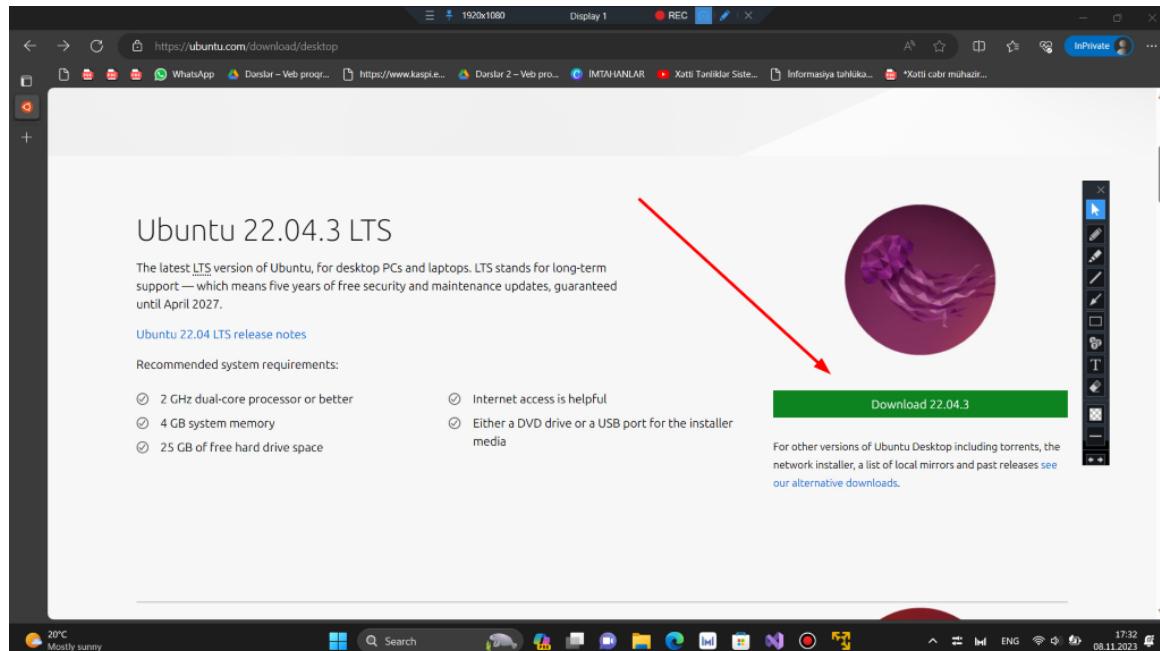


Midterm 2.1 MariaDB, Teymur Novruzov 696.22ES

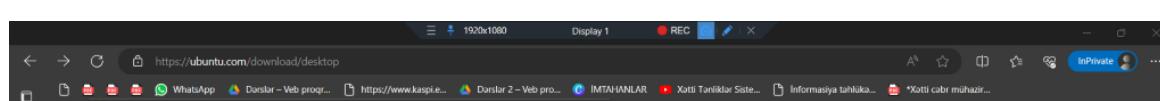
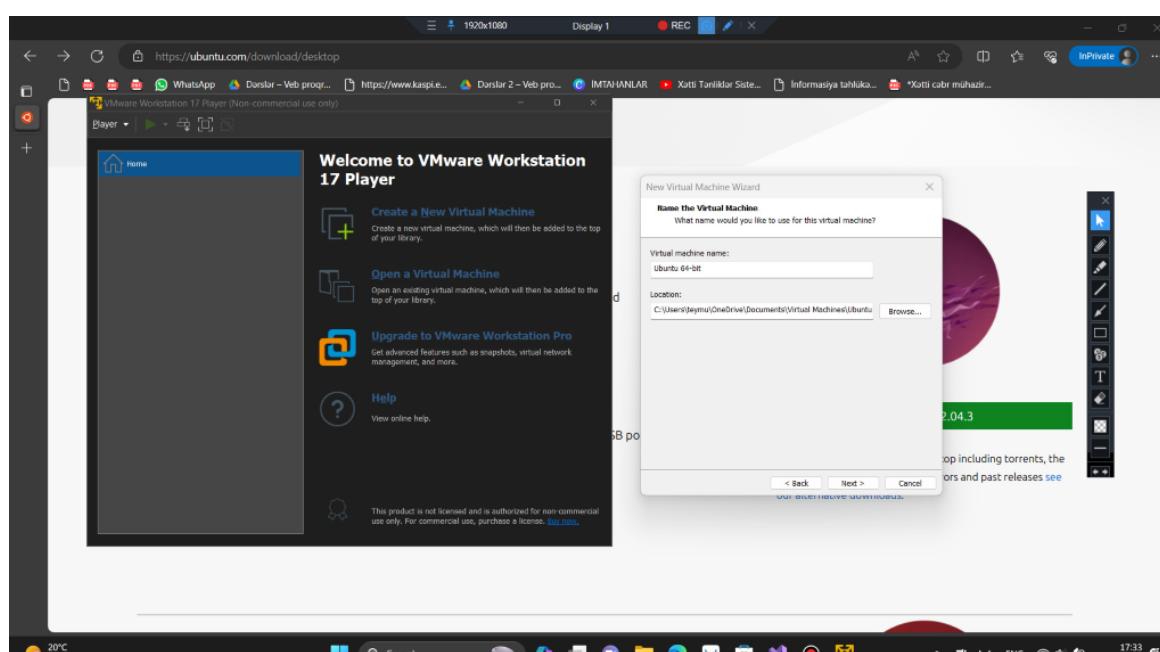
Wednesday, November 08, 2023 4:38 PM

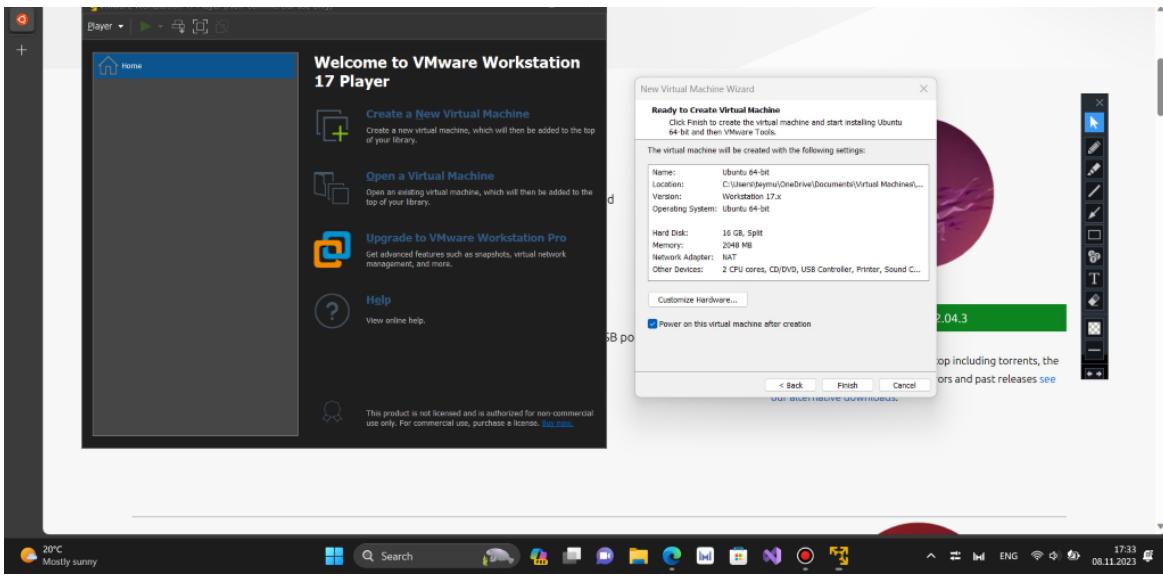
If we want to install the latest version of MariaDB on our Ubuntu 22.04 system, we need to do a few extra steps. The default repository of Ubuntu 22.04 does not have the newest MariaDB version, so we have to add the official repository of MariaDB to our system. Before we do that, we also need to install some dependencies that are required for MariaDB.

- 1) I downloaded the original ISO file of Ubuntu 22.04 from official website of Ubuntu (<https://ubuntu.com/download/desktop>)

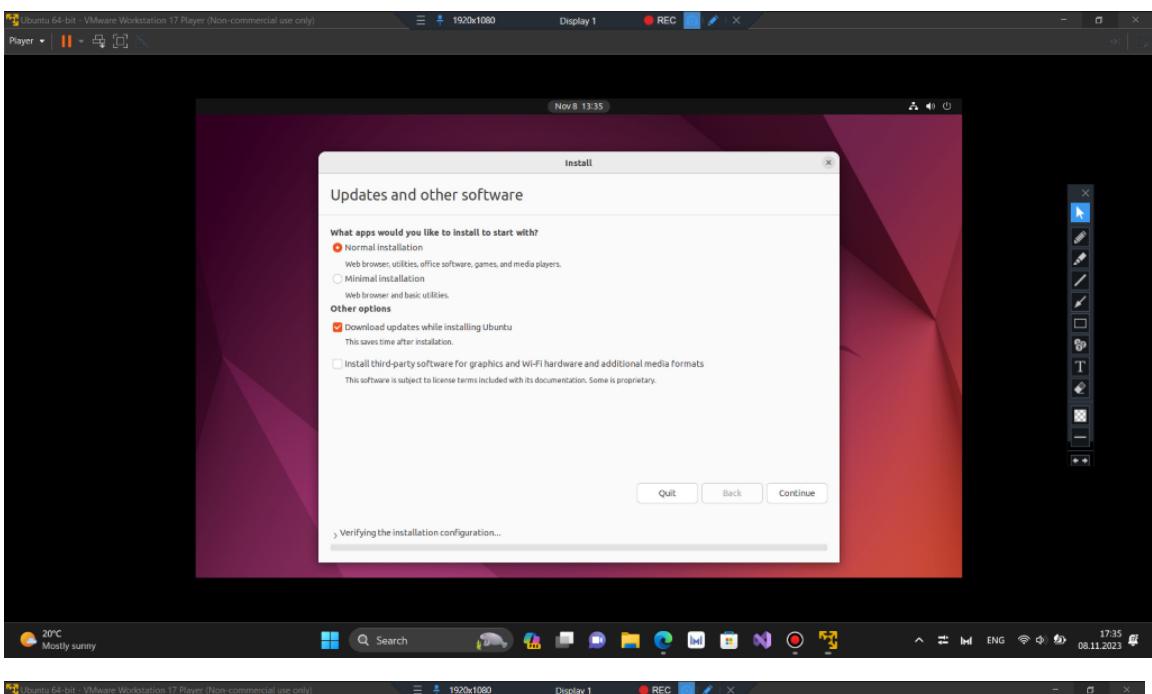
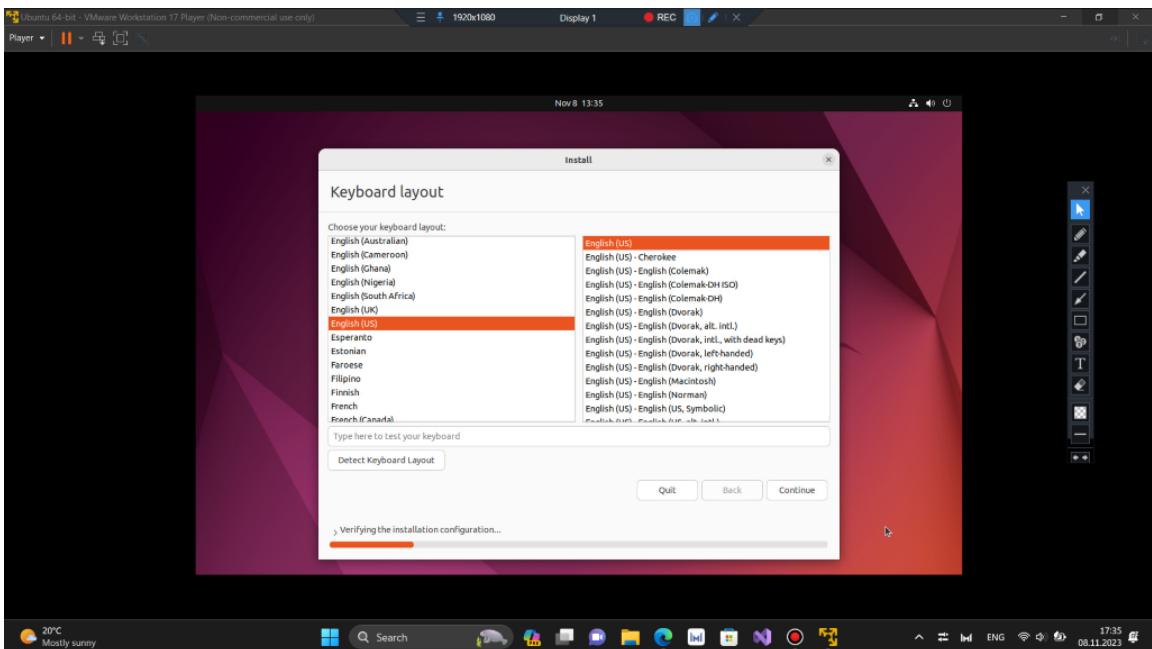


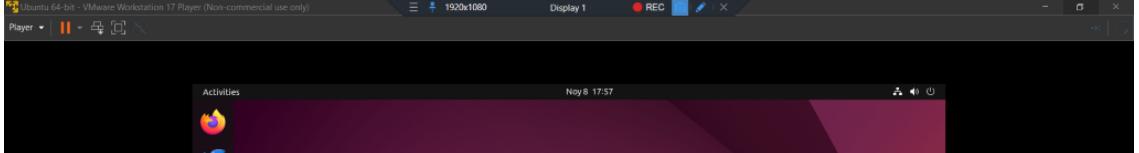
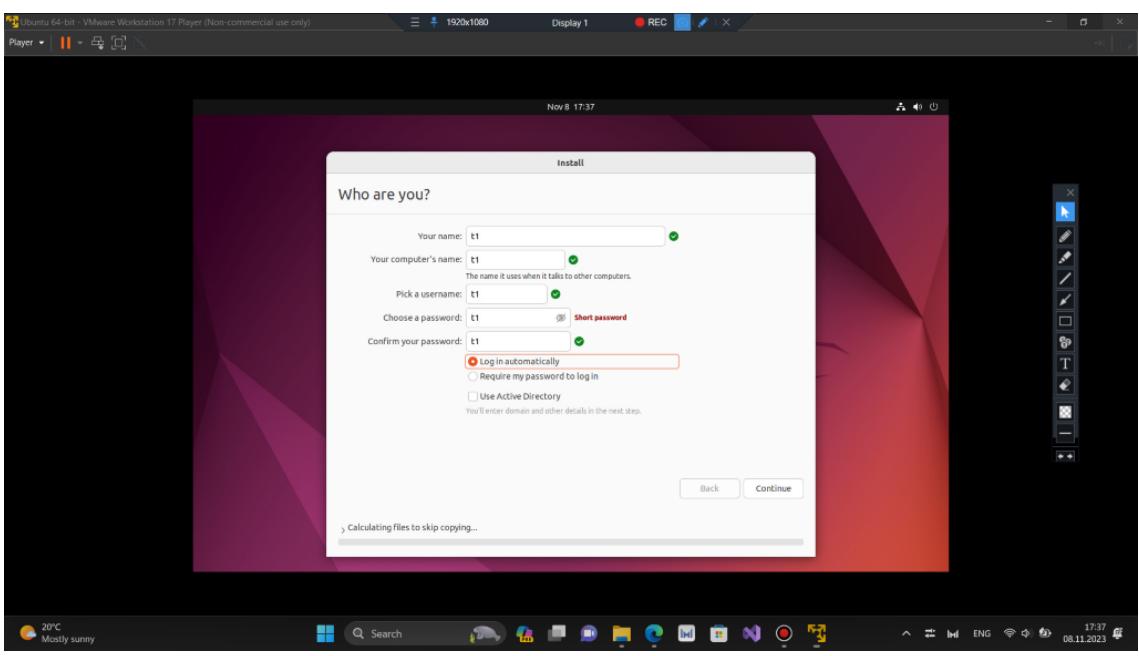
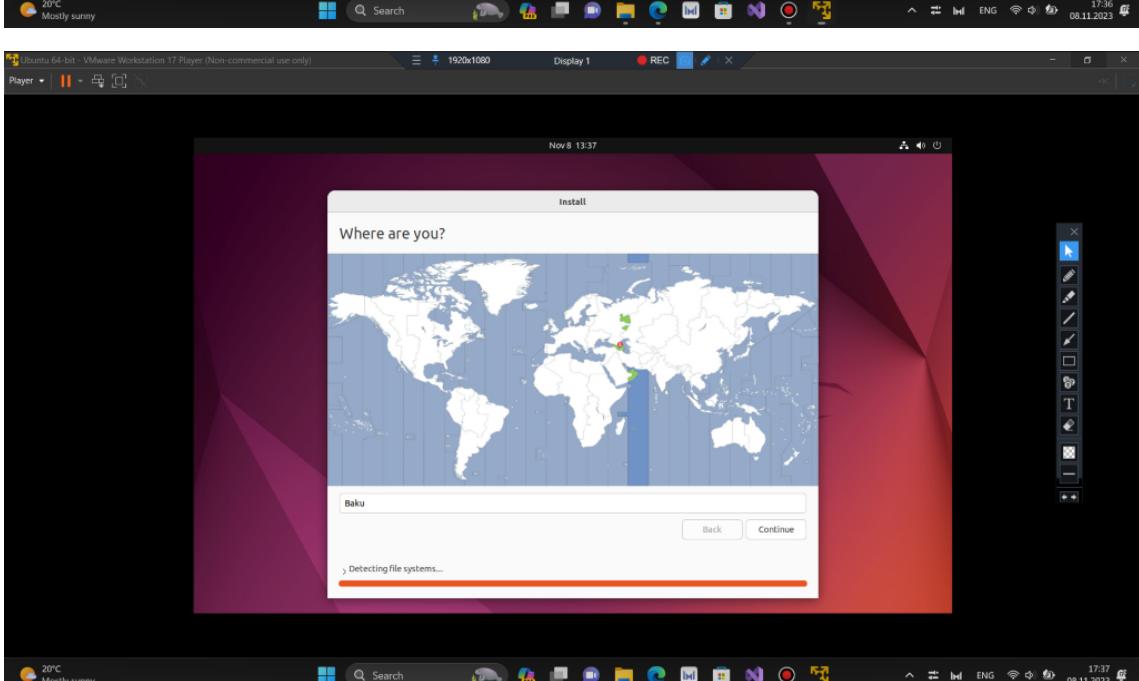
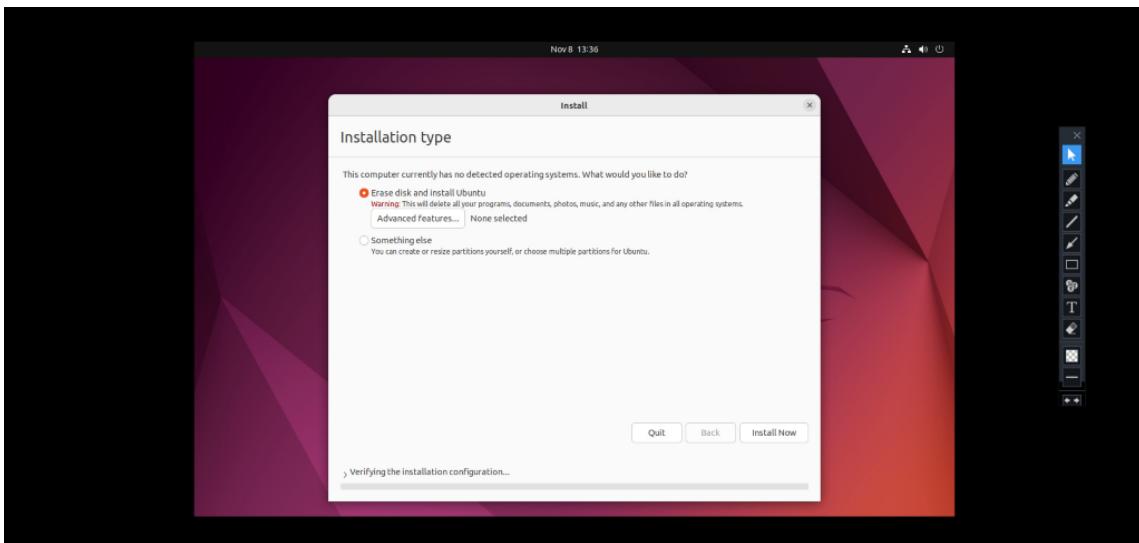
- 2) I configured the virtual machine with **2 CPUs, 16 GB memory** and **2048 MB base memory** in VMware to ensure optimal performance and resource allocation for running NMAP

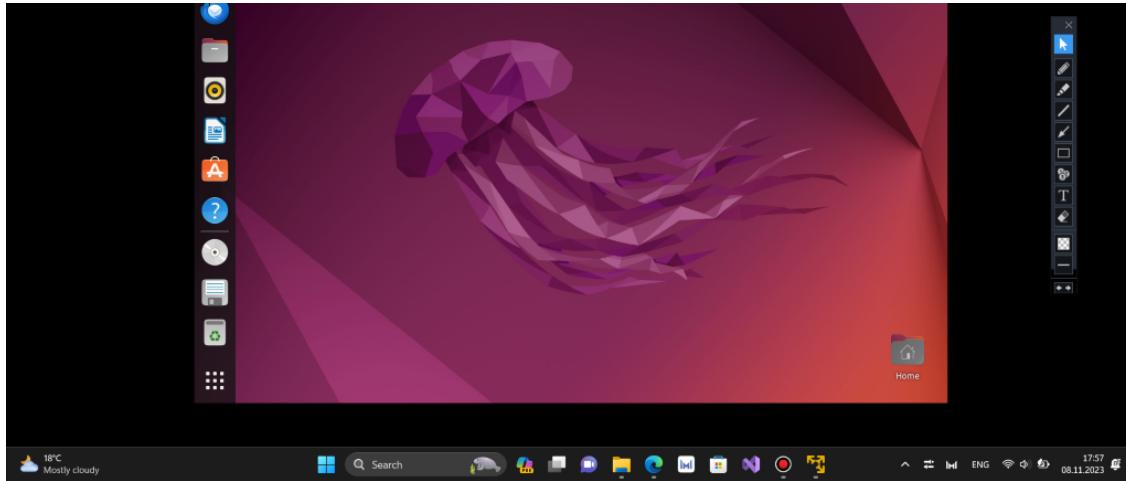




3) I started the Virtual Ubuntu and started configuring it (Language – US English, username t1 (Teymur1), password t1)

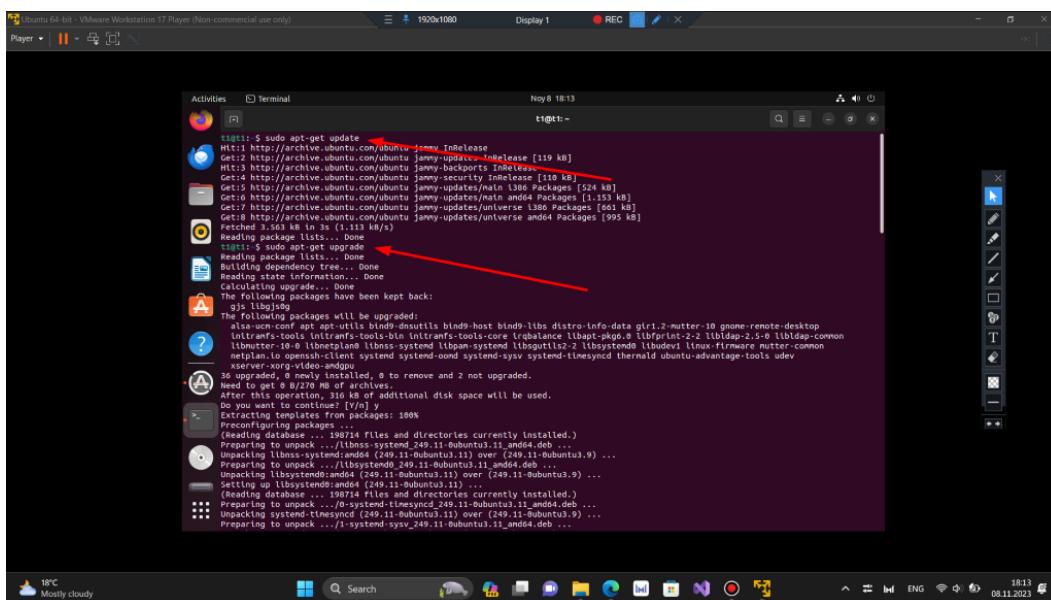






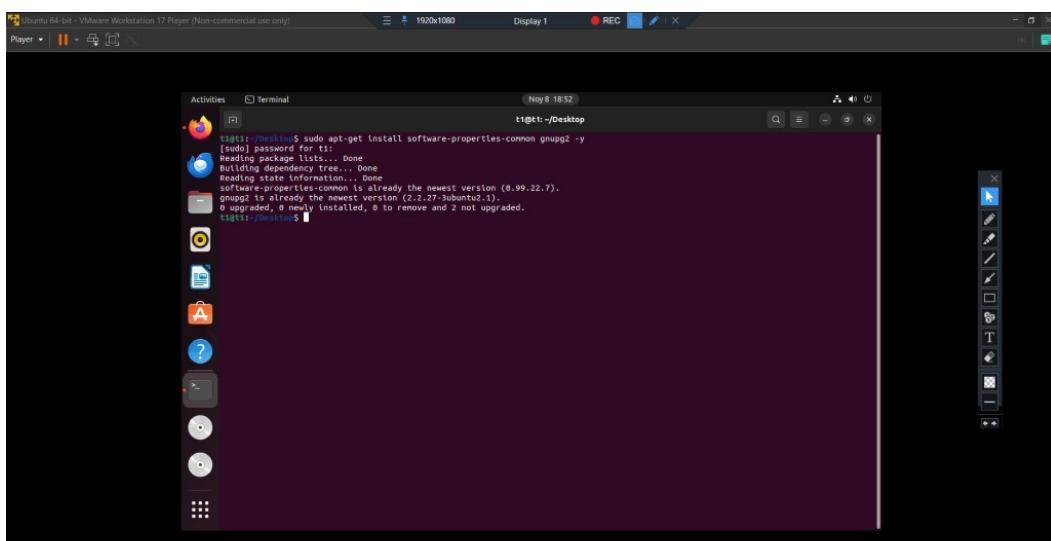
4) But firstly we need to

- a) Fetch update software list by running the ***sudo apt-get update*** command
and
 - b) Update Ubuntu software by running the ***sudo apt-get upgrade*** command



5) I downloaded MariaDB Server-Client packages. The command for it :

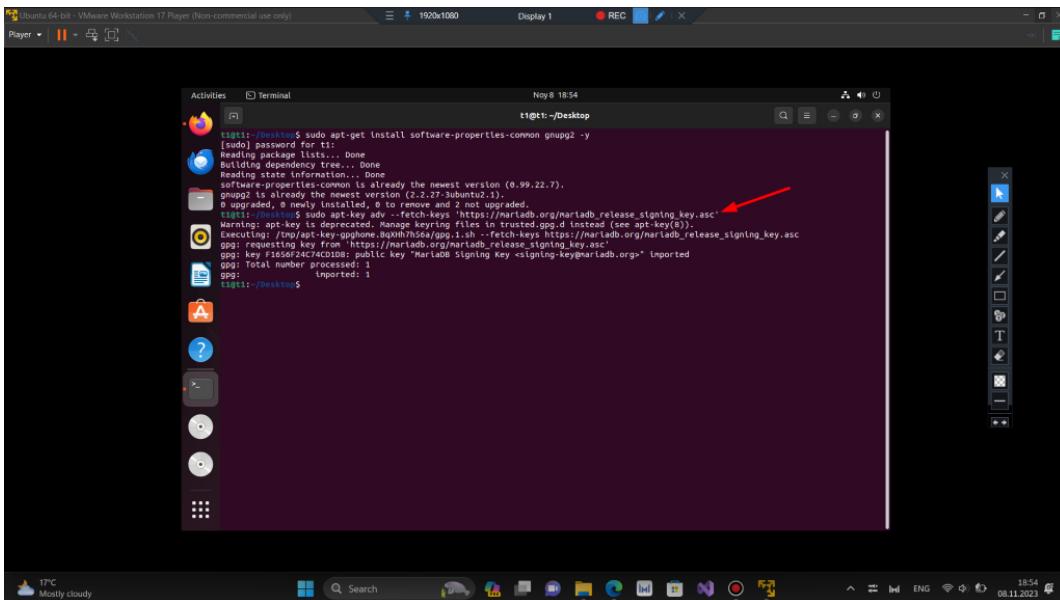
```
sudo apt-get install software-properties-common gnupg2 -y
```





6) I downloaded this package to install MariaDB from the official apt repository on Ubuntu 22.04. This package contains the public key that is used to sign the MariaDB packages. The command for it :

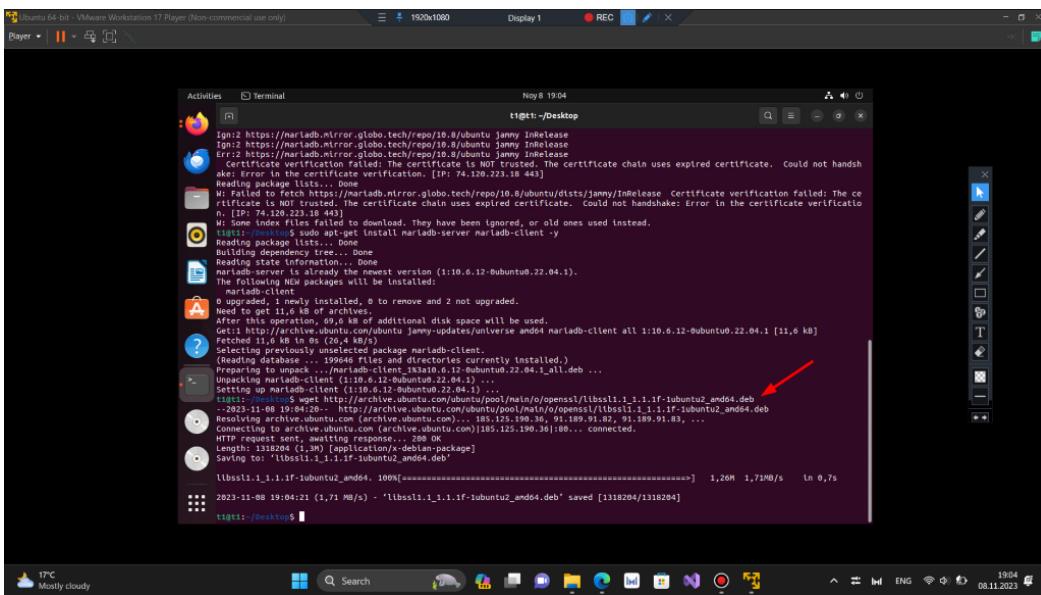
```
sudo apt-key adv --fetch-keys  
'https://mariadb.org/mariadb_release_signing_key.asc'
```



7) In order to solve errors (Not including), I downloaded 2 more packages according to conditions :

a) I downloaded this package to ensure MariaDB has the necessary security libraries by fetching the required version from the Ubuntu repository. Code :

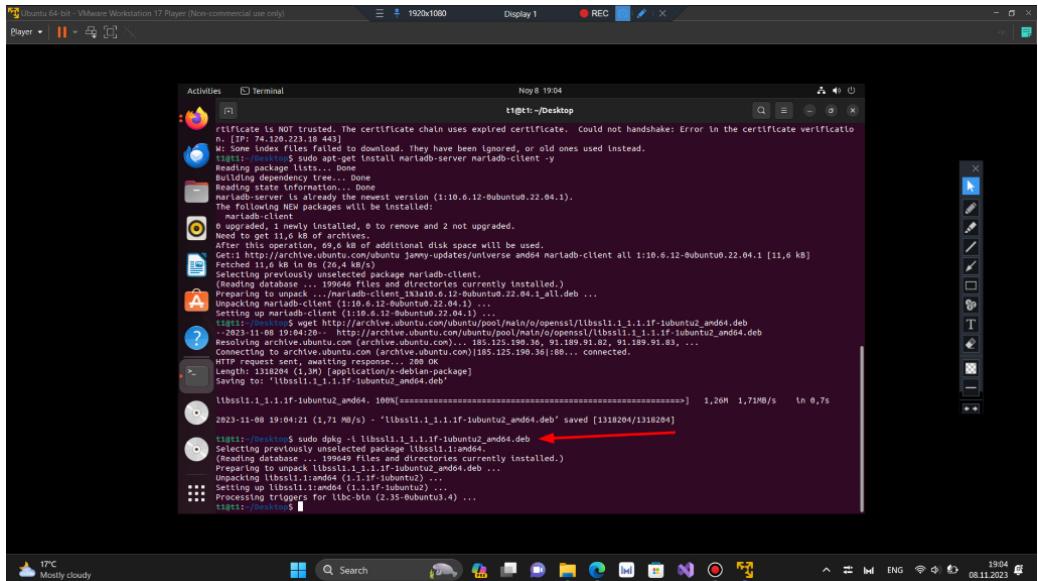
```
sudo wget  
http://archive.ubuntu.com/ubuntu/pool/main/o/openssl/libssl1.1_1.  
1.1f-1ubuntu2_amd64.deb
```



and

b) I installed this package to integrate essential security features into MariaDB, enabling secure communication and data encryption. Code :

```
sudo dpkg -i libssl1.1_1.1.1f-1ubuntu2_amd64.deb
```

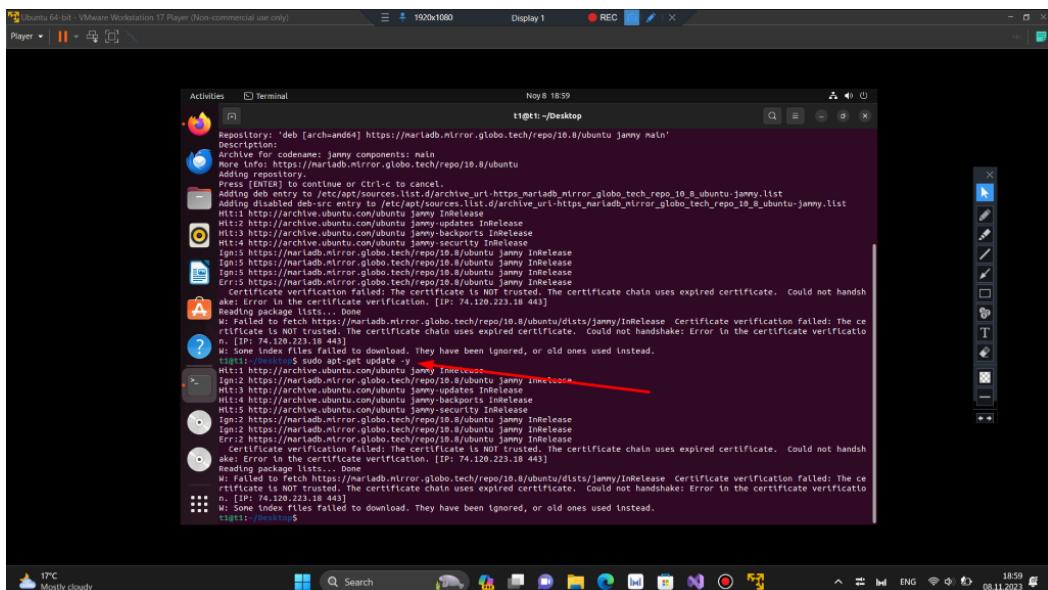


```
rtificate is NOT trusted. The certificate chain uses expired certificate. Could not handshake: Error in the certificate verification
[IP: 74.120.223.18 443]
W: Some index files failed to download. They have been ignored, or old ones used instead.
t@t1:/Desktop$ sudo apt-get install mariadb-server mariadb-client -y
Building dependency tree... Done
Reading state information... Done
mariadb-client is already the newest version (1:10.6.12-0ubuntu0.22.04.1).
The following NEW packages will be installed:
  mariadb-client
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 11.6 kB of archives.
After this operation, 69.6 kB of additional disk space will be used.
Get: http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 mariadb-client all 1:10.6.12-0ubuntu0.22.04.1 [11.6 kB]
Selecting previously unselected package mariadb-client.
(Reading database... 199649 files and directories currently installed.)
Preparing to unpack .../mariadb-client_1:10.6.12-0ubuntu0.22.04.1_all.deb ...
Unpacking mariadb-client (1:10.6.12-0ubuntu0.22.04.1) ...
Setting up mariadb-client (1:10.6.12-0ubuntu0.22.04.1) ...
libssl1.1.1-1.1.1f-1ubuntu2_amd64.deb
2023-11-08 19:04:21 (1.71 MB/s) - 'libssl1.1.1-1.1.1f-1ubuntu2_amd64.deb' saved [1318204/1318204]
t@t1:/Desktop$ sudo dpkg -i libssl1.1.1-1.1.1f-1ubuntu2_amd64.deb
(Reading database... 199649 files and directories currently installed.)
Preparing to unpack libssl1.1.1-1.1.1f-1ubuntu2_amd64.deb ...
Unpacking libssl1.1.1-1.1.1f-1ubuntu2_amd64.deb ...
Setting up libssl1.1-1.1.1f-1ubuntu2_amd64.deb ...
Processing triggers for libc-bin (2.35-0ubuntu3.4) ...
t@t1:/Desktop$
```

8) After I had to make sure everything is lastest, so I updated again.

Code :

```
sudo apt-get update -y
```



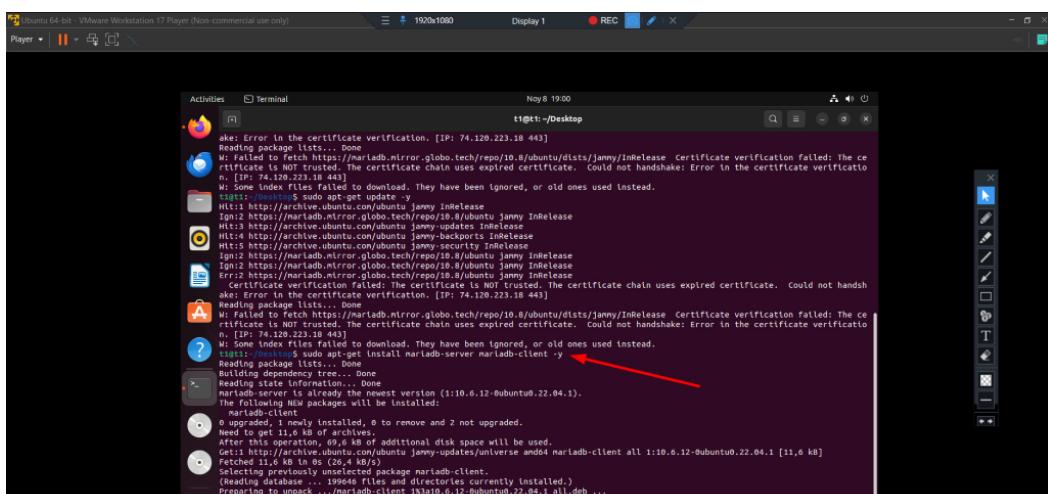
```
Reading package lists... Done
W: Failed to fetch https://mariaDB.mirror.globo.tech/repo/10.0/ubuntu jammy InRelease
  Certificate verification failed: The certificate is NOT trusted. The certificate chain uses expired certificate. Could not handshake: Error in the certificate verification
[IP: 74.120.223.18 443]
W: Failed to fetch https://mariaDB.mirror.globo.tech/repo/10.0/ubuntu/dists/jammy/InRelease  Certificate verification failed: The certificate is NOT trusted. The certificate chain uses expired certificate. Could not handshake: Error in the certificate verification
[IP: 74.120.223.18 443]
W: Some index files failed to download. They have been ignored, or old ones used instead.
t@t1:/
```

9) I installed MariaDB server and client using this command to ensure

communication between applications and the MariaDB database

system allowing for efficient data management and retrieval. Code :

```
apt-get install mariadb-server mariadb-client -y
```



```
Ake: Error in the certificate verification. [IP: 74.120.223.18 443]
Reading package lists... Done
W: Failed to fetch https://mariaDB.mirror.globo.tech/repo/10.0/ubuntu/dists/jammy/InRelease  Certificate verification failed: The certificate is NOT trusted. The certificate chain uses expired certificate. Could not handshake: Error in the certificate verification
[IP: 74.120.223.18 443]
W: Some index files failed to download. They have been ignored, or old ones used instead.
t@t1:/Activities$ apt-get install mariadb-server mariadb-client -y
Building dependency tree... Done
Reading state information... Done
mariadb-client is already the newest version (1:10.6.12-0ubuntu0.22.04.1).
The following NEW packages will be installed:
  mariadb-client
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 11.6 kB of archives.
After this operation, 69.6 kB of additional disk space will be used.
Get: http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 mariadb-client all 1:10.6.12-0ubuntu0.22.04.1 [11.6 kB]
Selecting previously unselected package mariadb-client.
(Reading database... 199649 files and directories currently installed.)
Preparing to unpack .../mariadb-client_1:10.6.12-0ubuntu0.22.04.1_all.deb ...
```

```

:: Unpacking mariadb-client (1:10.6.12-0ubuntu0.22.04.1) ...
Setting up mariadb-client (1:10.6.12-0ubuntu0.22.04.1) ...
t@t:~$ 

```

17°C Mostly cloudy

Search Display 1 REC

19:00 08.11.2023

10) Then I started and enabled MariaDB. Codes :

```

sudo systemctl start mariadb
sudo systemctl enable mariadb

```

```

Activities Terminal Nov 8 19:19
t@t:~/Desktop

Need to get 11.6 kB of archives.
After this operation, 69.6 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 mariadb-client all 1:10.6.12-0ubuntu0.22.04.1 [11.6 kB]
Fetched 11.6 kB in 0s (26.4 kB/s)
Selecting previously unselected package mariadb-client.
(Reading database ... 199649 files and directories currently installed.)
Preparing to unpack .../mariadb-client_1:10.6.12-0ubuntu0.22.04.1_all.deb ...
Unpacking mariadb-client (1:10.6.12-0ubuntu0.22.04.1) ...
Setting up mariadb-client (1:10.6.12-0ubuntu0.22.04.1) ...
libssl1.1.1-1.1.1f-1ubuntu2_amd64.deb
--2023-11-08 19:04:20 - http://archive.ubuntu.com/ubuntu/pool/main/o/openssl/libssl1.1.1.1f-1ubuntu2_amd64.deb
Resolving archive.ubuntu.com (archive.ubuntu.com)... 185.125.190.36, 91.189.91.02, 91.189.91.03, ...
Connecting to archive.ubuntu.com (archive.ubuntu.com)|185.125.190.36|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1318204 (1.3M) [application/x-debian-package]
Saving to: '/libssl1.1.1.1f-1ubuntu2_amd64.deb'

libssl1.1.1.1f-1ubuntu2_amd64 100%[=====] 1,20M 1,71MB/s in 0.7s

2023-11-08 19:04:21 (1.71 MB/s) - '/libssl1.1.1.1f-1ubuntu2_amd64.deb' saved [1318204/1318204]

t@t:~$ sudo dpkg -i libssl1.1.1.1f-1ubuntu2_amd64.deb
Selecting previously unselected package libssl1.1.1.1f-1ubuntu2_amd64.
(Reading database ... 199649 files and directories currently installed.)
Preparing to unpack libssl1.1.1.1f-1ubuntu2_amd64.deb ...
Unpacking libssl1.1.1.1f-1ubuntu2_amd64 (1:1.1.1.1f-1ubuntu2) ...
Setting up libssl1.1.1.1f-1ubuntu2 (1:1.1.1.1f-1ubuntu2) ...
Processing triggers for libc-bin (2.35-ubuntu3.4) ...
libssl1.1.1.1f-1ubuntu2_amd64 apt-get install mariadb-server mariadb-client -y
Reading package lists...
Building dependency tree...
Done
Reading status information...
Done
mariadb-client is already the newest version (1:10.6.12-0ubuntu0.22.04.1).
mariadb-server is already the newest version (1:10.6.12-0ubuntu0.22.04.1).
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
t@t:~$ sudo systemctl enable mariadb
Synchronizing state of mariadb.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable mariadb
t@t:~$ mysql_secure_installation

```

17°C Mostly cloudy

Search Display 1 REC

19:37 08.11.2023

11) Running this command enhances MariaDB security by guiding through essential configurations and setting passwords, removing anonymous users, and deleting test databases. Code :

```

sudo mysql_secure_installation

```

```

Activities Terminal Nov 8 19:20
t@t:~/Desktop

Building dependency tree... Done
Reading package lists...
Building dependency tree...
mariadb-client is already the newest version (1:10.6.12-0ubuntu0.22.04.1).
mariadb-server is already the newest version (1:10.6.12-0ubuntu0.22.04.1).
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
t@t:~$ sudo systemctl enable mariadb
Synchronizing state of mariadb.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable mariadb
t@t:~$ sudo mysql_secure_installation

```

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB SERVER IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current password for the root user. If you've just installed MariaDB, and haven't set the root password yet, you should just press enter here.

Enter current password for root (enter for none): OK, successfully used password, moving on...

Setting the root password or using the unix_socket ensures that nobody can log into the MariaDB root user without the proper authorisation.

You already have your root account protected, so you can safely answer 'n'.

Switch to unix_socket authentication [Y/n] ... Success!

You already have your root account protected, so you can safely answer 'n'.

Change the root password? [Y/n] New password: Re-enter new password: Sorry, you can't use an empty password here. New password:

17°C Mostly cloudy

Search Display 1 REC

19:37 08.11.2023

12) I used this command to securely log in as the root user to MariaDB by entering a password for authentication. Code :

```

mysql -u root -p

```

```

Activities Terminal Nov 8 19:22
t@t:~/Desktop

Normally, root should only be allowed to connect from 'localhost'. This ensures that someone cannot guess at the root password from the network.
Disallow root login remotely? [Y/n] ... Success!
By default, MariaDB comes with a database named 'test' that anyone can access. This is also intended only for testing, and should be removed before moving into a production environment.
Remove test database and access to it? [Y/n] ... Success!
  - Dropping test database...
  - Removing privileges on test database...
  ... Success!
Reloading the privilege tables will ensure that all changes made so far will take effect immediately.

```

17°C Mostly cloudy

Search Display 1 REC

19:37 08.11.2023

```

    Reload privilege tables now? [Y/n]
    ... Success!
    Cleaning up...
    All done! If you've completed all of the above steps, your MariaDB
    installation should now be secure.

    Thanks for using MariaDB!
    t1@t1-OptiX: ~ $ mysql -u root -p
    Enter password:
    Welcome to the MariaDB monitor.  Commands end with ; or \g.
    Your MariaDB connection id is 41
    Server version: 10.6.12-MariaDB-Ubuntu0.22.04.1 Ubuntu 22.04

    Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

    MariaDB [(none)]>

```

Ubuntu 17°C Mostly cloudy 19:40 08.11.2023

13) Now in final I will explain how I created new database on MariaDB on my Ubuntu 22.04.

I wrote **mysql -u root -p** to access to MariaDB,

I entered my password,

I looked for existing databases with **show databases;**,

I created a new database with name "**"TeymurNovruzovVariant2Task1"**

It worked perfectly

```

    Activities Terminal Nov 8 19:46
    t1@t1-OptiX: ~ $ mysql -u root -p
    Enter password:
    Welcome to the MariaDB monitor.  Commands end with ; or \g.
    Your MariaDB connection id is 45
    Server version: 10.6.12-MariaDB-Ubuntu0.22.04.1 Ubuntu 22.04

    Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

    MariaDB [(none)]> show databases;
    +-----+
    | Database |
    +-----+
    | information_schema |
    | mysql |
    | performance_schema |
    | sys |
    +-----+
    4 rows in set (0.001 sec)

    MariaDB [(none)]> create database TeymurNovruzovVariant2Task1;
    Query OK, 1 row affected (0.001 sec)

    MariaDB [(none)]> show databases;
    +-----+
    | Database |
    +-----+
    | information_schema |
    | mysql |
    | performance_schema |
    | sys |
    | TeymurNovruzovVariant2Task1 |
    +-----+
    5 rows in set (0.001 sec)

    MariaDB [(none)]>

```

Ubuntu 17°C Mostly cloudy 19:46 08.11.2023

Additionally used app - Bandicam.

IT'S WORKING PERFECTLY, THANKS FOR WATCHING TEACHER !

Teacher : Elviz Ismayilov

Student : Teymur Novruzov (Group 696.22 ES)

