

## **ЗЕРТХАНАЛЫҚ ЖҰМЫСТЫ орындауға арналған ӘДІСТЕМЕЛІК НҰСҚАУЛЫҚ**

**Тақырыбы:** Linux дистрибутивінде web қосымшаны әзірлеу

**Жұмыстың мақсаты:** Linux дистрибутивіне web қосымшаны әзірлеу құралдарын (Apache/Nginx, PHP/Python, MariaDB/PostgreSQL) орнату

**Жұмыстың орындалу қадамы:**

- 1) CentOS7 Linux дистрибутивін орнату;
- 2) Nginx веб-серверін орнату және конфигурациялау;
- 3) PHP орнату және конфигурациялау;
- 4) MariaDB МҚБЖ-ін орнату және конфигурациялау;
- 5) phpMyAdmin пакетін орнату және конфигурациялау;
- 6) PHP скрипт тілінде CRUD веб қосымшасын әзірлеу.

### **1) CentOS7 Linux дистрибутивін орнату**

...

### **2) Nginx веб-серверін орнату және конфигурациялау**

Nginx – Веб сервер  
Package атауы: nginx  
Daemon атауы: nginx

#### **1-қадам: Nginx Web Server орнату**

EPEL repository орнату  
\$ sudo yum install -y epel-release

\$ sudo yum info nginx

Nginx пакетін орнату  
\$ sudo yum install -y nginx

Nginx daemon-ын жүктеу және авто жүктеу қызметіне қосу  
\$ sudo systemctl start nginx  
\$ sudo systemctl enable nginx

\$ ps -ef | grep nginx

Қандай порт нөмірді тыңдайтынын (Listen) тексеру  
\$ rpm -q net-tools  
\$ netstat -tulpn

#### **2-қадам: Firewalld конфигурациялау**

```
$ sudo firewall-cmd --permanent --add-service=http
$ sudo firewall-cmd --permanent --add-port=80/tcp
$ sudo firewall-cmd --reload
$ sudo firewall-cmd --list-all
```

### 3-қадам: Web Server тексеру

External IP

```
$ curl ifconfig.me
```

Internal IP

```
$ ip addr show
```

Browser → [http://server\\_ip\\_address](http://server_ip_address)

### 4-қадам: Nginx Server Block (Virtual Host) конфигурациялау

```
$ ls /usr/share/nginx/html/
index.html ...
```

#### Create the Directory Structure

```
$ sudo mkdir -p /var/www/html
```

#### Grant Permissions

```
$ ls -la /var/www/html
$ sudo chown -R $USER:$USER /var/www/html/
$ sudo chmod -R 755 /var/www
```

#### Create Demo Pages for Each Virtual Host

```
$ vim /var/www/html/index.html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Welcome to My Website</title>
  </head>
  <body>
    <h1>Success! Nginx Web Server</h1>
  </body>
</html>
```

#### Create New Virtual Host Files

Main Configuration File  
/etc/nginx/nginx.conf

## Server Block (Virtual Host) Configuration Directory

/etc/nginx/conf.d/

/etc/nginx/sites-available/

/etc/nginx/sites-enabled/

```
$ sudo mkdir /etc/nginx/sites-available
```

```
$ sudo mkdir /etc/nginx/sites-enabled
```

```
$ sudo vim /etc/nginx/sites-available/default.conf
```

```
server {
    listen      80;
    listen      [::]:80;
    server_name 34.90.218.213;
    root        /var/www/html/;
    index index.html index.htm index.php;

    location / {
        try_files $uri $uri/ =404;
    }

    error_page 404 /404.html;
        location = /40x.html {
    }

    error_page 500 502 503 504 /50x.html;
        location = /50x.html {
    }
}
```

## Enabling your Server Blocks

```
$ sudo ln -s /etc/nginx/sites-available/default.conf /etc/nginx/sites-enabled/
```

```
$ ls -l /etc/nginx/sites-enabled/
```

```
$ sudo vim /etc/nginx/nginx.conf
```

```
include /etc/nginx/conf.d/*.conf;
```

```
include /etc/nginx/sites-enabled/*.conf;
```

```
#     server {
#         listen      80;
#         listen      [::]:80;
#         server_name  _;
#         root        /usr/share/nginx/html;
#
#         # Load configuration files for the default server block.
#         include /etc/nginx/default.d/*.conf;
#
#         error_page 404 /404.html;
#         location = /404.html {
```

```
#         }  
#  
#         error_page 500 502 503 504 /50x.html;  
#         location = /50x.html {  
#         }  
#     }
```

```
$ sudo nginx -t
```

## Restart Nginx & Select SELinux Mode

```
$ sudo systemctl restart nginx
```

SELinux modes:

- Disabled;
- Permissive;
- Enforcing.

Permissive mode

```
$ sudo setenforce 0
```

```
$ sestatus
```

## Test Your Results

Browser → [http://server\\_ip\\_address](http://server_ip_address)

```
$ curl http://server_ip_address
```

```
$ curl -I http://server_ip_address
```

## 3) PHP орнату және конфигурациялау

PHP – скрипт тілі (script language)

Пакет (орнатылмаған) туралы ақпаратты көру

```
$ sudo yum info php
```

EPEL repository-ын орнату

```
$ sudo yum install -y epel-release
```

REMI repository-ын орнату

```
$ sudo yum install -y http://rpms.remirepo.net/enterprise/remi-release-7.rpm
```

```
$ yum repolist
```

```
$ yum --disablerepo="*" --enablerepo="remi-safe" list php[7-9][0-9].x86_64
```

```
$ sudo yum install -y yum-utils
```

```
$ sudo yum-config-manager --enable remi-php81
```

```
$ yum info php
```

```
$ yum search php81- | grep -i module | wc -l
$ yum search php81- | grep -i module

$ sudo yum install -y php php-fpm php-mysql
$ rpm -qa | grep -i php

$ php -v

$ sudo vim /etc/php.ini
cgi.fix_pathinfo=0

$ sudo vim /etc/php-fpm.d/www.conf
listen = /var/run/php-fpm/php-fpm.sock
listen.owner = nginx
listen.group = nginx

$ sudo systemctl start php-fpm
$ sudo systemctl enable php-fpm

$ sudo vim /etc/nginx/sites-available/default.conf
$ sudo vim /etc/nginx/conf.d/default.conf
    location ~ /\.php$ {
        try_files $uri =404;
        fastcgi_pass unix:/var/run/php-fpm/php-fpm.sock;
        fastcgi_index index.php;
        fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
        include fastcgi_params;
    }

$ sudo systemctl restart nginx php-fpm

$ ls -la /var/www/html
$ sudo chown -R $USER:$USER /var/www/html/
$ sudo chmod -R 755 /var/www

$ vim /var/www/html/index.php
<?php
phpinfo();
?>

$ ls -l /var/www/html/

$ sudo rm -f /var/www/html/index.html

Browser → http://server_ip_address
```

#### 4) MariaDB МҚБЖ-ін орнату және конфигурациялау

## MariaDB/MySQL – Мәліметтер қорын басқару жүйесі (МҚБЖ)

Package атауы: MariaDB-server

Daemon (service) атауы: mariadb

Port нөмірі: 3306

```
$ yum info mariadb-server
```

```
$ sudo vim /etc/yum.repos.d/MariaDB.repo
```

```
[mariadb]
```

```
name = MariaDB
```

```
baseurl = https://mirrors.aliyun.com/mariadb/yum/10.6/centos7-amd64
```

```
gpgkey=https://mirrors.aliyun.com/mariadb/yum/RPM-GPG-KEY-MariaDB
```

```
gpgcheck=1
```

```
$ yum info mariadb-server
```

```
$ sudo yum install -y MariaDB-server MariaDB-client
```

```
$ rpm -qa | grep -i mariadb
```

```
$ rpm -qi MariaDB-server
```

```
$ sudo systemctl start mariadb
```

```
$ sudo systemctl enable mariadb
```

```
$ ps -ef | grep mariadb
```

```
$ netstat -tulpn
```

```
$ mysql
```

```
MariaDB> SELECT VERSION();
```

```
MariaDB> exit
```

## MariaDB/MySQL конфигурациялау

```
$ sudo mariadb-secure-installation
```

```
$ sudo systemctl restart mariadb
```

```
$ sudo mysql -u root -p
```

```
Enter password: P@s$w0rd
```

```
MariaDB> SELECT user,plugin,host FROM mysql.user;
```

```
MariaDB> CREATE USER admin@localhost IDENTIFIED BY 'P@s$w0rd';
```

```
MariaDB> SELECT user,plugin,host FROM mysql.user;
```

```
MariaDB> GRANT ALL PRIVILEGES ON *.* TO admin@localhost WITH GRANT OPTION;
```

```
MariaDB> FLUSH PRIVILEGES;
```

```
MariaDB> exit
```

```
$ mysql -u admin -p
```

```
Enter password: P@s$w0rd
```

```
MariaDB> SHOW DATABASES;
```

```
MariaDB> exit
```

## 5) phpMyAdmin пакетін орнату және конфигурациялау

phpMyAdmin – MySQL МҚБЖ-сін веб-интерфейс арқылы басқару үшін арналған веб-қосымша. PHP тілінде жазылған.

```
$ sudo yum install -y php-xml php-mbstring
$ rpm -qa | grep -i php
```

...

Browser → [http://server\\_ip\\_address](http://server_ip_address)

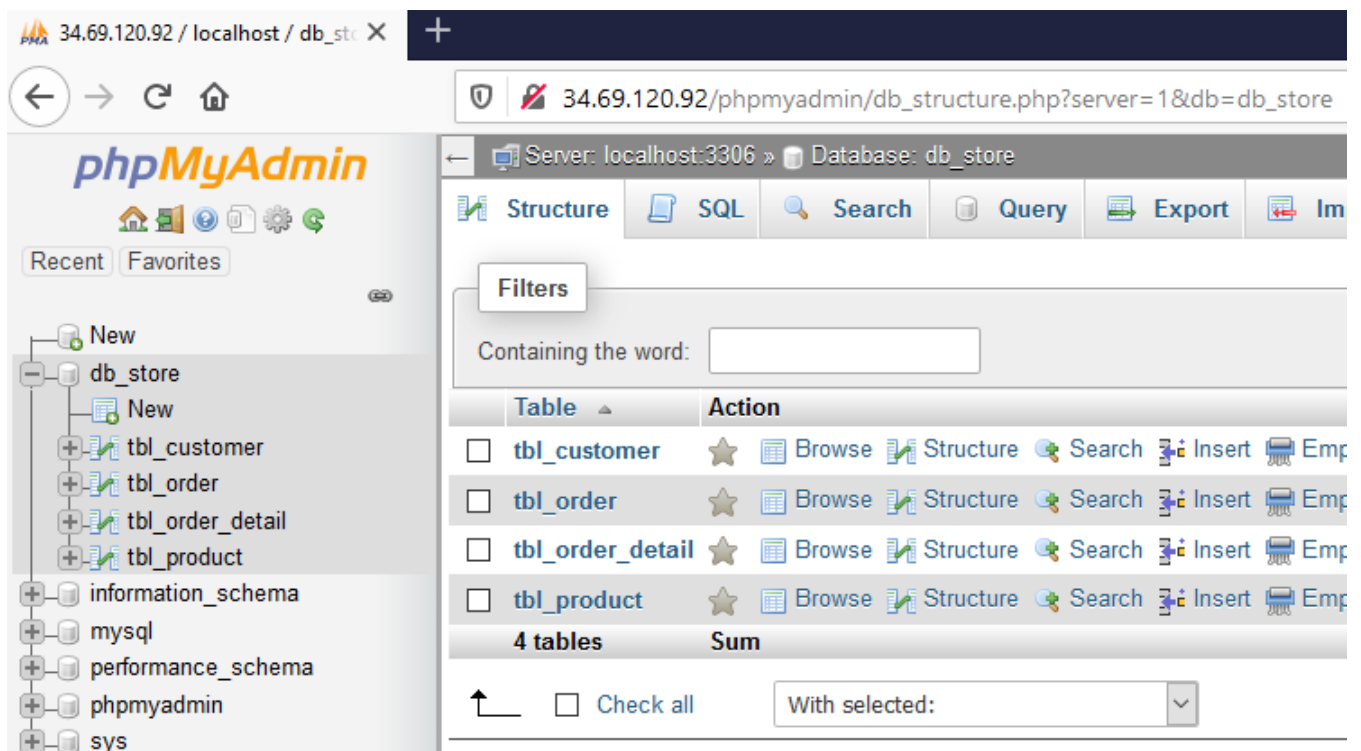


Table	Action
<input type="checkbox"/> tbl_customer	★ Browse Structure Search Insert Export
<input type="checkbox"/> tbl_order	★ Browse Structure Search Insert Export
<input type="checkbox"/> tbl_order_detail	★ Browse Structure Search Insert Export
<input type="checkbox"/> tbl_product	★ Browse Structure Search Insert Export
4 tables	Sum

## 6) PHP скрипт тілінде CRUD веб қосымшасын әзірлеу

**CRUD** – **C**reate (Add), **R**ead (View), **U**ppdate (Edit) және **D**eleate

PHP мен MySQL-ді байланыстырудың 3 тәсілі бар:

- MySQLi Object-oriented;
- MySQLi Procedural;
- PDO.

**ЕСКЕРТУ!** Бұл зертханалық жұмыста, PHP мен MySQL-ді байланыстырудың “**MySQLi Procedural**” тәсілін қолданамыз!

Мысалы, CRUD веб қосымшасының Form-сы төмендегі суреттегідей болуы мүмкін!

### Read Products

Create New Product

ID	Name	Description	Price	Action	
9	Ninja Sticker	The best Ninja Sticker in the world.	\$9.99	Edit	Delete
8	Pillow	Sleeping well is important.	\$8.99	Edit	Delete
7	Earphone	You need this one if you love music.	\$7	Edit	Delete
6	Mouse	Very useful if you love your computer.	\$11.35	Edit	Delete
5	Trash Can	It will help you maintain cleanliness.	\$3.95	Edit	Delete
4	Eye Glasses	It will make you read better.	\$6	Edit	Delete
3	Gatorade	This is a very good drink for athletes.	\$1.99	Edit	Delete
1	Basketball	A ball used in the NBA.	\$49.99	Edit	Delete



# Create Product

Name	<input type="text" value="Ninja Sticker"/>
Description	<div>The best Ninja sticker in the world.</div>
Price	<input type="text" value="9.99"/>
	<div><div>Save</div><div>Back to read products</div></div>

# Update Product

Record was updated.

Name	<input type="text" value="Ninja Sticker EDITED"/>
Description	<div>The best Ninja Sticker in the world.</div>
Price	<input type="text" value="9.99"/>
	<div><div>Save Changes</div><div>Back to read products</div></div>

# Read Products

Create New Product

localhost says:

Are you sure?

OK

Cancel

ID	Name	Description	Price	Action	
9	Ninja Sticker EDITED	The best Ninja Sticker in the world.	\$9.99	<a href="#">Edit</a>	<a href="#">Delete</a>
8	Pillow	Sleeping well is important.	\$8.99	<a href="#">Edit</a>	<a href="#">Delete</a>
7	Earphone	You need this one if you love music.	\$7	<a href="#">Edit</a>	<a href="#">Delete</a>
6	Mouse	Very useful if you love your computer.	\$11.35	<a href="#">Edit</a>	<a href="#">Delete</a>
5	Trash Can	It will help you maintain cleanliness.	\$3.95	<a href="#">Edit</a>	<a href="#">Delete</a>
4	Eye Glasses	It will make you read better.	\$6	<a href="#">Edit</a>	<a href="#">Delete</a>
3	Gatorade	This is a very good drink for athletes.	\$1.99	<a href="#">Edit</a>	<a href="#">Delete</a>
1	Basketball	A ball used in the NBA.	\$49.99	<a href="#">Edit</a>	<a href="#">Delete</a>

## References

PHP MySQL CRUD Application with MySQLi Procedural

<https://github.com/rzrokon/PHP-MySQL-CRUD-Application-with-MySqli-Procedural>

PHP MySQL CRUD Application

<https://www.tutorialrepublic.com/php-tutorial/php-mysql-crud-application.php>

PHP CRUD Create, edit, update and delete posts with MySQL database

<https://codewithawa.com/posts/php-crud-create,-edit,-update-and-delete-posts-with-mysql-database>

PHP CRUD Tutorial

<https://www.starttutorial.com/articles/view/php-crud-tutorial-part-1>

PHP CRUD Tutorial for Beginners – Step By Step Guide!

<https://www.codeofaninja.com/2011/12/php-and-mysql-crud-tutorial.html>

Get Started With CRUD Operations in PHP MySQL Databases

<https://code.tutsplus.com/tutorials/how-to-work-with-mysql-in-php--cms-32222>

PHP CRUD with MySQL

<https://youtu.be/mjVuBlwXASo>

PHP CRUD (Create, Read, Update, Delete)

<https://youtu.be/72U5Af8KUpA>

PHP MySQL CRUD BASIC

<https://youtu.be/58h0YWo4l8o>