMEN ILMU KOMPUTER / INFORMATIKA**

**FAKULTAS SAINS DAN MATEMATIKA**

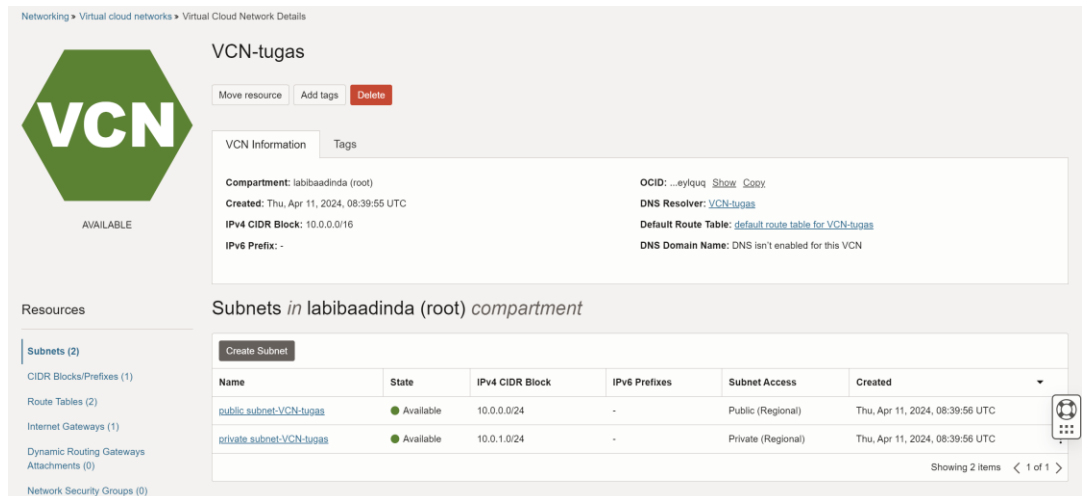
**UNIVERSITAS DIPONEGORO**

**SEMARANG**

**2023/2024**

# Tugas Deployment Aplikasi Web dengan IaaS

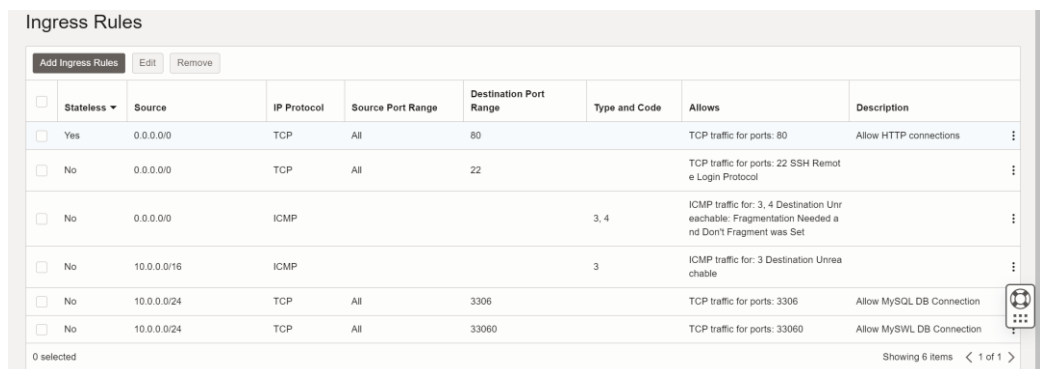
## 1. Buat VCN dan subnet



The screenshot displays the Oracle Cloud console interface for a Virtual Cloud Network (VCN) named "VCN-tugas". The VCN is in an "AVAILABLE" state. The console shows the VCN's information, including its compartment (labibaadinda (root)), creation time (Thu, Apr 11, 2024, 08:39:55 UTC), and IP version (IPv4). It also lists the subnets associated with the VCN: "public\_subnet-VCN-tugas" and "private\_subnet-VCN-tugas", both in an "Available" state. The subnets are associated with the "labibaadinda (root)" compartment. The console also shows the VCN's CIDR block (10.0.0.0/16) and its IPv6 prefix (none).

Name	State	IPv4 CIDR Block	IPv6 Prefixes	Subnet Access	Created
public_subnet-VCN-tugas	Available	10.0.0.0/24	-	Public (Regional)	Thu, Apr 11, 2024, 08:39:55 UTC
private_subnet-VCN-tugas	Available	10.0.1.0/24	-	Private (Regional)	Thu, Apr 11, 2024, 08:39:55 UTC

## 2. Tambahkan Ingress Rules pada public subnet

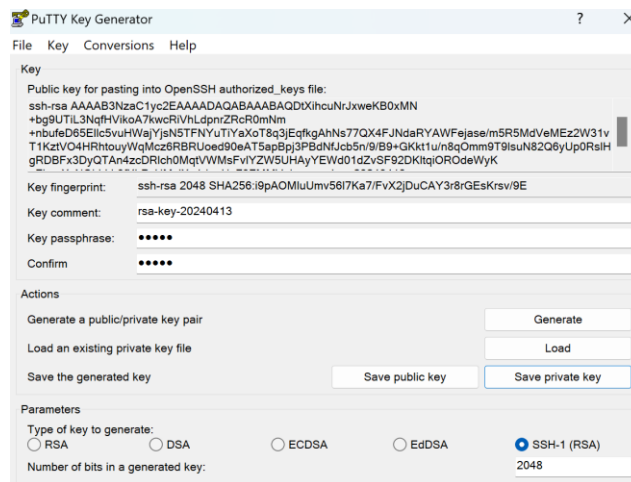


The screenshot displays the Oracle Cloud console interface for the "Ingress Rules" of the "public\_subnet-VCN-tugas". The console shows a list of ingress rules that have been added to the subnet. The rules are defined by their source (0.0.0.0/0), IP protocol (TCP or ICMP), source port range (All), destination port range (80, 22, 3306, 33060), and type and code (3, 4). The rules allow traffic for HTTP connections, SSH Remote Login Protocol, and MySQL/MySQLi database connections. The console also shows the "Add Ingress Rules" button and the "Edit" and "Remove" buttons for each rule.

Stateless	Source	IP Protocol	Source Port Range	Destination Port Range	Type and Code	Allows	Description
<input type="checkbox"/>	Yes	0.0.0.0/0	TCP	All	80	TCP traffic for ports: 80	Allow HTTP connections
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	22	TCP traffic for ports: 22 SSH Remote Login Protocol	
<input type="checkbox"/>	No	0.0.0.0/0	ICMP		3, 4	ICMP traffic for: 3, 4 Destination Unreachable: Fragmentation Needed and Don't Fragment was Set	
<input type="checkbox"/>	No	10.0.0.0/16	ICMP		3	ICMP traffic for: 3 Destination Unreachable	
<input type="checkbox"/>	No	10.0.0.0/24	TCP	All	3306	TCP traffic for ports: 3306	Allow MySQL DB Connection
<input type="checkbox"/>	No	10.0.0.0/24	TCP	All	33060	TCP traffic for ports: 33060	Allow MySQLi DB Connection

## 3. Generate public dan private key menggunakan Software Putty

Proses pembuatan sepasang kunci SSH, terdiri dari kunci publik dan kunci privat. Kunci publik digunakan oleh server untuk mengotorisasi akses pengguna, sedangkan kunci privat disimpan secara aman oleh pengguna dan digunakan untuk mengautentikasi dirinya saat terhubung ke server.



Setelah sepasang kunci SSH dibuat, save public key dan private key.

Pengguna dapat menggunakan private key tersebut untuk mengautentikasi dirinya saat terhubung ke instansi atau server jarak jauh menggunakan koneksi Secure Shell (SSH). SSH adalah protokol jaringan yang digunakan untuk mengamankan komunikasi antara dua perangkat, sehingga koneksi antara pengguna dan server akan dienkripsi dan aman dari penyadapan oleh pihak yang tidak diinginkan.

#### 4. Membuat VM Instances

- Isi nama instance, placement (default), security (default), menentukan Image & Shape dan isi primary VNIC (pastikan vcn sesuai dengan yang telah dibuat “VCN-tugas”)

Create compute instance

Create an instance to deploy and run applications, or save as a reusable Terraform stack for creating an instance with Resource Manager.

Name

LabibaAdindaZahiana\_24060121140111\_Tugas02

Create in compartment

labibaadinda (root)

Placement

Availability domain: AD-1 Amazon Availability

Capacity type: On-demand capacity

Security

Shielded instance: Disabled

Image and shape

Image

Canonical Ubuntu 22.04

Image build: 2024.02.18-0

Change image

Shape

VM.Standard2.1

Virtual machine, 1 core OCPU, 15 GB memory, 1 Gbps network bandwidth

Change shape

Primary VNIC information

Virtual cloud network: VCN-tugas

Subnet: public-subnet-VCN-tugas

Launch options: -

DNS record: No

Use network security groups to control traffic: No

Assign a public IPv4 address: Yes

Private IPv4 address: Automatically assigned on creation

IPv6 address: Not available

- ## Add SSH keys
- Generate an [SSH key pair](#) to connect to the instance using a Secure Shell (SSH) connection, or upload a public key that you already have.
- ☐ Generate a key pair for me ☐ Upload public key files (.pub) ☒ Paste public keys ☐ No SSH keys
- SSH keys
- ```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAOCDFXihcuNrJxweKB0iMN+bg9UTL3NqHfVikoA7kwcRiVhLdprZRCr0mNm+i
```
- [+ Another key](#)
- Example: ssh-rsa AAAAB3Nza...NWap6Prb ssh-key-2021-01-27 [See all supported key types](#)

- Tidak select apapun boot volume dan tidak juga attach block volume

Boot volume

A [boot volume](#) is a detachable device that contains the image used to boot the compute instance.

☐

Specify a custom boot volume size

[Volume performance](#) varies with volume size. Default boot volume size: 40.6 GB. When you specify a custom boot volume size, service limits apply.

☐

Use in-transit encryption

[Encrypt data](#) in transit between the instance, the boot volume, and the block volumes.

☐

Encrypt this volume with a key that you manage


By default, Oracle manages the keys that encrypt this volume, but you can choose a key from a vault that you have access to if you want greater control over the key's lifecycle and how it's used. [How do I manage my own encryption keys?](#)

Block volumes

Attach block volume


| Name            | Attachment type | Create type ⓘ | Access |
|-----------------|-----------------|---------------|--------|
| No items found. |                 |               |        |

Showing 0 items

- 
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Start

Stop

Reboot

Terminale

More actions

LabibaAdindaZahwana\_24060121140111\_Tugas02

[Instance information](#)
[Shielded instance](#)
[Oracle Cloud Agent](#)
[Notifications](#)
[Tags](#)

General information

**Availability domain:** AD-1

**Fault domain:** FD-1

**Region:** ap-singapore-1

**OCID:** ocid1.instance.oc4..24060121140111

**Launched:** Sat, Apr 13, 2024, 02:37:30 UTC

**Compartment:** Unlabeled (root)

**Capacity type:** On-demand

Instance details

**Virtual cloud network:** VCN36688

**Maintenance reboot:**

**Image:** [CentOS Linux 8.6\\_20230410.0.18](#)

**Launch mode:** PARAVIRTUALIZED

**Instance metadata service:** Versions 1 and 2 [Link](#)

**Live migration:** Use recommended default. [Change](#)

**Maintenance recovery action:** Restore instance

Shape configuration

**Shape:** VM.Standard2.1

**CPU count:** 1

**Network bandwidth (Gbps):** 1

**Memory (GB):** 15

**Local disk:** Block storage only

Instance access

You [cannot](#) [use a public IP](#) [address](#) using a Secure Shell (SSH) connection. You need the private key from the SSH key pair that was used to create the instance.

**Public IP address:** 129.150.43.190 [Copy](#)

**Username:** ubuntu

Primary VNIC

**Public IPv4 address:** 129.150.43.190

**Private IPv4 address:** 10.0.0.200

**Network security groups:** [None](#) [Edit](#) [+](#)

**Subnet:** [Subnet-Subnet-OC76668](#)

**Private DNS record:** Disabled

**Internal FQDN:** -

Launch options

**NIC attachment type:** PARAVIRTUALIZED

**Remote data volume:** PARAVIRTUALIZED

**Firmware:** UEFI,64

**Boot volume type:** PARAVIRTUALIZED

**In-transit encryption:** Disabled

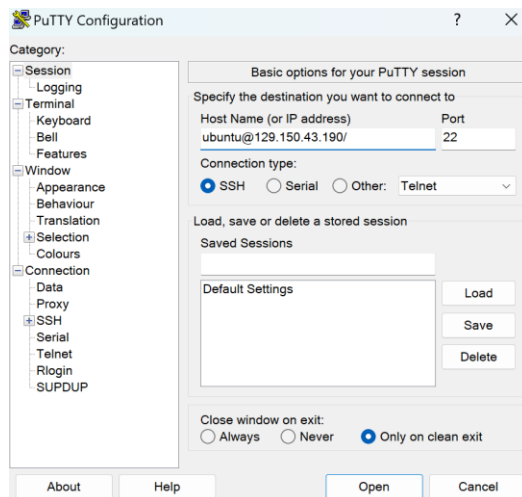
**Secure Boot:** Disabled

**Measured Boot:** Disabled

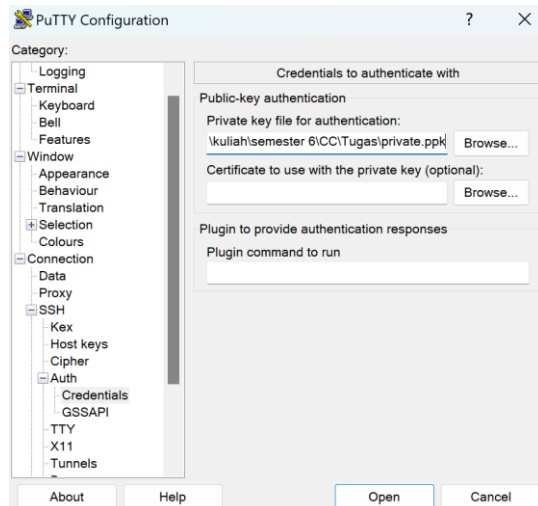
**Trusted Platform Module:** Disabled

5. Sambungkan server dengan user menggunakan Software Putty  
username@public\_ip yang mana username nya ubuntu dan Public Ipv4 addressnya 129.150.43.190 berarti ubuntu@129.150.43.190 dan upload private key yang di download dari Putty gen pada auth (credentials).

- Isi Host name atau IP address



- Ke bagian auth lalu upload private key ke auth (credentials). yang telah didownload sebelumnya, lalu klik Open.



- Server telah terhubung

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02: /var/www/html
Using username "ubuntu".
Authenticating with public key "rsa-key-20240413"
Passphrase for key "rsa-key-20240413":
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1020-oracle x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Sat Apr 13 04:40:54 UTC 2024

System load:  0.08740234375   Processes:    127
Usage of /:   7.4% of 44.96GB   Users logged in:  0
Memory usage: 1%              IPv4 address for ens3: 10.0.0.200
Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.
https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
```

6. Sebelum menginstall web server (apache) dan database server (mysql), lakukan update terlebih dahulu

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo apt update
Hit:1 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:4 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
57 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ 0
```

7. Install web server (apache2)

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo 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 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.2-0 ssl-cert
Suggested packages:
  www-browser apache2-doc apache2-suexec-pristine | apache2-suexec-custom openssh-blacklist
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.2-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 41 not upgraded.
Need to get 1730 kB of archives.
After this operation, 7000 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic/main amd64 libapr1 amd64 1.6.3-2 [90.9 kB]
Get:2 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libaprutil1 amd64 1.6.1-2ubuntu0.1 [84.6 kB]
Get:3 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.1-2ubuntu0.1 [10.6 kB]
Get:4 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libaprutil1-ldap amd64 1.6.1-2ubuntu0.1 [8752 B]
Get:5 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic/main amd64 liblua5.2-0 amd64 5.2.4-1.1build1 [108 kB]
Get:6 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 apache2-bin amd64 2.4.29-1ubuntu4.27 [1071 kB]
Get:7 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 apache2-utils amd64 2.4.29-1ubuntu4.27 [83.3 kB]
Get:8 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 apache2-data all 2.4.29-1ubuntu4.27 [160 kB]
Get:9 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 apache2 amd64 2.4.29-1ubuntu4.27 [95.1 kB]
Get:10 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu bionic/main amd64 ssl-cert all 1.0.39 [17.0 kB]
Fetched 1730 kB in 3s (624 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libapr1:amd64.
(Reading database ... 66311 files and directories currently installed.)
Preparing to unpack .../0-libapr1_1.6.3-2_amd64.deb ...
Unpacking libapr1:amd64 (1.6.3-2) ...
Selecting previously unselected package libaprutil1:amd64.
Preparing to unpack .../1-libaprutil1_1.6.1-2ubuntu0.1_amd64.deb ...
Unpacking libaprutil1:amd64 (1.6.1-2ubuntu0.1) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:amd64.
Preparing to unpack .../2-libaprutil1-dbd-sqlite3_1.6.1-2ubuntu0.1_amd64.deb ...
Unpacking libaprutil1-dbd-sqlite3:amd64 (1.6.1-2ubuntu0.1) ...
Selecting previously unselected package libaprutil1-ldap:amd64.
Preparing to unpack .../3-libaprutil1-ldap_1.6.1-2ubuntu0.1_amd64.deb ...
Unpacking libaprutil1-ldap:amd64 (1.6.1-2ubuntu0.1) ...
Selecting previously unselected package liblua5.2-0:amd64.
Preparing to unpack .../4-liblua5.2-0_5.2.4-1.1build1_amd64.deb ...
Unpacking liblua5.2-0:amd64 (5.2.4-1.1build1) ...
Selecting previously unselected package apache2-bin.
Preparing to unpack .../5-apache2-bin_2.4.29-1ubuntu4.27_amd64.deb ...
Unpacking apache2-bin (2.4.29-1ubuntu4.27) ...
Selecting previously unselected package apache2-utils.
Preparing to unpack .../6-apache2-utils_2.4.29-1ubuntu4.27_amd64.deb ...
Unpacking apache2-utils (2.4.29-1ubuntu4.27) ...
Selecting previously unselected package apache2-data.
Preparing to unpack .../7-apache2-data_2.4.29-1ubuntu4.27_all.deb ...
Unpacking apache2-data (2.4.29-1ubuntu4.27) ...
Selecting previously unselected package apache2.
Preparing to unpack .../8-apache2_2.4.29-1ubuntu4.27_amd64.deb ...
Unpacking apache2 (2.4.29-1ubuntu4.27) ...
Selecting previously unselected package ssl-cert.
Preparing to unpack .../9-ssl-cert_1.0.39_all.deb ...
Unpacking ssl-cert (1.0.39) ...
Setting up libapr1:amd64 (1.6.3-2) ...
Setting up libaprutil1:amd64 (1.6.1-2ubuntu0.1) ...
Setting up libaprutil1-dbd-sqlite3:amd64 (1.6.1-2ubuntu0.1) ...
Setting up libaprutil1-ldap:amd64 (1.6.1-2ubuntu0.1) ...
Setting up liblua5.2-0:amd64 (5.2.4-1.1build1) ...
Setting up apache2-bin (2.4.29-1ubuntu4.27) ...
Setting up apache2-utils (2.4.29-1ubuntu4.27) ...
Setting up apache2-data (2.4.29-1ubuntu4.27) ...
Setting up apache2 (2.4.29-1ubuntu4.27) ...
Setting up ssl-cert (1.0.39) ...
```

8. Restart apache2

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo systemctl restart apache2
```

9. Mengizinkan akses HTTP (protokol TCP) ke port 80 pada firewall menggunakan iptables.

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo iptables -I INPUT 6 -m state --state NEW -p tcp --dport 80 -j ACCEPT
iptables v1.6.1: unknown option "-I"
Try 'iptables -h' or 'iptables --help' for more information.
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo iptables -I INPUT 6 -m state --state NEW -p tcp --dport 80 -j ACCEPT
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo netfilter-persistent save
run-parts: executing /usr/share/netfilter-persistent/plugins.d/15-ip4tables save
run-parts: executing /usr/share/netfilter-persistent/plugins.d/25-ip6tables save
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$
```

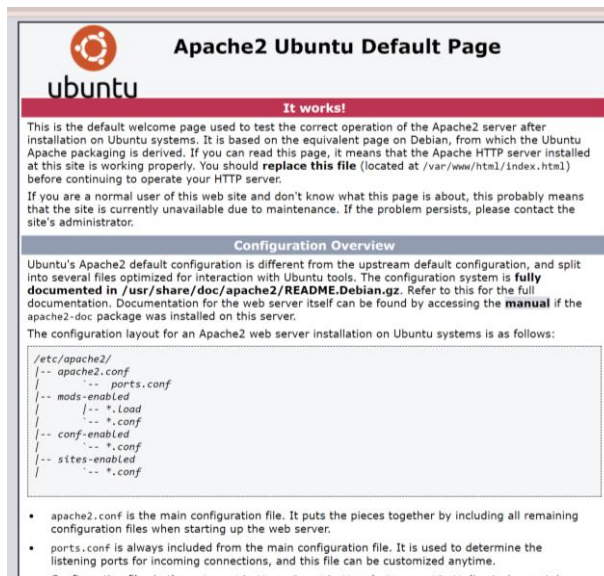


## 10. Simpan Konfigurasi firewall

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo netfilter-persistent save
run-parts: executing /usr/share/netfilter-persistent/plugins.d/15-ip4tables save
run-parts: executing /usr/share/netfilter-persistent/plugins.d/25-ip6tables save
```

Perintah ‘sudo netfilter-persistent save’ digunakan untuk menyimpan aturan-aturan firewall yang dikonfigurasi menggunakan iptables secara permanen.

## 11. Sudah dapat mengakses Apache2 Ubuntu Default Page



## 12. Menginstall modul, ekstensi Apache untuk PHP, dan utilitas tambahan

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo apt install php libapache2-mod-php php-mysql php-mbstring php-xmlrpc php-soap php-gd php-xml php-curl php-zip php-bcmath php-tokenizer php-json php-pear php-curl php-intl unzip -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
libapache2-mod-php is already the newest version (2:8.1+92ubuntu1).
php is already the newest version (2:8.1+92ubuntu1).
php-curl is already the newest version (2:8.1+92ubuntu1).
php-gd is already the newest version (2:8.1+92ubuntu1).
php-json is already the newest version (2:8.1+92ubuntu1).
php-mysql is already the newest version (2:8.1+92ubuntu1).
php-pear is already the newest version (1:1.10.12+submodules+notgz+20210212-1ubuntu3).
php-xml is already the newest version (2:8.1+92ubuntu1).
php-bcmath is already the newest version (2:8.1+92ubuntu1).
php-intl is already the newest version (2:8.1+92ubuntu1).
php-mbstring is already the newest version (2:8.1+92ubuntu1).
php-soap is already the newest version (2:8.1+92ubuntu1).
php-tokenizer is already the newest version (1:2.1-1).
php-xmlrpc is already the newest version (3:1.0.0-rc3-2).
php-zip is already the newest version (2:8.1+92ubuntu1).
unzip is already the newest version (6.0-26ubuntu3.2).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

## 13. Install mysql server (database server)

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo apt install mysql-server -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libbcb-fast-perl libbcb-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtime-date-perl liburi-perl mecab-ipadic
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-common mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libdata-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinymce
The following NEW packages will be installed:
  libbcb-fast-perl libbcb-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtime-date-perl liburi-perl mecab-ipadic
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-common mysql-server mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 27 newly installed, 0 to remove and 0 not upgraded.
Need to get 26.0 MB of archives.
After this operation, 181 MB of additional disk space will be used.
Get:1 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 mysql-common all 5.8+1.0.8 [7212 B]
Get:2 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-8.0 amd64 8.0.36-0ubuntu0.22.04.1 [22.7 kB]
Get:3 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libevent-pthreads-2.1-7 amd64 2.1.12-stable-1build3 [7642 B]
Get:4 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libmecab2 amd64 0.996-14build9 [199 kB]
Get:5 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libprotobuf-lite23 amd64 3.12.4-1ubuntu7.22.04.1 [209 kB]
Get:6 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-core-8.0 amd64 8.0.36-0ubuntu0.22.04.1 [17.5 MB]
Get:7 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-8.0 amd64 8.0.36-0ubuntu0.22.04.1 [1437 kB]
Get:8 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libhtml-tagset-perl all 3.20-4 [12.5 kB]
Get:9 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 liburi-perl all 5.10-1 [78.8 kB]
Get:10 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libhtml-parser-perl amd64 3.76-1build2 [88.4 kB]
Get:11 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi-bin amd64 1.0.0-1 [180 kB]
Get:12 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi0ldbl amd64 2.4.2-2build2 [28.0 kB]
Get:13 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi-perl amd64 0.82+ds-1build1 [22.8 kB]
Get:14 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libbcb-fast-perl all 1:2.15-1 [10.5 kB]
Get:15 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libclone-perl amd64 0.45-1build3 [11.0 kB]
Get:16 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libencode-locale-perl all 1.05-1.1 [11.8 kB]
Get:17 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libfcgi-bin amd64 2.4.2-2build2 [11.2 kB]
Get:18 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libhtml-template-perl all 2.97-1.1 [59.1 kB]
Get:19 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libtime-date-perl all 2.3300-2 [34.0 kB]
Get:20 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libhttp-date-perl all 6.05-1 [9920 B]
Get:21 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libio-html-perl all 1.004-2 [15.4 kB]
```

#### 14. Install mysql core

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo apt install mysql-client-core-8.0 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

#### 15. Menginstal Composer, manager dependensi PHP, ke dalam sistem.

Dengan menjalankan perintah ini, Composer akan diunduh dari internet, diekstrak, dan dipindahkan ke dalam direktori yang ditentukan. Setelah selesai, akan dapat menggunakan Composer untuk mengelola dependensi PHP dalam proyek.

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo php composer-setup.php --install-dir=/usr/local/bin --filename=composer
All settings correct for using Composer
Downloading...

Composer (version 2.7.2) successfully installed to: /usr/local/bin/composer
Use it: php /usr/local/bin/composer
```

#### 16. Run perintah 'curl -fsSL

`https://deb.nodesource.com/setup_current.x | sudo -E bash -``

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ curl -fsSL https://deb.nodesource.com/setup_current.x | sudo -E bash -
2024-04-13 05:10:20 - Installing pre-requisites
Hit:1 https://deb.nodesource.com/node_21.x nodistro InRelease
Hit:2 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:5 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 229 kB in 3s (83.0 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
curl is already the newest version (7.81.0-1ubuntu1.16).
gnupg is already the newest version (2.2.27-3ubuntu2.1).
apt-transport-https is already the newest version (2.4.12).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Hit:1 https://deb.nodesource.com/node_21.x nodistro InRelease
Hit:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:3 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy InRelease
Hit:4 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:5 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
2024-04-13 05:10:28 - Repository configured successfully. To install Node.js, run: apt-get install nodejs -y
```

Perintah ini digunakan untuk mengunduh dan menjalankan skrip instalasi Node.js dari NodeSource menggunakan **curl** dan **bash**, dan memastikan bahwa proses tersebut dijalankan dengan hak superuser untuk memasang Node.js di sistem.

#### 17. Menginstall node.js dengan cara lain 'sudo apt-get install nodejs -y'

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ sudo apt-get install nodejs -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
nodejs is already the newest version (21.7.3-1nodesource1).
```



## 18. Install build essential

```
ubuntu@labibadinda2ahwana24060121140117ugas02:~$ sudo apt install build-essential -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  cpp gcc gcc-11 gcc-11-base libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-bin
  libc-devtools libc6-dev libc6-i386 libcrypt-dev libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-11-dev libgomp1 libisl23 libitm1 liblsan0 libmpc3 libnsl-dev
  libquadmath0 libstdc++11-dev libtirpc-dev libubsan0 libubsan1 linux-libc-dev lto-disabled-list make manpages-dev rpcsvc-proto
Suggested packages:
  cpp-doc gcc-11-localized debian-keyring g++-multilib g++-11-multilib gcc-11-doc gcc-multilib autoconf automake libtool flex bison gdb gcc-doc gcc-11-multilib glibc-doc binutils
  libstdc++11-doc make-doc
The following NEW packages will be installed:
  build-essential cpp gcc-11 gcc-11-base libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1
  libc-dev-bin libc-devtools libc6-dev libc6-i386 libcrypt-dev libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-11-dev libgomp1 libisl23 libitm1 liblsan0 libmpc3
  libnsl-dev libquadmath0 libstdc++11-dev libtirpc-dev libubsan0 libubsan1 linux-libc-dev lto-disabled-list make manpages-dev rpcsvc-proto
0 upgraded, 40 newly installed, 0 to remove and 0 not upgraded.
Need to get 61.8 MB of archives.
After this operation, 202 MB of additional disk space will be used.
Get:1 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-dev-bin amd64 2.35-0ubuntu3.6 [20.3 kB]
Get:2 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-libc-dev amd64 5.15.0-102.112 [1350 kB]
Get:3 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libcrypt-dev amd64 1:4.4.27-1 [112 kB]
Get:4 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 rpcsvc-proto amd64 1.4.2-0ubuntu6 [68.5 kB]
Get:5 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libtirpc-dev amd64 1.3.2-2ubuntu0.1 [192 kB]
Get:6 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libnsl-dev amd64 1.3.0-2build2 [71.3 kB]
Get:7 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc6-dev amd64 2.35-0ubuntu3.6 [2100 kB]
Get:8 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gcc-11-base amd64 11.4.0-1ubuntu1-22.04 [20.2 kB]
Get:9 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libisl23 amd64 0.24-2build1 [727 kB]
Get:10 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 libmpc3 amd64 1.2.1-2build1 [46.9 kB]
Get:11 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 cpp-11 amd64 11.4.0-1ubuntu1-22.04 [10.0 MB]
Get:12 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 cpp amd64 4:11.2.0-1ubuntu1 [27.7 kB]
Get:13 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc6-i386 amd64 12.3.0-1ubuntu1-22.04 [48.3 kB]
Get:14 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgomp1 amd64 12.3.0-1ubuntu1-22.04 [126 kB]
Get:15 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libitm1 amd64 12.3.0-1ubuntu1-22.04 [30.2 kB]
Get:16 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libatomic1 amd64 12.3.0-1ubuntu1-22.04 [10.4 kB]
Get:17 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libasan6 amd64 11.4.0-1ubuntu1-22.04 [2282 kB]
Get:18 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 liblsan0 amd64 12.3.0-1ubuntu1-22.04 [1069 kB]
Get:19 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libtsan0 amd64 11.4.0-1ubuntu1-22.04 [2260 kB]
Get:20 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libubsan1 amd64 12.3.0-1ubuntu1-22.04 [976 kB]
Get:21 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libquadmath0 amd64 12.3.0-1ubuntu1-22.04 [154 kB]
Get:22 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libgcc-11-dev amd64 11.4.0-1ubuntu1-22.04 [2517 kB]
Get:23 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gcc-11 amd64 11.4.0-1ubuntu1-22.04 [20.1 MB]
Get:24 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 gcc amd64 4:11.2.0-1ubuntu1 [5112 B]
Get:25 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libstdc++11-dev amd64 11.4.0-1ubuntu1-22.04 [2101 kB]
Get:26 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/main amd64 g++-11 amd64 11.4.0-1ubuntu1-22.04 [11.4 MB]
Get:27 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 g++ amd64 4:11.2.0-1ubuntu1 [1412 B]
```

Perintah **'sudo apt install build-essential -y'** memiliki tujuan untuk menginstal paket **build-essential** ke dalam sistem Linux, yang mana perintah **-y** bertujuan untuk menyetujui semua pertanyaan konfirmasi yang mungkin muncul selama proses instalasi.

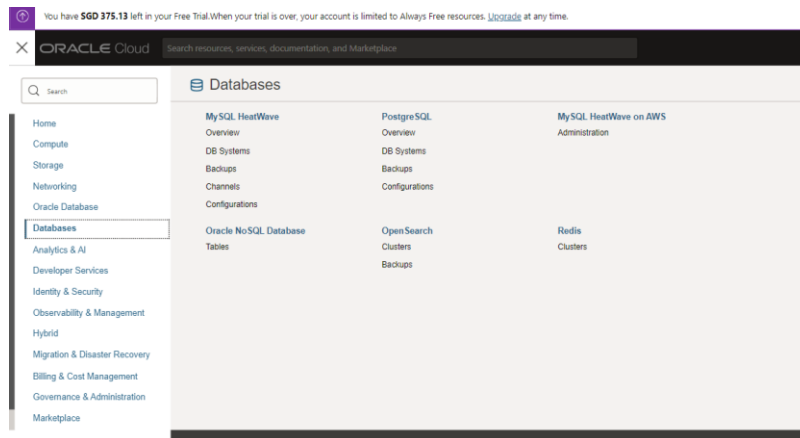
## 19. Instal Certbot

```
ubuntu@labibadinda2ahwana24060121140117ugas02:~$ sudo apt install certbot python3-certbot-apache
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  augeneas-lenses libaugeas0 python3-acme python3-augeas python3-certbot python3-configargparse python3-icu python3-josepy python3-parsedatetime python3-requests-toolbelt
  python3-rfc3339 python3-zope.component python3-zope.event python3-zope.hookable
Suggested packages:
  augeneas-doc python-certbot-doc python3-certbot-nginx augeneas-tools python-acme-doc python-certbot-apache-doc
The following NEW packages will be installed:
  augeneas-lenses certbot libaugeas0 python3-acme python3-augeas python3-certbot python3-certbot-apache python3-configargparse python3-icu python3-josepy python3-parsedatetime
  python3-requests-toolbelt python3-rfc3339 python3-zope.component python3-zope.event python3-zope.hookable
0 upgraded, 16 newly installed, 0 to remove and 0 not upgraded.
Need to get 1552 kB of archives.
After this operation, 7681 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 augeneas-lenses all 1.13.0-1 [321 kB]
Get:2 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 libaugeas0 amd64 1.13.0-1 [200 kB]
Get:3 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-josepy all 1.10.0-1 [22.0 kB]
Get:4 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 python3-requests-toolbelt all 0.9.1-1 [38.0 kB]
Get:5 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 python3-rfc3339 all 1.1-3 [7110 B]
Get:6 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 python3-acme all 1.21.0-1ubuntu0.1 [36.4 kB]
Get:7 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-augeas all 0.5.0-1.1 [19124 B]
Get:8 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-configargparse all 1.5.3-1 [26.9 kB]
Get:9 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-parsedatetime all 2.6-2 [32.9 kB]
Get:10 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-zope.hookable amd64 5.1.0-1build1 [11.6 kB]
Get:11 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-zope.event all 4.4-3 [8180 B]
Get:12 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-zope.component all 4.3.0-3 [38.3 kB]
Get:13 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-certbot all 1.21.0-1build1 [175 kB]
Get:14 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 certbot all 1.21.0-1build1 [21.3 kB]
Get:15 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/universe amd64 python3-certbot-apache all 1.21.0-1 [64.2 kB]
Get:16 http://ap-singapore-1-ad-1.clouds.archive.ubuntu.com/ubuntu jammy/main amd64 python3-icu amd64 2.8.1-0ubuntu2 [540 kB]
Fetched 1552 kB in 5s (310 kB/s)
Preconfiguring packages ...
Selecting previously unselected package augeneas-lenses.
(Reading database ... 121286 files and directories currently installed.)
Preparing to unpack .../00-augeneas-lenses_1.13.0-1_all.deb ...
Unpacking augeneas-lenses (1.13.0-1) ...
Selecting previously unselected package libaugeas0:amd64.
Preparing to unpack .../01-libaugeas0_1.13.0-1_amd64.deb ...
Unpacking libaugeas0:amd64 (1.13.0-1) ...
Selecting previously unselected package python3-josepy.
Preparing to unpack .../02-python3-josepy_1.10.0-1_all.deb ...
Unpacking python3-josepy (1.10.0-1) ...
Selecting previously unselected package python3-requests-toolbelt.
Preparing to unpack .../03-python3-requests-toolbelt_0.9.1-1_all.deb ...
Unpacking python3-requests-toolbelt (0.9.1-1) ...
Selecting previously unselected package python3-rfc3339.
Preparing to unpack .../04-python3-rfc3339_1.1-3_all.deb ...
Unpacking python3-rfc3339 (1.1-3) ...
Selecting previously unselected package python3-acme.
Preparing to unpack .../05-python3-acme_1.21.0-1ubuntu0.1_all.deb ...
Unpacking python3-acme (1.21.0-1ubuntu0.1) ...
```

Perintah **'sudo apt install certbot python3-certbot-apache'** memiliki tujuan untuk menginstal Certbot dan paket pendukungnya yang diperlukan untuk mengotomatisasi pengelolaan sertifikat SSL/TLS di server Apache menggunakan Certbot.

## 20. Buat Database System di Oracle Cloud

- Klik Database, lalu klik DB system



- Isi database infomormasi sistem

Create DB system

**Production**  
Sets up a high availability DB system with recommended defaults for a production environment. ✓

**Development or testing**  
Sets up a standalone DB system with recommended defaults for a development or testing environment.

Provide DB system information

Oracle ID in compartment  
labibaadinda (root)

Name  
labibaadinda-tugas

Description (Optional)  
Pengerjaan Tugas Ke-2

Use provided data about the DB system.

- Buat administrator credentials

Create administrator credentials

Username ⓘ  
admin

Password  
\*\*\*\*\*

Confirm password  
\*\*\*\*\*

- Konfigurasi Networking

**Standalone**  
Single-instance DB system

**High availability**  
DB system with 3 MySQL instances that provides automatic failover and zero data loss in the event of a failure ✓

Configure networking Collapse

The VCN and subnet where the DB system endpoint will be attached. The DB system endpoint uses a private IP address and is not directly accessible from the internet. [How do I connect to a DB system?](#) If you do not have a VCN, [create a VCN](#).

The current region has a single availability domain, creating a highly available DB system will spread all MySQL instances across all fault domains in the region, irrespective of whether an AD-specific or regional subnet are selected.

Virtual cloud network in **labibaadinda** ([Change compartment](#))  
VCN-tugas

Subnet in **labibaadinda** ([Change compartment](#))  
public subnet-VCN-tugas (Regional)

Pilih vcn dan subnet dari root yang telah dibuat sebelumnya.

– Konfigurasi hardware

Configure hardware

Enable HeatWave

HeatWave is a built-in real-time query accelerator and a fully automated in-database machine learning engine. It is suitable for transactional, analytic and machine learning workloads across data stored in MySQL, data warehouses and data lakes.

Shape details

Shape: MySQL 8  
ECPU count: 8  
Memory size: 64 GB  
Max network bandwidth: 4Gbps

Change shape

HeatWave configuration

Shape: HeatWave.512GB  
Memory: 512 GB  
Node: 1  
Lakehouse: Disabled

Configure HeatWave cluster

Data storage size (GB)

50

Storage allocated to each MySQL instance for data and log files. Storage size impacts IOPS and throughput. Data storage size must be an integer between 50 and 131,072.

Total IOPS: 3750

Total throughput: 29 MB

– Konfigurasi backup

Configure backup plan

☐ Enable automatic backups

Enables automatic backups. You must also specify a retention period, and select a backup window.

– Klik Create

Create

Save as stack

Cancel

– Database System telah selesai dibuat.

ORACLE Cloud

Search resources, services, documentation, and Marketplace

MySQL HeatWave • DB systems • DB system details

labibaadinda-tugas

Edit

Performance Hub

Start

Stop

More actions

DBS

ACTIVE

DB system information

Connections

Tags

General information

OCID: [Idenwvnp](#) [Stop](#) [Copy](#)  
Description: [Pengerjaan Tugas Ke-2](#) [Edit](#)  
Compartment: [labibaadinda \(root\)](#)  
Created: Sat, Apr 13, 2024, 04:23:17 UTC  
Last updated: Sat, Apr 13, 2024, 04:41:41 UTC

DB system configuration

Shape: [MySQL 8](#) [Edit](#) [Info](#)  
ECPU Count: [8](#) [Info](#)  
Memory: [64 GB](#) [Info](#)  
Storage size: [50 GB](#) [Info](#) [Edit](#)  
MySQL version: [8.0.36 - Bug fix](#) [Edit](#)  
Configuration: [MySQL 8.0.36 Release](#) [Edit](#)  
Crash recovery: [Enabled](#) [Edit](#)

Backup

Automatic backup: [Disabled](#) [Edit](#)  
Backup window: [17:32 UTC](#)  
Retention days: [7](#)  
Point-in-time recovery: [Disabled](#) [Info](#) [Edit](#)

Maintenance

Maintenance window start: [Monday, 19:03](#) [Edit](#)

Associated services

Database Management: [Details](#) [Disable](#) [Info](#)

High availability

High availability: [Disabled](#) [Edit](#) [Info](#)

HeatWave

HeatWave cluster: [Details](#) [Edit](#) [Info](#)

State: [Active](#)  
Lakehouse: [Disabled](#) [Enable](#) [Info](#)

Deletion plan

Delete protected: [Enabled](#) [Edit](#)  
Automatic backup retention: [Retain](#)  
Final backup: [Require final backup](#)  
Deletes protected read replicas: [0](#)

Placement

Availability domain: [2090 AP-SINGAPORE-1-AD-1](#)  
Fault domain: [FAULT DOMAIN 1](#)

Read replicas

0

Failed

0

Needs attention

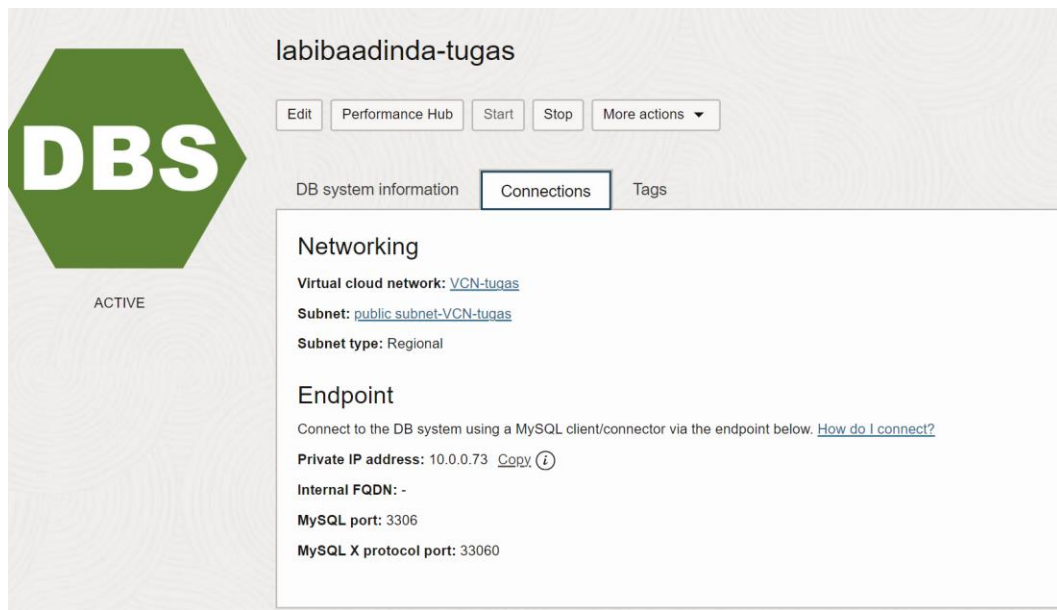
0

Inactive

0

Active

21. Untuk connect DBS nya ke connection, lalu nanti copy Private IP address



22. Koneksikan dengan perintah `'sudo mysql -u admin -p -h 10.0.0.73'`

```
ubuntu@labibaadindaZahwana24060121140111Tugas02:~$ sudo mysql -u admin -p -h 10.0.0.73
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 88
Server version: 8.0.36-u2-cloud MySQL Enterprise - Cloud

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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.
```

- 10.0.0.73 adalah Private IP address
- admin adalah username yang dibuat sebelumnya dan password yang dibuat di administrator credentials

Create administrator credentials

Username ⓘ  
admin

Password  
\*\*\*\*\*

Confirm password  
\*\*\*\*\*

- Perintah `'sudo mysql -u admin -p -h 10.0.0.73'` memiliki maksud untuk masuk ke dalam client MySQL dengan menggunakan pengguna **admin** dan terhubung ke server database yang berada di alamat IP **10.0.0.73**

Jadi, secara keseluruhan, perintah ini digunakan untuk masuk ke dalam client MySQL dengan menggunakan pengguna **admin** dan terhubung ke server database yang berada di alamat IP **10.0.0.73** Setelah perintah dieksekusi, pengguna akan diminta untuk memasukkan password untuk pengguna **admin** sebelum dapat masuk ke dalam client MySQL.

23. Buat database dengan syntax `CREATE DATABASE if_smart;`

```
mysql> CREATE DATABASE if_smart;
Query OK, 1 row affected (0.00 sec)

mysql> SHOW databases;
+-----+
| Database |
+-----+
| if_smart |
| information_schema |
| mysql |
| mysql_audit |
| performance_schema |
| sys |
+-----+
6 rows in set (0.01 sec)
```

24. Pindah direktori ke `/var/www/html`

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:~$ cd /var/www/html/
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html$ ls
index.html
```

Jadi, secara keseluruhan, perintah `cd /var/www/html/` diikuti oleh `ls` digunakan untuk berpindah ke direktori `/var/www/html/` dan menampilkan daftar semua file dan direktori yang ada di dalamnya.

25. Kloning dari git

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html$ sudo git clone https://github.com/labibaadinda/if_smart.git
Cloning into 'if_smart'...
remote: Enumerating objects: 4093, done.
remote: Counting objects: 100% (4093/4093), done.
remote: Compressing objects: 100% (2032/2032), done.
remote: Total 4093 (delta 1998), reused 4093 (delta 1998), pack-reused 0
Receiving objects: 100% (4093/4093), 5.90 MiB | 16.45 MiB/s, done.
Resolving deltas: 100% (1998/1998), done.
```

Perintah digunakan untuk mengkloning (mengunduh) repositori Git dari URL. Dengan menjalankan perintah ini, repositori Git "if\_smart" akan diunduh ke dalam direktori, sehingga dapat mulai bekerja dengan proyek tersebut secara lokal.

26. Masuk ke direktori `if_smart` dengan perintah `'cd if_smart/'`

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html$ cd if_smart/
```

## 27. Install composer di directory /var/www/html/if\_smart

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo composer install

Continue as root/super user [yes]?
Installing dependencies from lock file (including require-dev)
Verifying lock file contents can be installed on current platform.

> illuminate/Foundation/ComposerScripts:postAutoloadDump
> @php artisan package:discover --ansi
Discovered Package: barryvdh/laravel-dompdf
Discovered Package: facade/ignition
Discovered Package: fideloper/proxy
Discovered Package: fruitcake/laravel-cors
Discovered Package: laravel/tinker
Discovered Package: livewire/livewire
Discovered Package: maatwebsite/excel
Discovered Package: mnsbot/carbon
Discovered Package: nunomaduro/collision
Discovered Package: yajra/laravel-datatables-oracle
Package manifest generated successfully.
30 packages you are using are looking for funding.
see the "composer fund" command to find out more!
```

## 28. Set environment nya

- Perintah `'sudo cp .env.example .env'` digunakan untuk membuat salinan dari file **.env.example** dan menyimpannya dengan nama **.env**. Ini adalah perintah yang umum digunakan dalam pengembangan perangkat lunak berbasis PHP, terutama dengan framework Laravel.

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo cp .env.example .env
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo nano .env
```

- Sesuaikan environment nya

- DB\_HOST isi dengan Private IP address pada DBS di bagian connectionnya
- DB\_PORT isi dengan 3306
- DB\_DATABASE nya if\_smart
- DB\_USERNAME, DB\_PASSWORD sesuaikan dengan administrator credentials. Dengan admin adalah username yang dibuat sebelumnya dan password yang dibuat di administrator credentials

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02: /var/www/html/if_smart
GNU nano 6.2
APP_NAME="if SMART"
APP_ENV=local
APP_KEY=base64:TWk0DO0kY2UR23H8Czqb+kjN89zoH5SEtnZflshyQ=
APP_DEBUG=true
APP_URL=http://localhost

LOG_CHANNEL=stack

DB_CONNECTION=mysql
DB_HOST=10.0.0.73
DB_PORT=3306
DB_DATABASE=if_smart
DB_USERNAME=admin
DB_PASSWORD=SayLa12.

BROADCAST_DRIVER=log
CACHE_DRIVER=file
QUEUE_CONNECTION=sync
SESSION_DRIVER=file
SESSION_LIFETIME=120

REDIS_HOST=127.0.0.1
REDIS_PASSWORD=null
REDIS_PORT=6379

MAIL_MAILER=smtp
MAIL_HOST=smtp.mailtrap.io
MAIL_PORT=2525
MAIL_USERNAME=null
MAIL_PASSWORD=null
MAIL_ENCRYPTION=null
MAIL_FROM_ADDRESS=null
MAIL_FROM_NAME="${APP_NAME}"

AWS_ACCESS_KEY_ID=
AWS_SECRET_ACCESS_KEY=
AWS_DEFAULT_REGION=us-east-1
AWS_BUCKET=

PUSHER_APP_ID=
PUSHER_APP_KEY=
PUSHER_APP_SECRET=
PUSHER_APP_CLUSTER=mt1

MIX_PUSHER_APP_KEY="${PUSHER_APP_KEY}"
MIX_PUSHER_APP_CLUSTER="${PUSHER_APP_CLUSTER}"
```



29. Perintah 'sudo php artisan key:generate' memiliki tujuan untuk menghasilkan kunci aplikasi yang unik untuk digunakan dalam enkripsi data oleh aplikasi Laravel

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo php artisan key:generate
Application key set successfully.
```

30. Perintah **sudo php artisan migrate** digunakan untuk menjalankan semua migrasi database dalam aplikasi Laravel

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo php artisan migrate
Migration table created successfully.
Migrating: 2014_10_12_000000_create_users_table
Migrated: 2014_10_12_000000_create_users_table (11.08ms)
Migrating: 2014_10_12_100000_create_password_resets_table
Migrated: 2014_10_12_100000_create_password_resets_table (17.50ms)
Migrating: 2019_08_19_000000_create_failed_jobs_table
Migrated: 2019_08_19_000000_create_failed_jobs_table (18.30ms)
Migrating: 2023_11_05_130619_create_mahasiswas_table
Migrated: 2023_11_05_130619_create_mahasiswas_table (11.08ms)
Migrating: 2023_11_05_132056_create_dosens_table
Migrated: 2023_11_05_132056_create_dosens_table (9.36ms)
Migrating: 2023_11_05_132327_create_provinsis_table
Migrated: 2023_11_05_132327_create_provinsis_table (10.32ms)
Migrating: 2023_11_05_132355_create_pkls_table
Migrated: 2023_11_05_132355_create_pkls_table (10.94ms)
Migrating: 2023_11_05_132412_create_khs_table
Migrated: 2023_11_05_132412_create_khs_table (8.92ms)
Migrating: 2023_11_05_132427_create_skripsis_table
Migrated: 2023_11_05_132427_create_skripsis_table (11.05ms)
Migrating: 2023_11_05_141707_create_irs_table
Migrated: 2023_11_05_141707_create_irs_table (10.65ms)
Migrating: 2023_11_18_200611_create_kotas_table
Migrated: 2023_11_18_200611_create_kotas_table (9.00ms)
```

Saat menjalankan perintah `sudo php artisan migrate`, Laravel akan mencari dan menjalankan semua migrasi database yang belum dijalankan sebelumnya. Migrasi database digunakan untuk membuat, mengubah, atau menghapus struktur tabel database, serta melakukan perubahan yang diperlukan pada data yang ada. Migrasi digunakan untuk memastikan bahwa struktur database aplikasi selalu konsisten dan dapat diubah dengan mudah selama siklus pengembangan.

31. Koneksikan dengan database

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo mysql -u admin -p -h 10.0.0.73
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 307
Server version: 8.0.36-u2-cloud MySQL Enterprise - Cloud

Copyright (c) 2000, 2024, Oracle and/or its affiliates.
```

32. Isi table dari database if\_smart

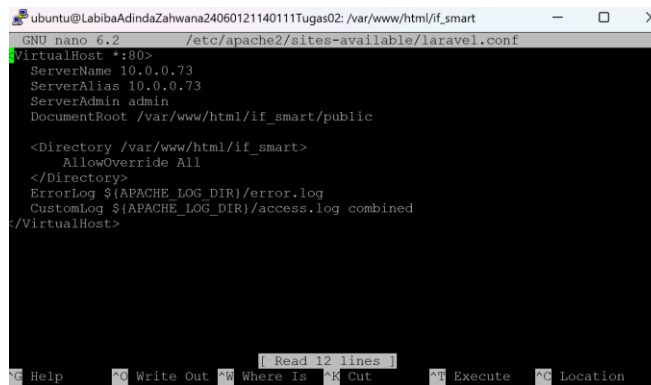
```
mysql> use if_smart
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> use if_smart;
Database changed
mysql> show tables;
+-----+
| Tables_in_if_smart |
+-----+
| dosens              |
| failed_jobs         |
| irs                 |
| khs                 |
| kotas               |
| mahasiswas          |
| migrations          |
| password_resets     |
| pkls                |
| provinsis           |
| skripsis            |
| users               |
+-----+
12 rows in set (0.00 sec)
```

33. Perintah `'sudo nano /etc/apache2/sites-available/laravel.conf'` memiliki tujuan untuk membuka berkas konfigurasi Apache yang disebut **laravel.conf** untuk diedit

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo nano /etc/apache2/sites-available/laravel.conf
```

- Sesuaikan Server name, alias dengan Private IP address yang ada pada DBS di bagian connectionnya.



```
GNU nano 6.2 /etc/apache2/sites-available/laravel.conf
VirtualHost *:80>
ServerName 10.0.0.73
ServerAlias 10.0.0.73
ServerAdmin admin
DocumentRoot /var/www/html/if_smart/public

<Directory /var/www/html/if_smart>
    AllowOverride All
</Directory>
ErrorLog ${APACHE_LOG_DIR}/error.log
CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

34. Perintah `'sudo a2dissite 000-default.conf'`

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo a2dissite 000-default.conf
Site 000-default disabled.
```

Perintah ini digunakan untuk menonaktifkan (disable) konfigurasi situs default Apache yang disebut **000-default.conf**. Situs default ini mungkin telah disediakan oleh penginstalan awal server web Apache, dan mungkin ingin menonaktifkannya jika ingin menggunakan konfigurasi situs khusus yang diatur sendiri.

35. Perintah **sudo a2ensite laravel**

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo a2ensite laravel.conf
Site laravel already enabled
```

Perintah ini digunakan untuk mengaktifkan (enable) konfigurasi situs khusus Apache yang disebut **laravel**. Ini mengizinkan server web Apache untuk melayani situs web yang dikonfigurasi dalam berkas konfigurasi **laravel.conf**

36. Perintah **'sudo a2enmod rewrite'**

```
ubuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo a2enmod rewrite
Enabling module rewrite.
```

Perintah ini digunakan untuk mengaktifkan modul Apache yang disebut **rewrite**. Modul ini diperlukan untuk mendukung fungsi rewriting URL, yang sering digunakan dalam aplikasi web Laravel dan banyak kerangka kerja lainnya untuk menangani rute permintaan dan manajemen URL yang lebih fleksibel.

### 37. Perintah **sudo systemctl restart apache2**

```
ibuntu@LabibaAdindaZahwana24060121140111Tugas02:/var/www/html/if_smart$ sudo systemctl restart apache2
```

Perintah ini digunakan untuk merestart layanan Apache HTTP Server pada sistem setelah melakukan perubahan konfigurasi. Ini memastikan bahwa perubahan konfigurasi yang baru diterapkan akan mulai berlaku dan server web akan memuat kembali konfigurasi yang diperbarui.

### 38. Web application BERHASIL di deploy

Dengan URL : <http://129.150.43.190/>

