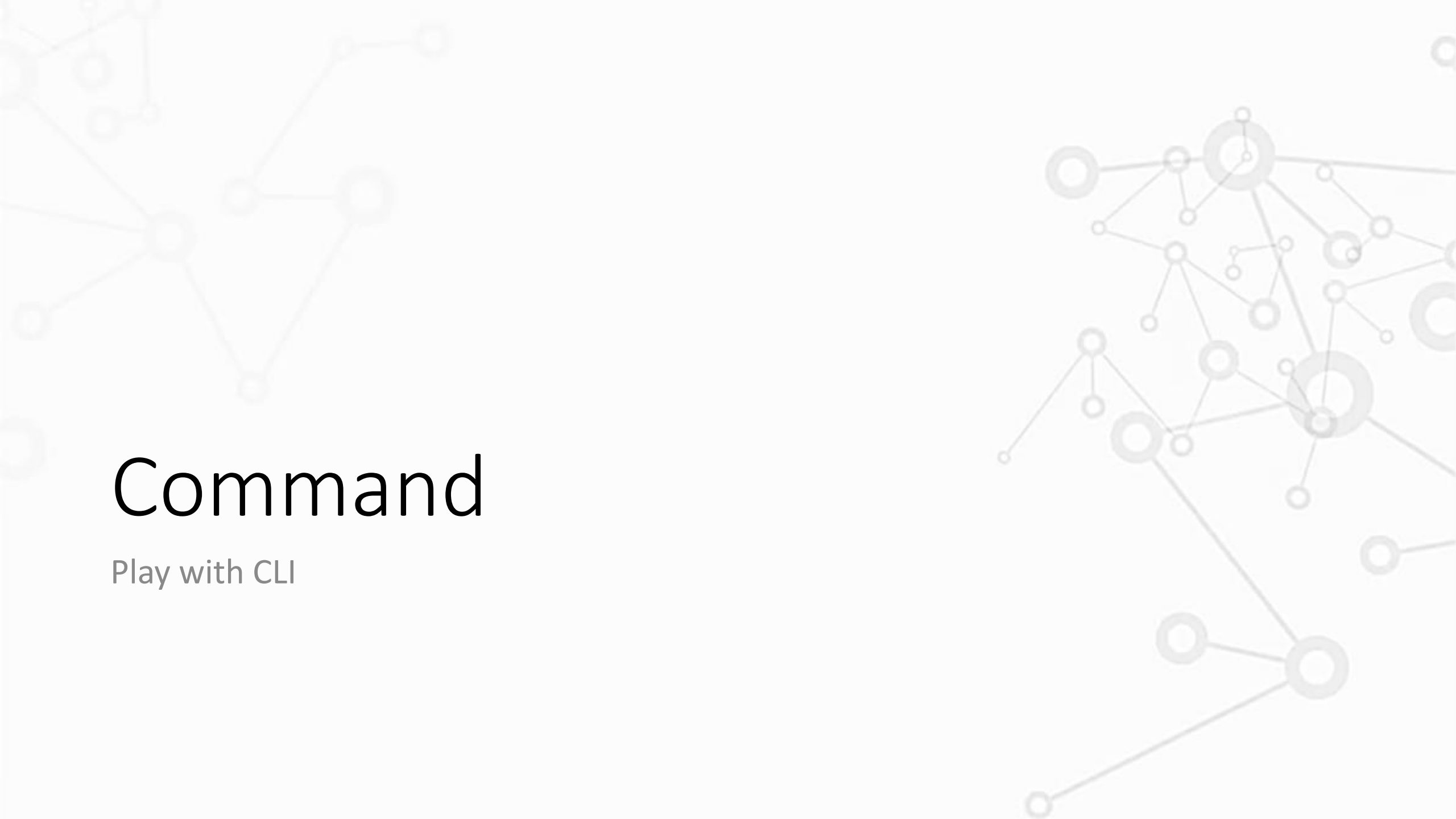


LINUX SERVER

Fundamentals | Administration | Web Server

Day 2 & 3

By Dr Nizam

The background features a light gray abstract network diagram. It consists of numerous circular nodes of varying sizes connected by thin, light gray lines. Some nodes are larger and more prominent, while others are smaller and less distinct. The connections form a complex, interconnected web that spans the entire width of the image.

Command

Play with CLI

Lets Start Command!

1. Basic; whoami, hostname, date, free, etc...

2. Intermediate:

Hardware Info

1. lshw -short
2. lscpu
3. free -h
4. df -h
5. lsblk

OS & Kernel Info

1. lsb_release -a
2. hostnamectl
3. uname -a
4. uname -r

System Status

1. uptime
2. top
3. htop

Network Info

1. ip addr
2. ss -tuln

How to update, upgrade, & install

1. sudo apt update
2. sudo apt upgrade
3. sudo apt install neofetch
4. neofetch

~~~ later we will install more things

# Lets Start Command!

## 3. Make dir, make file, edit file (nano), view file (cat)...

1. `mkdir`
2. `touch hello.txt`
3. `nano hello.txt`
4. `cat hello.txt`

## 4. Copy file, move file, delete file

1. `cp hello.txt newhello.txt`
2. `cp newhello.txt subfold/`
3. `cp hello.txt subfold/hello2.txt`
4. `cp /root/mynewfold/hello.txt /root/newfold2/`
5. `cp /root/mynewfold/hello.txt /root/newfold2/hello2.txt`
6. `mv newhello.txt latesthello.txt`
7. `mv latesthello.txt subfold/`
8. `mv /root/mynewfold/hello3.txt /root/newfold2/`
9. `rm /root/mynewfold/subfold/latesthello.txt`
10. `rm -r subfold`

# Lets Start Command!

5. Transfer file → powershell

1. `scp -r \Users\User\Desktop\index1.php root@206.189.80.102:/var/www/html`

6. View ~# ls

7. Find ~#

1. `find . -name hello.txt`

2. `find . \! -name hell`

# User & Group

1. Add user
  1. `adduser nizam`
2. Check user
  1. `users`
  2. `id nizam` or `id root`
3. Add group
  1. `groupadd mygroup`
4. Add 'user' inside any group
  1. `usermod -G mygroup nizam`
  2. `usermod -g mygroup nizam` → WILL remove default group
3. **Usermod -aG sudo nizam** → to add this user to have the power of root!
5. Check MORE details
  1. `sudo less /etc/passwd`
  2. `sudo less /etc/group`
  3. `sudo less /etc/shadow`
6. Delete user
  1. `userdel nizam`
  2. `userdel -r nizam` → delete with ALL folder

# How to secure your linux server!

1. Update & upgrade your Linux (its good if you set to automatic update).
2. Limit user account/don't use root but use 'user' that u created.
3. Don't use password, but use authentication key-pair.
4. Lockdown login (Harden SSH) → e.g; change port 22 to any other port (e.g; 717)
5. Firewall setup & configuration.

## 5. Firewall Setup

1. `sudo ss -tupln`
2. `sudo apt install ufw`
3. `sudo ufw status`
- ~~4. `sudo ufw allow 717`~~
5. `sudo ufw enable`
6. `sudo ufw allow 80/tcp`

Block Ping!

1. `sudo nano /etc/ufw/before.rules`
2. `-A ufw-before-input -p icmp --icmp-type echo-request -j DROP`
3. `sudo ufw reload`
4. `sudo reboot`

The background features a light gray abstract network diagram. It consists of numerous circular nodes of varying sizes connected by thin, light gray lines. Some nodes are larger and more prominent, while others are smaller and less distinct. The connections form a complex, interconnected web-like structure that spans the entire background.

# Web Services

Web Server | PHP | Database (MySQL)

# Complete Step – webserver, php

1. `sudo apt update`
2. `sudo apt upgrade`
3. `sudo apt install nginx`
4. `sudo systemctl status nginx`
5. `sudo apt-get install software-properties-common -y`
6. `sudo add-apt-repository ppa:ondrej/php`
7. `sudo apt-get install php8.5 php8.5-mbstring php8.5-gettext php8.5-zip php8.5-fpm php8.5-curl php8.5-mysql php8.5-gd php8.5-cgi php8.5-soap php8.5-sqlite3 php8.5-xml php8.5-redis php8.5-bcmath php8.5-imagick php8.5-intl`
8. Navigate to → `etc/nginx/sites-available`  
`sudo nano default`
9. Sudo `systemctl restart nginx`
10. `sudo apt install zip`

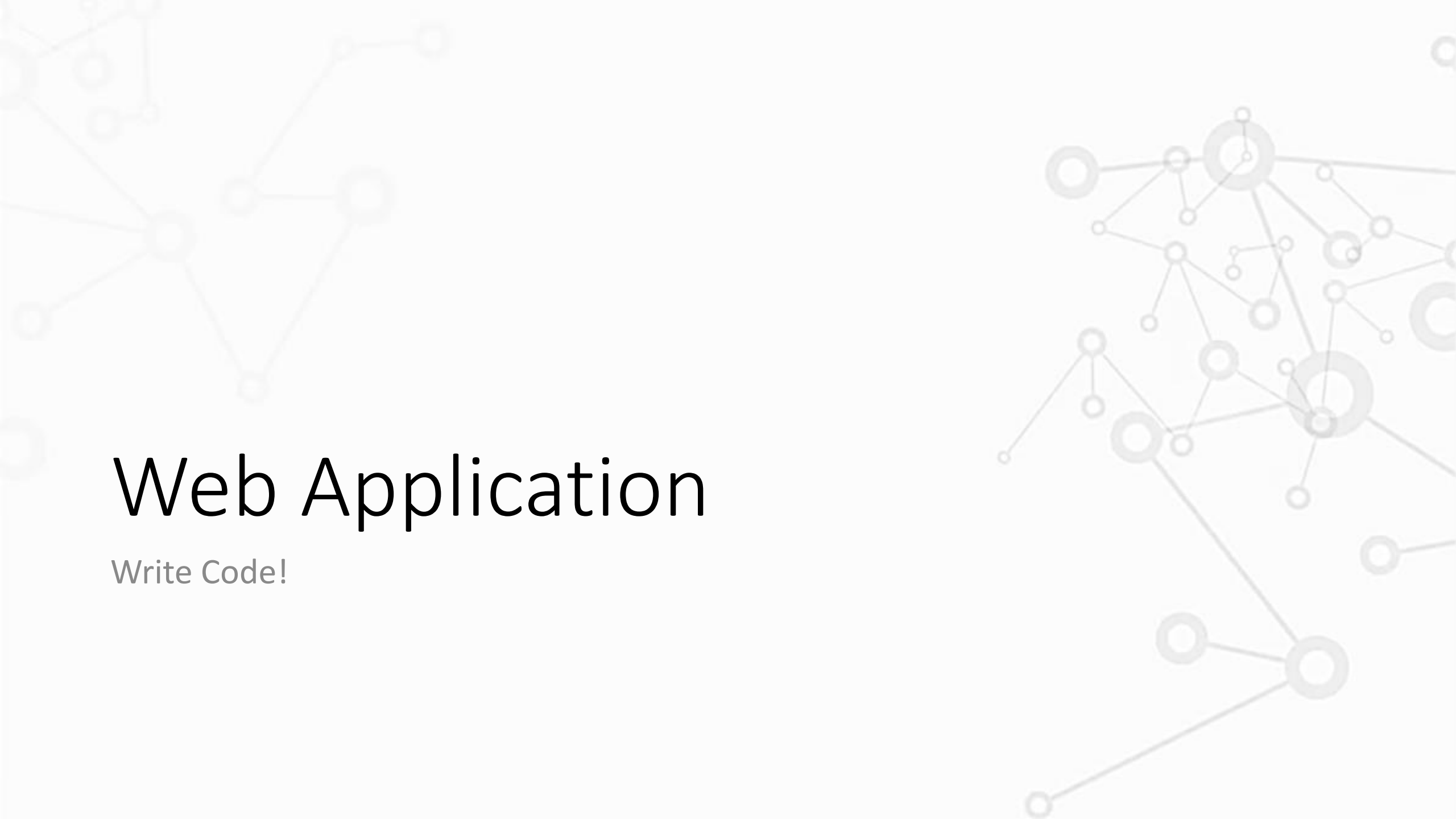
# Complete Step – Database (MySQL)

1. `sudo apt install mariadb-server`
2. Change the root or main user for mysql. Normally we use  
username: root  
password: **{empty}**
3. `sudo mysql`
  - `mysql> CREATE USER 'nizam'@'localhost' IDENTIFIED BY 'nizam@124';`
  - `mysql> GRANT ALL ON *.* TO 'nizam'@'localhost';`
  - or
  - `GRANT ALL PRIVILEGES ON *.* TO 'nizam'@'localhost';`
  - `mysql> FLUSH PRIVILEGES;`
  - `mysql> SHOW DATABASES;`
  - `mysql> select host, user from mysql.user;`

# Database Structure

```
CREATE DATABASE ilp_database;  
USE ilp_database;
```

```
CREATE TABLE participants (  
  id INT AUTO_INCREMENT PRIMARY KEY,  
  name VARCHAR(100) NOT NULL,  
  gender ENUM('Male', 'Female') NOT NULL,  
  id_number VARCHAR(50) NOT NULL UNIQUE,  
  class VARCHAR(20) NOT NULL,  
  remark TEXT,  
  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP  
);
```

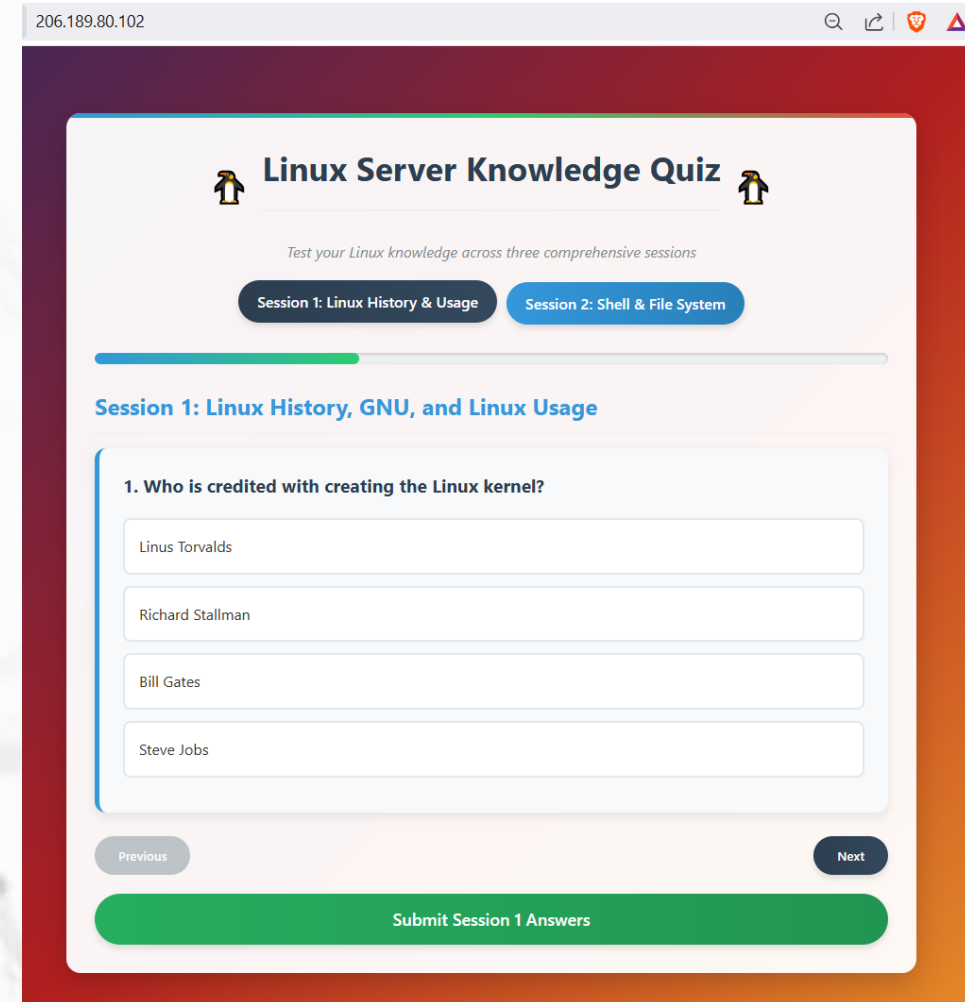
The background features a light gray abstract network diagram. It consists of numerous circular nodes of varying sizes connected by thin, light gray lines. Some nodes are larger and more prominent, while others are smaller and less distinct. The connections form a complex, interconnected web-like structure that spans the entire width of the image.

# Web Application

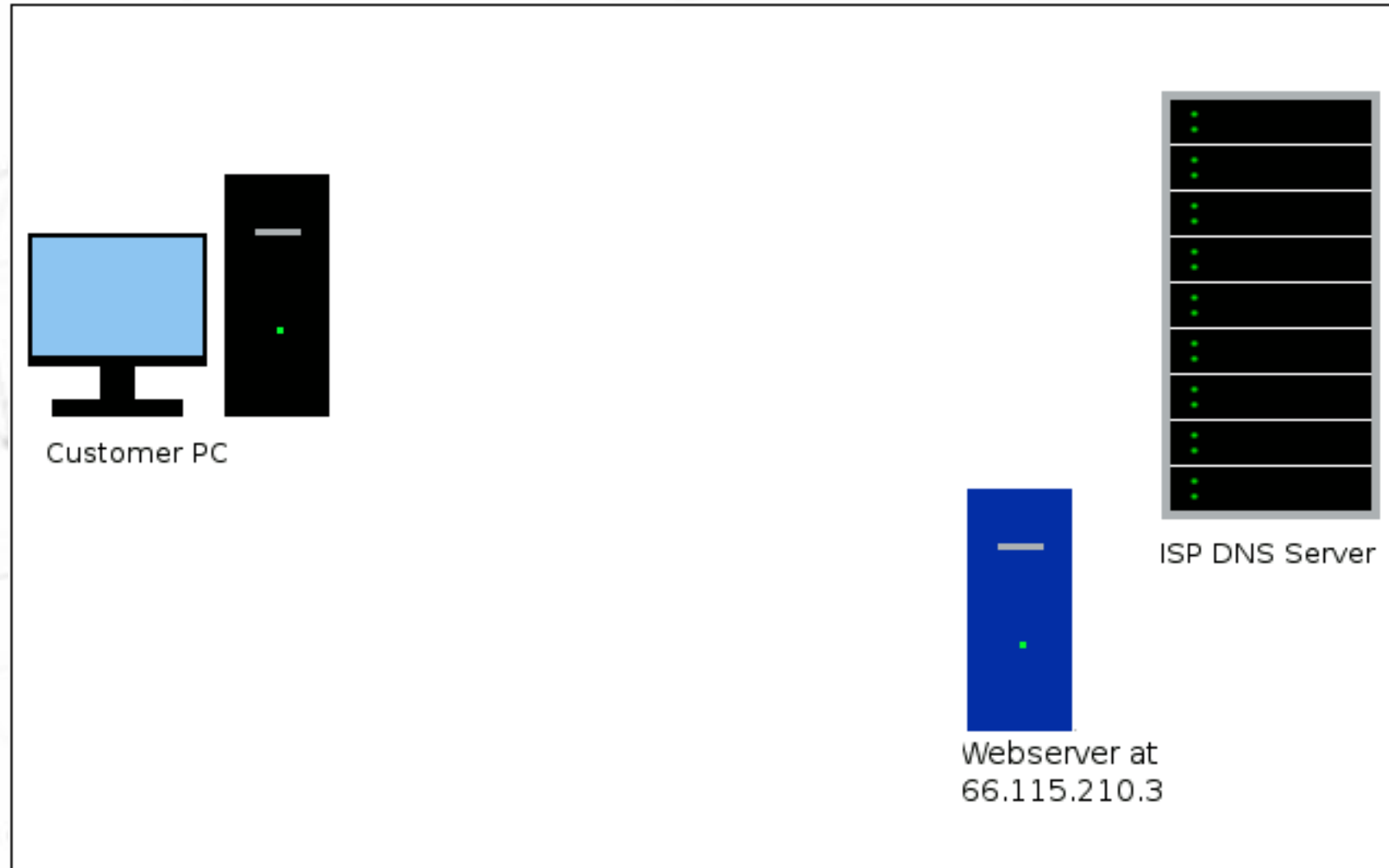
Write Code!

# What is Website?

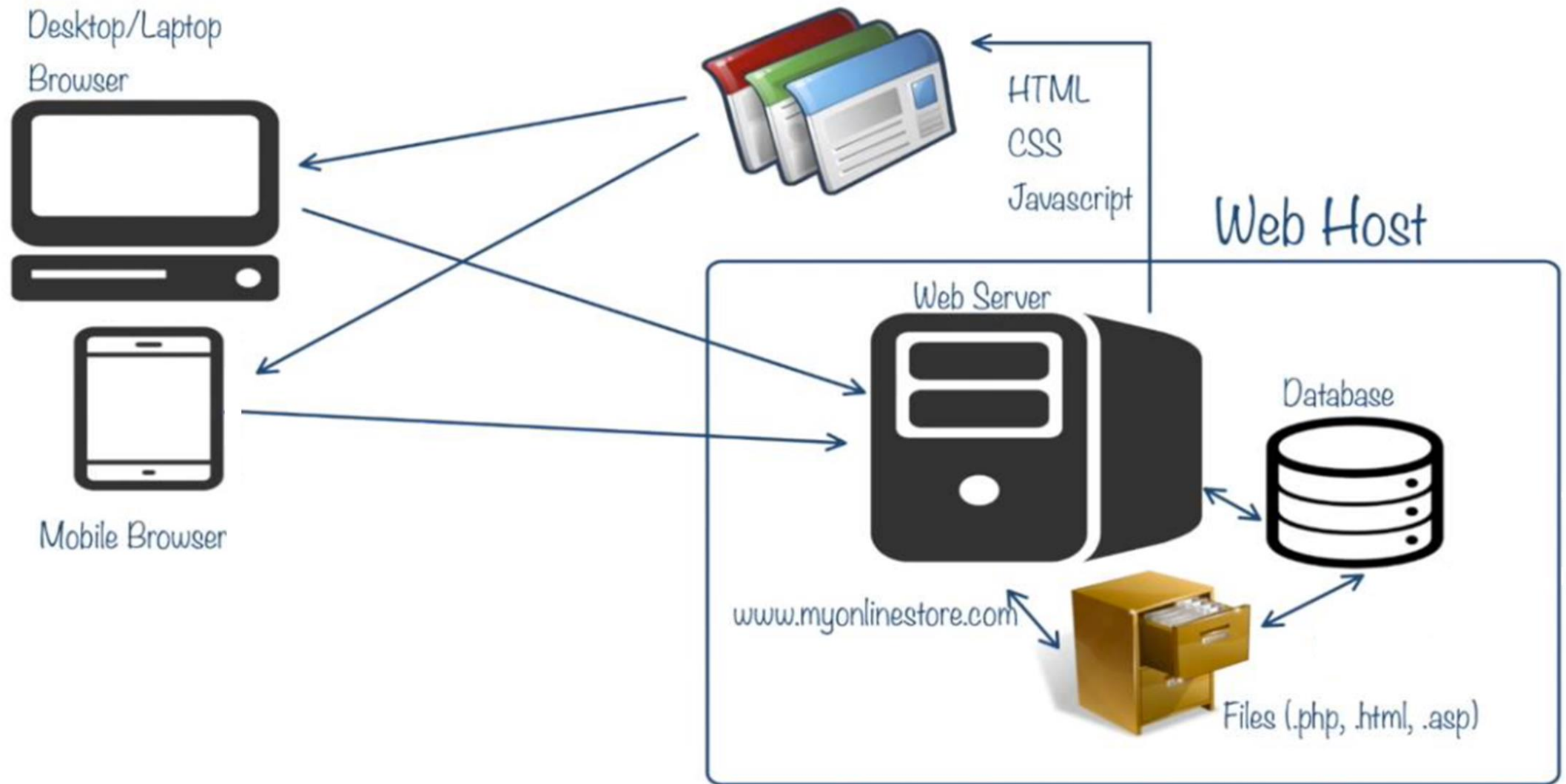
```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <!-- basic -->
5 <meta charset="utf-8" />
6 <meta http-equiv="X-UA-Compatible" content="IE=edge" />
7 <!-- mobile metas -->
8 <meta name="viewport" content="width=device-width, initial-scale=1" />
9 <meta name="viewport" content="initial-scale=1, maximum-scale=1" />
10 <!-- site metas -->
11 <title>Rizlah Enterprise</title>
12 <meta name="keywords" content="" />
13 <meta name="description" content="" />
14 <meta name="author" content="" />
15 <!-- bootstrap css -->
16 <link rel="stylesheet" href="css/bootstrap.min.css" />
17 <!-- style css -->
18 <link rel="stylesheet" href="css/style.css" />
19 <!-- Contact Form -->
20
21 <!-- Responsive-->
22 <link rel="stylesheet" href="css/responsive.css" />
23 <!-- fevicon -->
24 <link rel="icon" href="images/favicon.ico" type="image/gif" />
25 <!-- Scrollbar Custom CSS -->
26 <link rel="stylesheet" href="css/jquery.mCustomScrollbar.min.css" />
27 <!-- jQuery-->
28 <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
29 <!-- Tweaks for older IEs-->
30 <link
31   rel="stylesheet"
32   href="https://netdna.bootstrapcdn.com/font-awesome/4.0.3/css/font-awesome.css"
33 />
34 <link
35   rel="stylesheet"
36   href="https://cdnjs.cloudflare.com/ajax/libs/fancybox/2.1.5/jquery.fancybox.min.css"
37   media="screen"
38 />
39 <!--[if lt IE 9]>
40 <script src="https://oss.maxcdn.com/html5shiv/3.7.3/html5shiv.min.js"></script>
41 <script src="https://oss.maxcdn.com/respond/1.4.2/respond.min.js"></script>
42 <![endif]>
43 <!-- Leaflet-->
44 <link
45   rel="stylesheet"
46   href="https://unpkg.com/leaflet@1.7.1/dist/leaflet.css"
47   integrity="sha512-xodZBNTC5n17Xt2atTPuE1HxjVMSvLVW9ocqQUKlCC5CXdbqCm1Ash0VMS66Keqq/sHMZ19scR4PsZChSR7A=="
48   crossorigin=""
49 />
50 <script
51   src="https://unpkg.com/leaflet@1.7.1/dist/leaflet.js"
52   integrity="sha512-XQoYMqMTK8LvdxXYG3nZ448hOEQiglfqkJs1NOQV44cWnUrBc8PkAOcXy20w0v0laXaVUearIOBhiXZ53ynxwA=="
53   crossorigin=""
54 />
55 </script>
56 </head>
57 <!-- body -->
58 <body class="main-layout">
59 <!-- loader -->
60 <div class="loader_bg">
61 <div class="loader"></div>
62 </div>
63 <!-- end loader -->
64 <!-- header -->
65 <header>
66 <!-- header inner -->
67 <div class="header">
```



# How Website Works



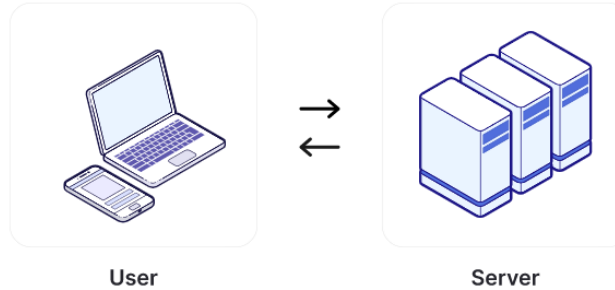
# Website Communication/Interaction Elements



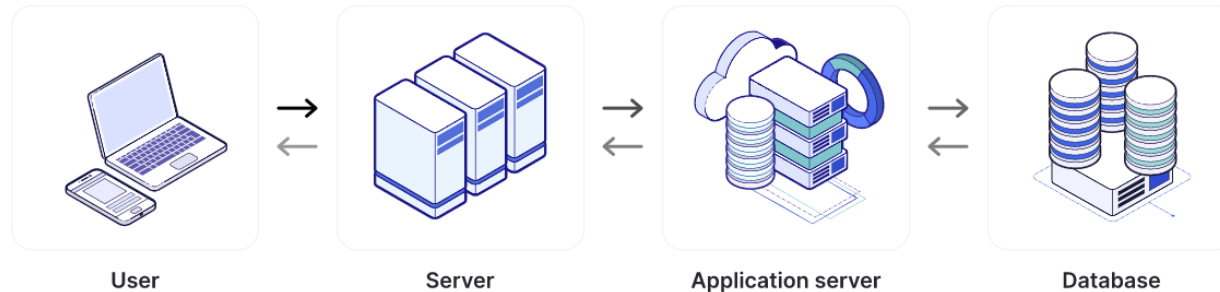
# Website Category

## Static VS Dynamic

**Static page request**



**Dynamic page request**



# Let's build a Website!

## Peranti

- Komputer/Laptop



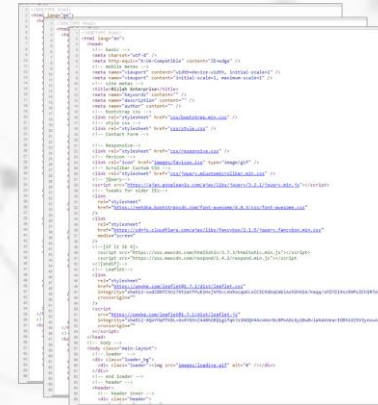
## Perisian

- Web Browser
- Text Editor
- Web Server (XAMPP)
- Server-Side Scripting (PHP)
- Database (MySQL)



## Dokumen

- HTML
- CSS
- JS
- PHP + MySQL



## Publish

- Domain Name
- Hosting Server

[www.yourdomain.com](http://www.yourdomain.com)

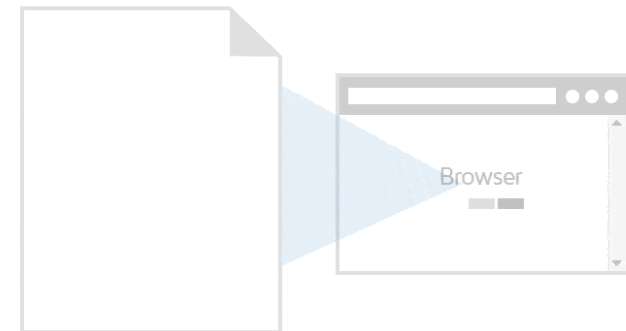


# What is HTML?

```
<!DOCTYPE html>
<html>
  <head>
    <title></title>
  </head>
  <body>
    <h1></h1>
    <p>Hello World!</p>
  </body>
</html>
```

HTML → **H**yper **T**ext **M**arkup **L**anguage

1. HTML is a document that allows us to define the structure of a document or website.
2. HTML is also a markup language used to translate the **front-end** display of a website.
3. This translation process is carried out automatically by your browser.

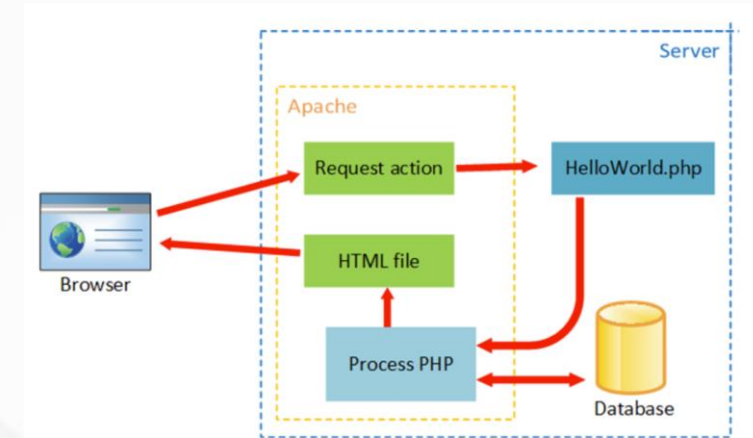
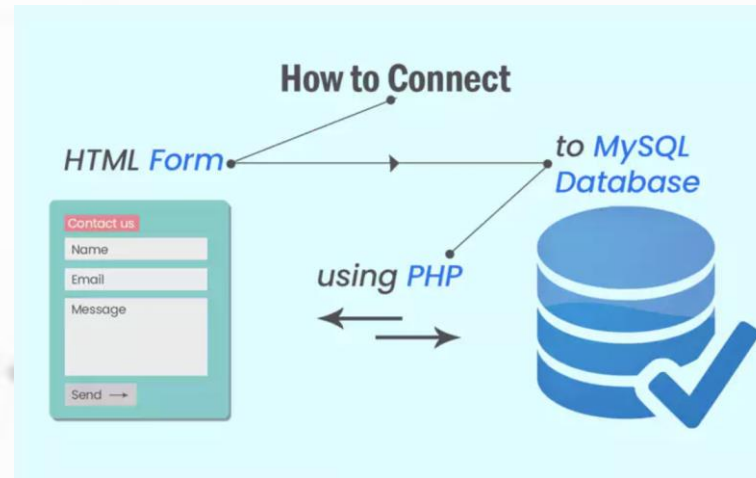


The front-end is what the browser works with

This means rendering HTML, CSS, JavaScript, media (images, video, etc).

# What is PHP?

```
<?php
    echo '<p>Hello, PHP!</p>';
    echo "yes, this is me";
?>
```



PHP - **H**ypertext **P**reprocessor

1. PHP is an open-source web programming language used to create dynamic websites.
2. When we refer to a dynamic website, it must have the capability to store data (data storage/database).
3. Dynamic websites also enable user interaction, creating two-way communication between users.
4. PHP scripts can be described as "enhanced" HTML that is executed/rendered on the **server-side**.

# PHP & HTML SYNTAX

```
<!DOCTYPE html>
<html>
  <head>
    <title>PHP "Hello, World!" program</title>
  </head>
  <body>
    <?php
      echo '<p>Hello, PHP!</p>';
      echo "yes, this is me";
    ?>
  </body>
</html>
```

**WITH HTML**

```
<?php
  $name = 'John';
  $age = 15;
  $height = 1.65;
  echo $name . ' is ' . $height . "m tall\n";
?>
```

**ONLY PHP**

# What is Database?

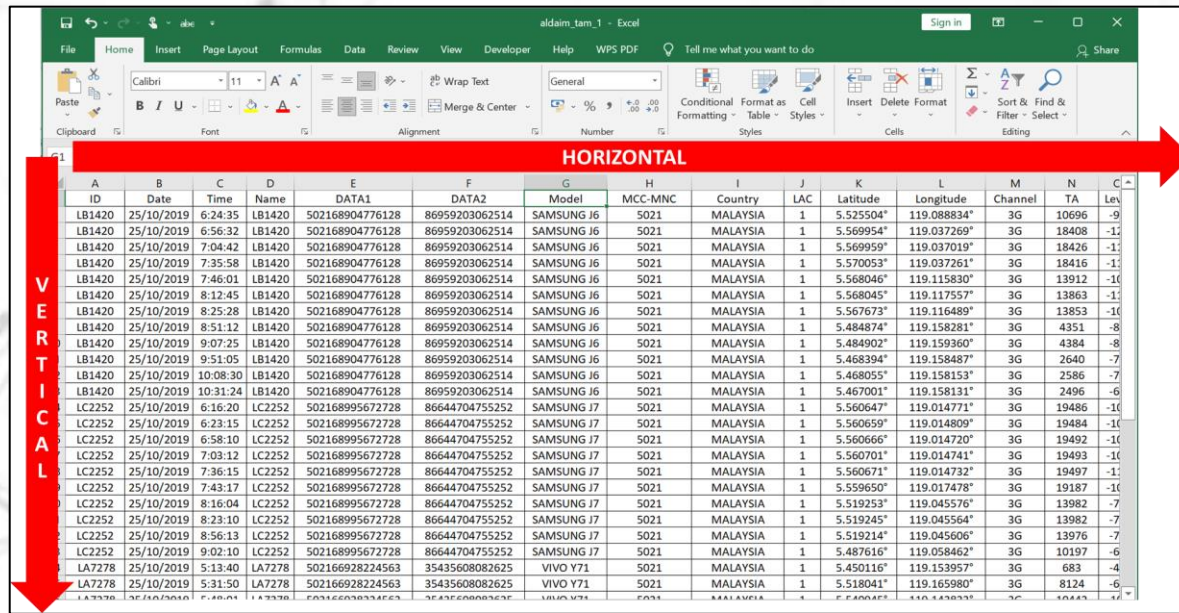
1. A database is a place for collecting data in an organized and structured manner.
2. A database is created to handle large volumes of information or data by inputting, storing, retrieving, and managing that information.
3. This database element is one of **the key components** in creating a dynamic website.
4. A DBMS (Database Management System) is a software package capable of regulating a database, including its creation, maintenance, and use.
5. **MySQL** is an example of a DBMS (or RDBMS to be exact) that will be used in this tutorial.



# MySQL

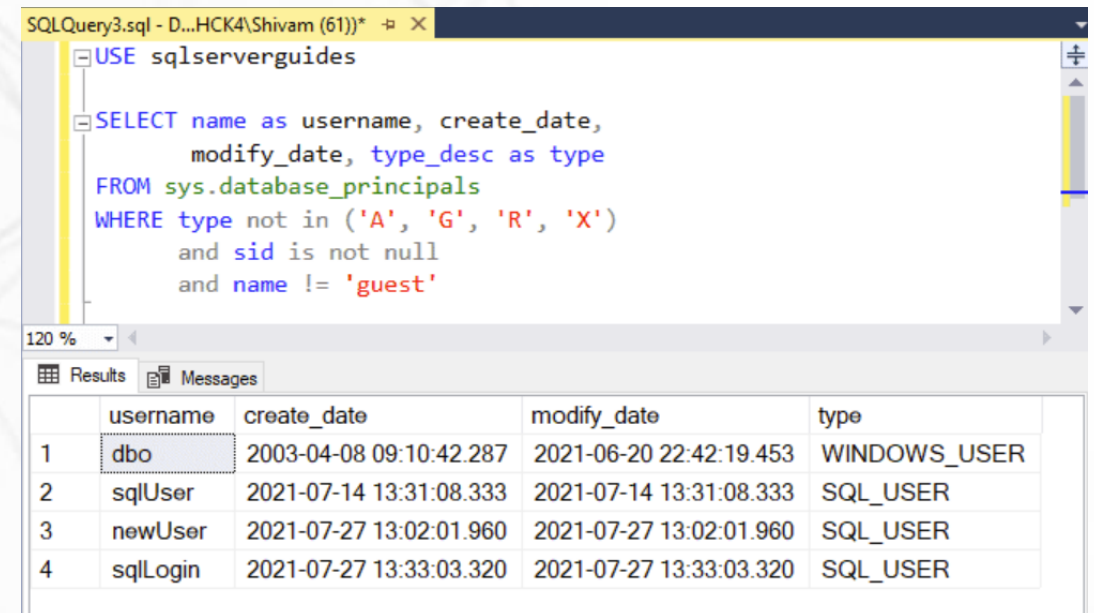
## MySQL - **My** Structured **Q**uery **L**anguage

1. MySQL is an open-source database based on the concept of a Relational Database Management System (RDBMS).
2. RDBMS manages data in the form of tables, which may or may not be interconnected, helping to form the structure of a database.
3. SQL is a language that helps programmers create, modify, and extract data from an RDBMS.



The screenshot shows an Excel spreadsheet with a grid of data. A red arrow points horizontally across the top row, labeled "HORIZONTAL", and another red arrow points vertically down the first column, labeled "VERTICAL".

| ID     | Date       | Time     | Name   | DATA1           | DATA2          | Model      | MCC-MNC | Country  | LAC | Latitude  | Longitude   | Channel | TA    | Lev |
|--------|------------|----------|--------|-----------------|----------------|------------|---------|----------|-----|-----------|-------------|---------|-------|-----|
| L1420  | 25/10/2019 | 6:24:35  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.525504° | 119.088834° | 3G      | 10696 | -9  |
| L1420  | 25/10/2019 | 6:56:32  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.569954° | 119.037269° | 3G      | 18408 | -12 |
| L1420  | 25/10/2019 | 7:04:42  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.569959° | 119.037019° | 3G      | 18426 | -11 |
| L1420  | 25/10/2019 | 7:35:58  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.570053° | 119.037261° | 3G      | 18416 | -11 |
| L1420  | 25/10/2019 | 7:46:01  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.568045° | 119.115830° | 3G      | 13912 | -10 |
| L1420  | 25/10/2019 | 8:12:45  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.567673° | 119.117557° | 3G      | 13863 | -11 |
| L1420  | 25/10/2019 | 8:25:28  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.567673° | 119.116489° | 3G      | 13853 | -10 |
| L1420  | 25/10/2019 | 8:51:12  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.484874° | 119.158281° | 3G      | 4351  | -8  |
| L1420  | 25/10/2019 | 9:07:25  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.484902° | 119.159360° | 3G      | 4384  | -8  |
| L1420  | 25/10/2019 | 9:51:05  | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.468394° | 119.158487° | 3G      | 2640  | -7  |
| L1420  | 25/10/2019 | 10:08:30 | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.468055° | 119.158153° | 3G      | 2586  | -7  |
| L1420  | 25/10/2019 | 10:31:24 | L1420  | 502168904776128 | 86959203062514 | SAMSUNG J6 | 5021    | MALAYSIA | 1   | 5.467001° | 119.158131° | 3G      | 2496  | -6  |
| LC2252 | 25/10/2019 | 6:16:20  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.560647° | 119.014771° | 3G      | 19486 | -10 |
| LC2252 | 25/10/2019 | 6:23:15  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.560659° | 119.014809° | 3G      | 19484 | -10 |
| LC2252 | 25/10/2019 | 6:58:10  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.560666° | 119.014720° | 3G      | 19492 | -10 |
| LC2252 | 25/10/2019 | 7:03:12  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.560701° | 119.014741° | 3G      | 19493 | -10 |
| LC2252 | 25/10/2019 | 7:36:15  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.560671° | 119.014732° | 3G      | 19497 | -11 |
| LC2252 | 25/10/2019 | 7:43:17  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.559650° | 119.014748° | 3G      | 19187 | -10 |
| LC2252 | 25/10/2019 | 8:16:04  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.519253° | 119.045576° | 3G      | 13982 | -7  |
| LC2252 | 25/10/2019 | 8:23:10  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.519245° | 119.045564° | 3G      | 13982 | -7  |
| LC2252 | 25/10/2019 | 8:56:13  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.519214° | 119.045606° | 3G      | 13976 | -7  |
| LC2252 | 25/10/2019 | 9:02:10  | LC2252 | 502168995672728 | 86644704755252 | SAMSUNG J7 | 5021    | MALAYSIA | 1   | 5.487616° | 119.058462° | 3G      | 10197 | -6  |
| LA7278 | 25/10/2019 | 5:13:40  | LA7278 | 502166928224563 | 35435608082625 | VIVO Y71   | 5021    | MALAYSIA | 1   | 5.450116° | 119.153957° | 3G      | 683   | -4  |
| LA7278 | 25/10/2019 | 5:31:50  | LA7278 | 502166928224563 | 35435608082625 | VIVO Y71   | 5021    | MALAYSIA | 1   | 5.518041° | 119.165980° | 3G      | 8124  | -6  |



The screenshot shows a SQL query in a text editor. The query is as follows:

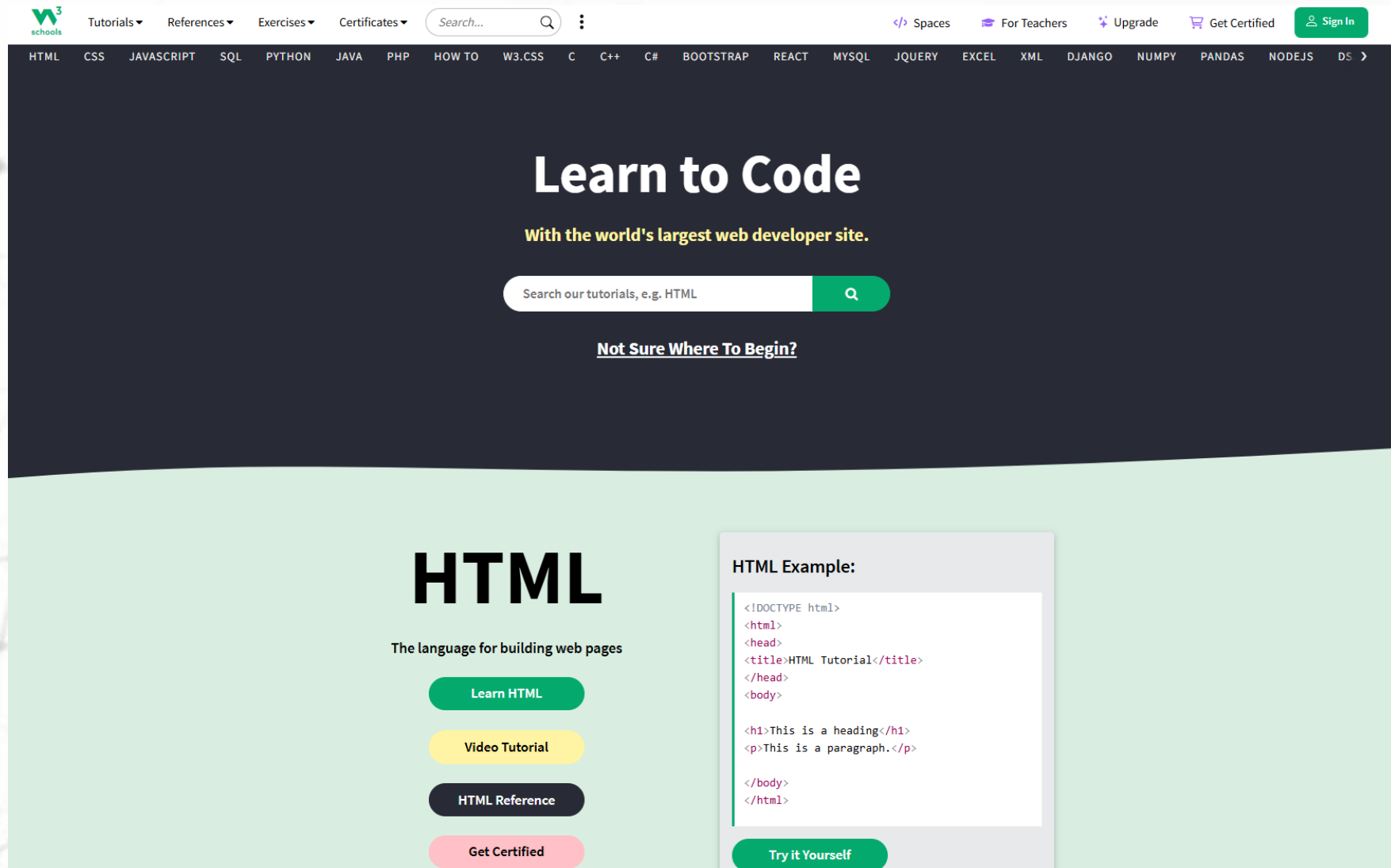
```
USE sqlserverguides

SELECT name as username, create_date,
       modify_date, type_desc as type
FROM sys.database_principals
WHERE type not in ('A', 'G', 'R', 'X')
      and sid is not null
      and name != 'guest'
```

Below the query, there is a table with the results of the query:

|   | username | create_date             | modify_date             | type         |
|---|----------|-------------------------|-------------------------|--------------|
| 1 | dbo      | 2003-04-08 09:10:42.287 | 2021-06-20 22:42:19.453 | WINDOWS_USER |
| 2 | sqlUser  | 2021-07-14 13:31:08.333 | 2021-07-14 13:31:08.333 | SQL_USER     |
| 3 | newUser  | 2021-07-27 13:02:01.960 | 2021-07-27 13:02:01.960 | SQL_USER     |
| 4 | sqlLogin | 2021-07-27 13:33:03.320 | 2021-07-27 13:33:03.320 | SQL_USER     |

# Cool Site to Learn Website!



The screenshot shows the W3Schools website. The top navigation bar includes links for Tutorials, References, Exercises, and Certificates, along with a search bar and links for Spaces, For Teachers, Upgrade, Get Certified, and Sign In. Below the navigation bar is a dark blue section with the heading 'Learn to Code' and the tagline 'With the world's largest web developer site.' A search bar is present with the placeholder text 'Search our tutorials, e.g. HTML'. Below this is a link 'Not Sure Where To Begin?'. The bottom section is light green and features the heading 'HTML' with the subtitle 'The language for building web pages'. There are four buttons: 'Learn HTML', 'Video Tutorial', 'HTML Reference', and 'Get Certified'. To the right, there is a box titled 'HTML Example:' containing a code snippet for a basic HTML document structure.

W3schools

Tutorials References Exercises Certificates Search...

HTML CSS JAVASCRIPT SQL PYTHON JAVA PHP HOW TO W3.CSS C C++ C# BOOTSTRAP REACT MYSQL JQUERY EXCEL XML DJANGO NUMPY PANDAS NODEJS DS >

## Learn to Code

With the world's largest web developer site.

Search our tutorials, e.g. HTML

[Not Sure Where To Begin?](#)

# HTML

The language for building web pages

[Learn HTML](#)

[Video Tutorial](#)

[HTML Reference](#)

[Get Certified](#)

### HTML Example:

```
<!DOCTYPE html>
<html>
<head>
<title>HTML Tutorial</title>
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

[Try it Yourself](#)

# Or.....

## ChatGPT

| <br>Examples | <br>Capabilities | <br>Limitations |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| "Explain quantum computing in simple terms" →                                                 | Remembers what user said earlier in the conversation                                                | May occasionally generate incorrect information                                                    |
| "Got any creative ideas for a 10 year old's birthday?" →                                      | Allows user to provide follow-up corrections                                                        | May occasionally produce harmful instructions or biased content                                    |
| "How do I make an HTTP request in Javascript?" →                                              | Trained to decline inappropriate requests                                                           | Limited knowledge of world and events after 2021                                                   |

[ChatGPT Jan 9 Version](#). Free Research Preview. Our goal is to make AI systems more natural and safe to interact with. Your feedback will help us improve.

The background features a light gray abstract network diagram. It consists of numerous circular nodes of varying sizes connected by thin, light gray lines. Some nodes are larger and more prominent, while others are smaller and less visible. The connections form a complex, interconnected web that spans the entire width of the image.

# DOMAIN NAME

`www.{your_domain_name}.com`

# Buy domain name from...



<https://www.exabytes.my>  
<https://www.yeahhost.com.my>  
<https://www.shinjiru.com.my/>  
<https://www.hostinger.com>

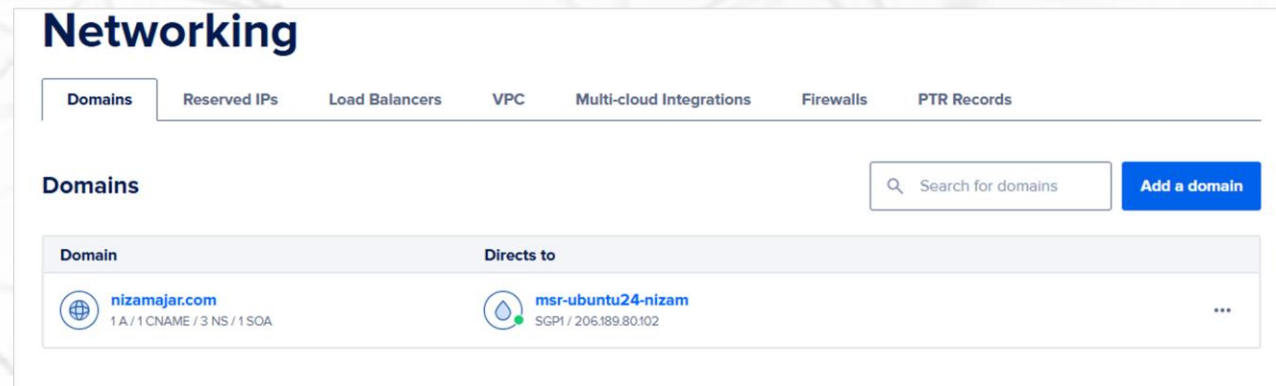
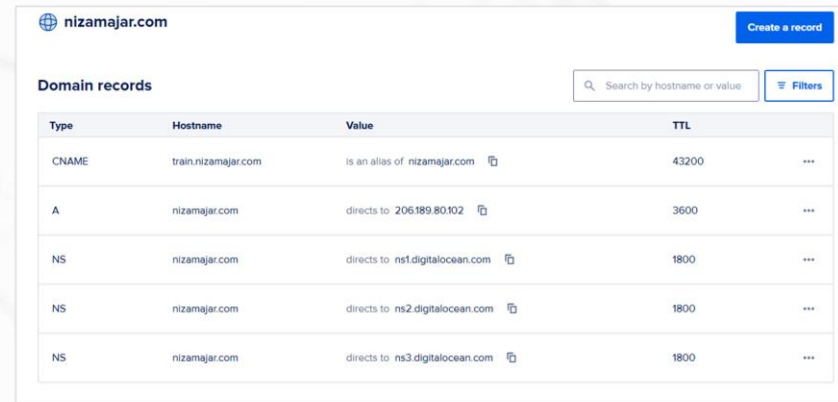
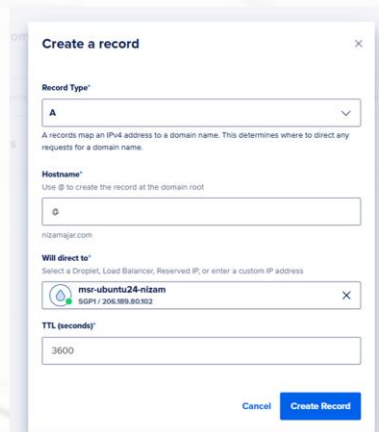
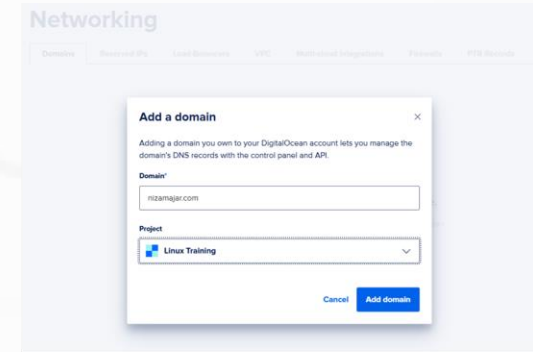
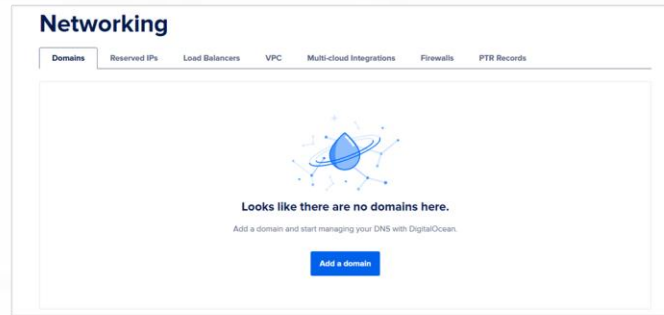
⋮

# Successful bought!

| Invoice Items                                                            |         |
|--------------------------------------------------------------------------|---------|
| Description                                                              | Amount  |
| Domain Registration - nizamajar.com - 1 Year/s (26/11/2025 - 25/11/2026) | RM44.50 |
| <b>Sub Total</b>                                                         | RM44.50 |
| <b>8.00% SST</b>                                                         | RM0.00  |
| <b>Credit</b>                                                            | RM0.00  |
| <b>Total</b>                                                             | RM44.50 |

# Create & Manage Domain

DigitalOcean



# Create & Manage Domain

yeahost

## Managing nizamajar.com

[Client Centre](#) / [Client Area](#) / [My Domains](#) / [nizamajar.com](#)

### Nameservers

You can change where your domain points to here. Please be aware changes can take up to 24 hours to propagate.

- ☐ Use default nameservers  
☒ Use custom nameservers (enter below)

|              |                                                   |
|--------------|---------------------------------------------------|
| Nameserver 1 | <input type="text" value="ns1.digitalocean.com"/> |
| Nameserver 2 | <input type="text" value="ns2.digitalocean.com"/> |
| Nameserver 3 | <input type="text" value="ns3.digitalocean.com"/> |
| Nameserver 4 | <input type="text"/>                              |
| Nameserver 5 | <input type="text"/>                              |

Change Nameservers

## Managing nizamajar.com

[Client Centre](#) / [Client Area](#) / [My Domains](#) / [nizamajar.com](#)

### Nameservers

Changes Saved Successfully!

You can change where your domain points to here. Please be aware changes can take up to 24 hours to propagate.

- ☐ Use default nameservers  
☒ Use custom nameservers (enter below)

|              |                                                   |
|--------------|---------------------------------------------------|
| Nameserver 1 | <input type="text" value="ns1.digitalocean.com"/> |
| Nameserver 2 | <input type="text" value="ns2.digitalocean.com"/> |
| Nameserver 3 | <input type="text" value="ns3.digitalocean.com"/> |
| Nameserver 4 | <input type="text"/>                              |
| Nameserver 5 | <input type="text"/>                              |

Change Nameservers