1)Answer

sudo apt-get update

sudo nano /etc/hostname (zabbix-serv)

sudo nano /etc/hosts (172.16.59.132   zabbix-serv)

sudo reboot

####installation of apache######

sudo apt update

sudo apt install apache2

sudo systemctl start apache2

sudo systemctl enable apache2

sudo systemctl status apache2

###installation and configuration of php #####

sudo apt install php php-mbstring php-gd php-xml php-bcmath php-ldap php-mysql

php -v

```
saroj@zabbix-serv:~$ php -v
PHP 7.4.3 (cli) (built: Oct 25 2021 18:20:54) ( NTS )
Copyright (c) The PHP Group
Zend Engine v3.4.0, Copyright (c) Zend Technologies
    with Zend OPcache v7.4.3, Copyright (c), by Zend Technologies
saroj@zabbix-serv:~$ 
```

sudo nano /etc/php/7.4/apache2/php.ini

memory_limit 256Mupload_max_filesize 16M

post_max_size 16M

max_execution_time 300

max_input_time 300

max_input_vars 10000

date.timezone = Asia/Kathmandu

>save and exit

sudo systemctl restart apache2

sudo systemctl status apache2

######installation and configuration of mysql########

sudo apt install mysql-server mysql-client

sudo systemctl status mysql

sudo mysql –version

```
saroj@zabbix-serv:~$ sudo mysql --version
mysql  Ver 8.0.27-0ubuntu0.20.04.1 for Linux on x86_64 ((Ubuntu))
saroj@zabbix-serv:~$
```

sudo mysql_secure_installation

(I set weak password(0) for trail purpose)

##########creating user and Databases##########

sudo mysql -u root -p

CREATE DATABASE zabbixdb character set utf8 collate utf8_bin;

CREATE USER 'zabbix'@'localhost' IDENTIFIED BY 'password';

GRANT ALL PRIVILEGES ON zabbixdb.* TO 'zabbix'@'localhost' WITH GRANT OPTION;
FLUSH PRIVILEGES;

exit;

###########For installing the Zabbix server, we will install the **zabbix-server-mysql** package that provides MySQL support**, the zabbix-frontend-php** package that provides a web interface for the server, alongside **zabbix-agent** for shipping metrics and the **zabbix-apache-conf** package for Apache.############

wget https://repo.zabbix.com/zabbix/5.0/ubuntu/pool/main/z/zabbix-release/zabbix-release_5.0-1+focal_all.deb

sudo dpkg -i zabbix-release_5.0-1+focal_all.deb

sudo apt update

sudo apt install zabbix-server-mysql zabbix-frontend-php zabbix-agent zabbix-apache-conf

```
sudo nano /etc/zabbix/zabbix_server.conf
```

1. DBHost=localhost

2. DBName=zabbixdb
3. DBUser=zabbix
4. DBPassword=password

```
systemctl reload apache2
```

######Configure PHP for Zabbix frontend ###########

```
sudo nano /etc/zabbix/apache.conf
```

```
php_value date.timezone Asia/Kathmandu
```

```
sudo systemctl restart apache2
```

##########On Zabbix server host importing initial schema and data.

```
sudo zcat /usr/share/doc/zabbix-server-mysql*/create.sql.gz | mysql -uzabbix -p
zabbixdb
```

```
sudo systemctl enable zabbix-server
```

```
sudo systemctl restart zabbix-server
```

```
sudo systemctl status zabbix-server
```

```
sudo systemctl restart apache2
```

```
sudo systemctl status apache2
```

#########Allowing ports for zabbix###########

```
sudo ufw allow 80/tcp
```

```
sudo ufw allow 10050/tcp
```

```
sudo ufw allow 10051
```

```
udo ufw reload
```

#############

http://172.16.59.132/zabbix

2)Ans

systemctl status zabbix-server

```
saroj@zabbix-serv:~$ sudo systemctl status zabbix-server
● zabbix-server.service - Zabbix Server
     Loaded: loaded (/lib/systemd/system/zabbix-server.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2021-12-01 21:50:55 PST; 9s ago
    Process: 50722 ExecStart=/usr/sbin/zabbix_server -c $CONFFILE (code=exited, status=0/SUCCESS)
   Main PID: 50724 (zabbix_server)
      Tasks: 38 (limit: 2260)
     Memory: 34.6M
     CGroup: /system.slice/zabbix-server.service
             ├─50724 /usr/sbin/zabbix_server -c /etc/zabbix/zabbix_server.conf
             ├─50725 /usr/sbin/zabbix_server: configuration syncer [synced configuration in 0.057347 sec, idle 60 sec]
             ├─50726 /usr/sbin/zabbix_server: alert manager #1 [sent 0, failed 0 alerts, idle 5.099905 sec during 5.101166 sec]
             ├─50727 /usr/sbin/zabbix_server: alerter #1 started
             ├─50728 /usr/sbin/zabbix_server: alerter #2 started
```

sudo nano /etc/zabbix/zabbix_server.conf

```
####### For advanced users - TCP-related fine-tuning parameters #######

## Option: ListenBacklog
#        The maximum number of pending connections in the queue. This parameter is passed to
#        listen() function as argument 'backlog' (see "man listen").
#
# Mandatory: no
# Range: 0 - INT_MAX (depends on system, too large values may be silently truncated to implem
# Default: SOMAXCONN (hard-coded constant, depends on system)
# ListenBacklog=
DBHost=localhost
DBName=zabbixdb
DBUser=zabbix
DBPassword=password

^G Get Help    ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify      ^C Cur Pos
^X Exit        ^R Read File    ^\ Replace      ^U Paste Text   ^T To Spell     ^_ Go To Line
```

http://172.16.59.132/zabbix
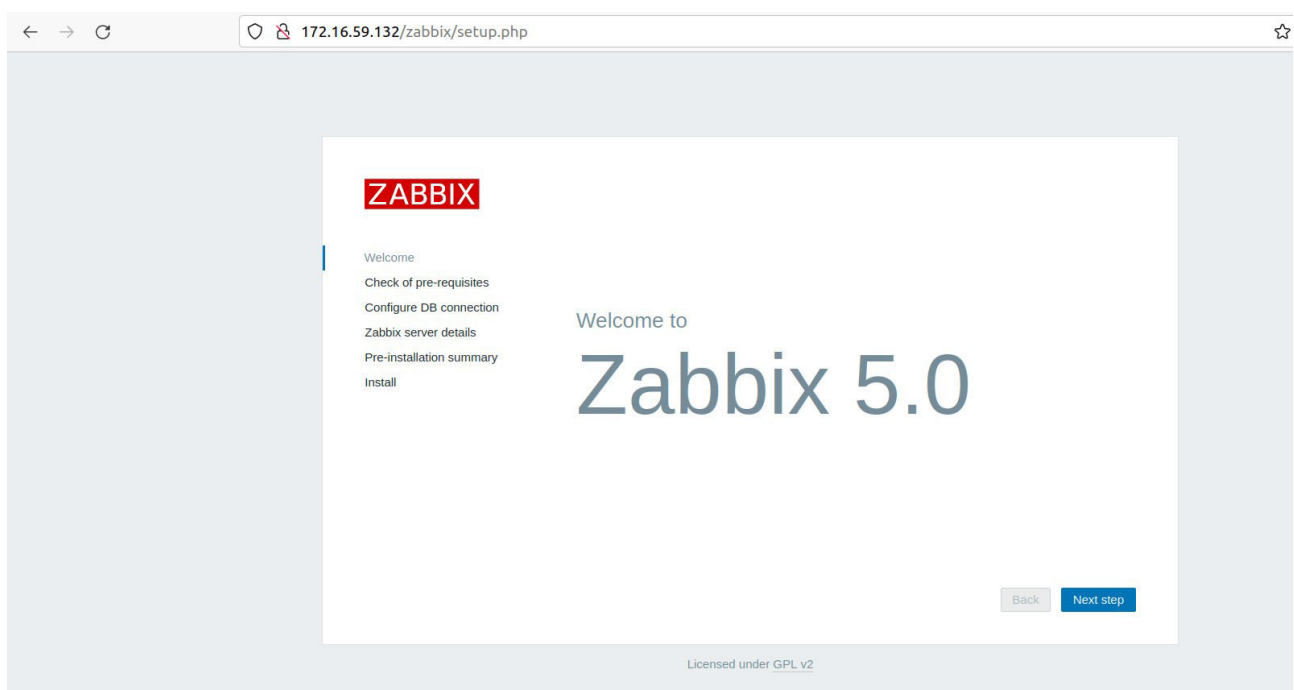
Q3)

###############installation and configuration of zabbix agent(already installed above)###########

sudo apt install zabbix-agent

systemctl status zabbix-agent

```
saroj@zabbix-serv:~$ sudo systemctl status zabbix-agent
[sudo] password for saroj:
● zabbix-agent.service - Zabbix Agent
     Loaded: loaded (/lib/systemd/system/zabbix-agent.service; enabled; vendor >
     Active: active (running) since Thu 2021-12-02 10:08:19 PST; 51min ago
    Process: 2831 ExecStart=/usr/sbin/zabbix_agentd -c $CONFFILE (code=exited, >
   Main PID: 2834 (zabbix_agentd)
      Tasks: 6 (limit: 2260)
     Memory: 9.3M
     CGroup: /system.slice/zabbix-agent.service
             ├─2834 /usr/sbin/zabbix_agentd -c /etc/zabbix/zabbix_agentd.conf
             ├─2835 /usr/sbin/zabbix_agentd: collector [idle 1 sec]
             ├─2836 /usr/sbin/zabbix_agentd: listener #1 [waiting for connectio>
             ├─2837 /usr/sbin/zabbix_agentd: listener #2 [waiting for connectio>
             ├─2838 /usr/sbin/zabbix_agentd: listener #3 [waiting for connectio>
             └─2839 /usr/sbin/zabbix_agentd: active checks #1 [idle 1 sec]

Dec 02 10:08:19 zabbix-serv systemd[1]: Starting Zabbix Agent...
Dec 02 10:08:19 zabbix-serv systemd[1]: Started Zabbix Agent.
```

```
##########Run as active check agent##############

sudo cat /etc/zabbix/zabbix_agentd.conf
Hostname=zabbix-serv
ServerActive=172.16.59.132
Server=172.16.59.132

#######goto configuration → host → create host###############
##give the same name as the config file hostname and server ip
while creating host
```

##########change the permission of //*var//*log//syslog (give read permission to zabbix user)

sudo setfacl -m u:zabbix:r-- /var/log/syslog

#######restart the zabbix-agent

ZABBIX « ⟋

Monitoring
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- Overview
- Latest data
- Screens
- Maps
- Discovery
- Services

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Reports
Configuration
Administration

Support
Share
Help
User settings

2021-12-03 00:02:33	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7173] dhcp4 (ens33): option requested_subnet_mask => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7173] dhcp4 (ens33): option requested_static_routes => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7173] dhcp4 (ens33): option requested_routers => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7173] dhcp4 (ens33): option requested_root_path => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7173] dhcp4 (ens33): option requested_rfc3442_classless_static_routes => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7173] dhcp4 (ens33): option requested_ntp_servers => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_nis_servers => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_nis_domain => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_ms_classless_static_routes => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_interface_mtu => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_host_name => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_domain_search => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_domain_name_servers => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_domain_name => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option requested_broadcast_address => '1'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option next_server => '172.16.59.254'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option ip_address => '172.16.59.132'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option expiry => '1638470851'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option domain_name_servers => '172.16.59.2'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7172] dhcp4 (ens33): option domain_name => 'localdomain'
2021-12-03 00:02:32	Dec 2 10:17:31 zabbix-serv NetworkManager[768]: <info> [1638469051.7171] dhcp4 (ens33): option dhcp_lease_time => '1800'
2021-12-03 00:02:01	Dec 2 10:17:01 zabbix-serv CRON[2971]: (root) CMD (cd / && run-parts --report /etc/cron.hourly)
2021-12-02 23:54:02	Dec 2 10:09:01 zabbix-serv systemd[1]: Finished Clean php session files.
2021-12-02 23:54:02	Dec 2 10:09:01 zabbix-serv systemd[1]: phpsessionclean.service: Succeeded.
2021-12-02 23:54:02	Dec 2 10:09:01 zabbix-serv systemd[1]: Starting Clean php session files...

screenshot of graph

zabbix-serv: Memory utilization

		last	min	avg	max
■ Memory utilization	[avg]	81.3027 %	79.1207 %	79.605 %	81.3027 %
○ Trigger: High memory utilization (>90% for 5m)	[> 90]				

zabbix-serv: System load