Cloud Computing Lab 4:

Deploying Application-I

Due Date: Tuesday, March 2, 2021 (11:59pm).

Student Name: Mohmmed alzhrani

Student ID: 2041606

Objective

Deploying enterprise applications onto virtual machines on VMware platform that are hosted on local machines

Equipment, Tools, Hardware, and Software Needed

1. Desktop PC, Laptop with internet connection.
2. VMware Workstation software - free downloadable
3. Ubuntu (live image) - free downloadable. You may download other Operating Systems image.
4. **Apache2 server, PHP, MySQL server**

Theorem

The deployment of an Enterprise Application one of the important practice in cloud computing. Implementing a multitier application on cloud is a vital job.

In this Lab, we will prepare and deploy a Web/Application/Database application to our VMware platform, as shown in the below Figure 1.

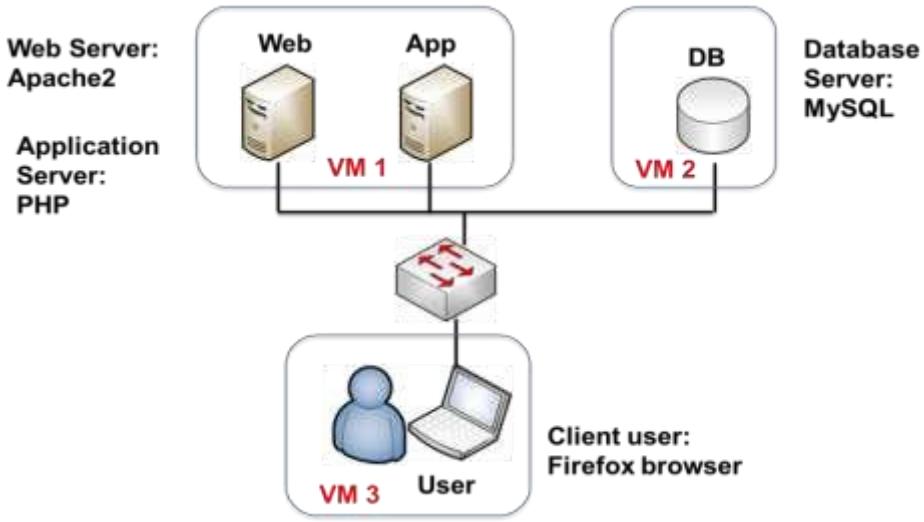


Figure 1 Deploying a Multitier Application

Procedure

***** Note: Use your previous Lab VMs**

To do the deployment we have to do the procedure based on the services in sequence:

First, Web Server – VM 1

Power On VM 1, and do the following installation and implementation steps.

sudo apt install apache2

sudo mv /var/www/html/index.html /var/www/html/index.html.bkp

sudo vi /var/www/html/index.html

press "**i**" to edit the file, copy and past the following code,

```
<html>
        <head>
            <title>your_domain website</title>
        </head>
        <body>
            <h1>Hello World!</h1>
            <p>This is the landing page of <strong>VM 1</strong>.</p>
        </body>
</html>
```

hit button "esc"

press "**:wq**"

Check:

Open the internet browser& type:

VM_1_IP_Address

For example: 192.168.74.130

Second, Application Server – VM 1

On VM 1, and do the following installation and implementation steps.

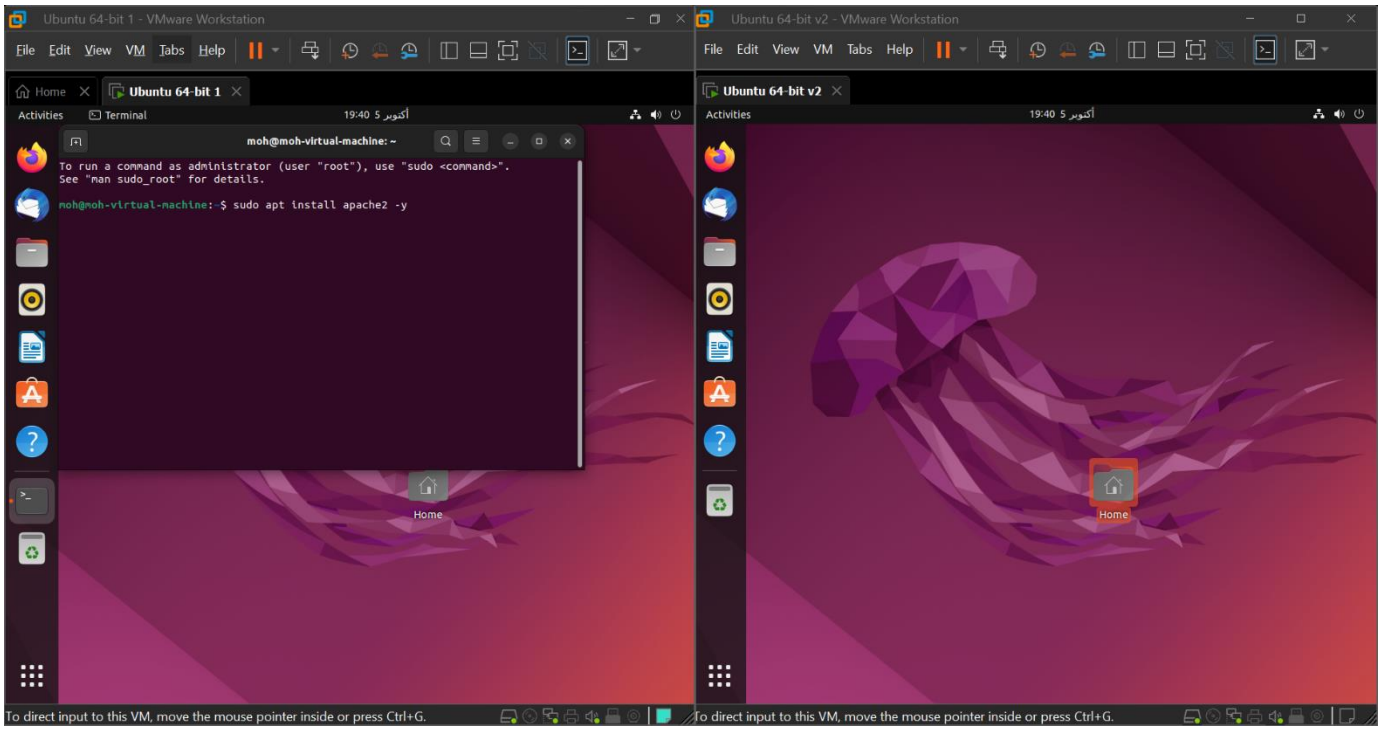
sudo apt install php libapache2-mod-php php-mysql
php –v
sudo vi /var/www/html/info.php # press "**i**" for editing, and copy & paste the following code: <?php phpinfo(); # hit button "esc" # press "**:wq**"
Check: Open the internet browser& type: http:// ***VM_1_IP_Address*** /info.php

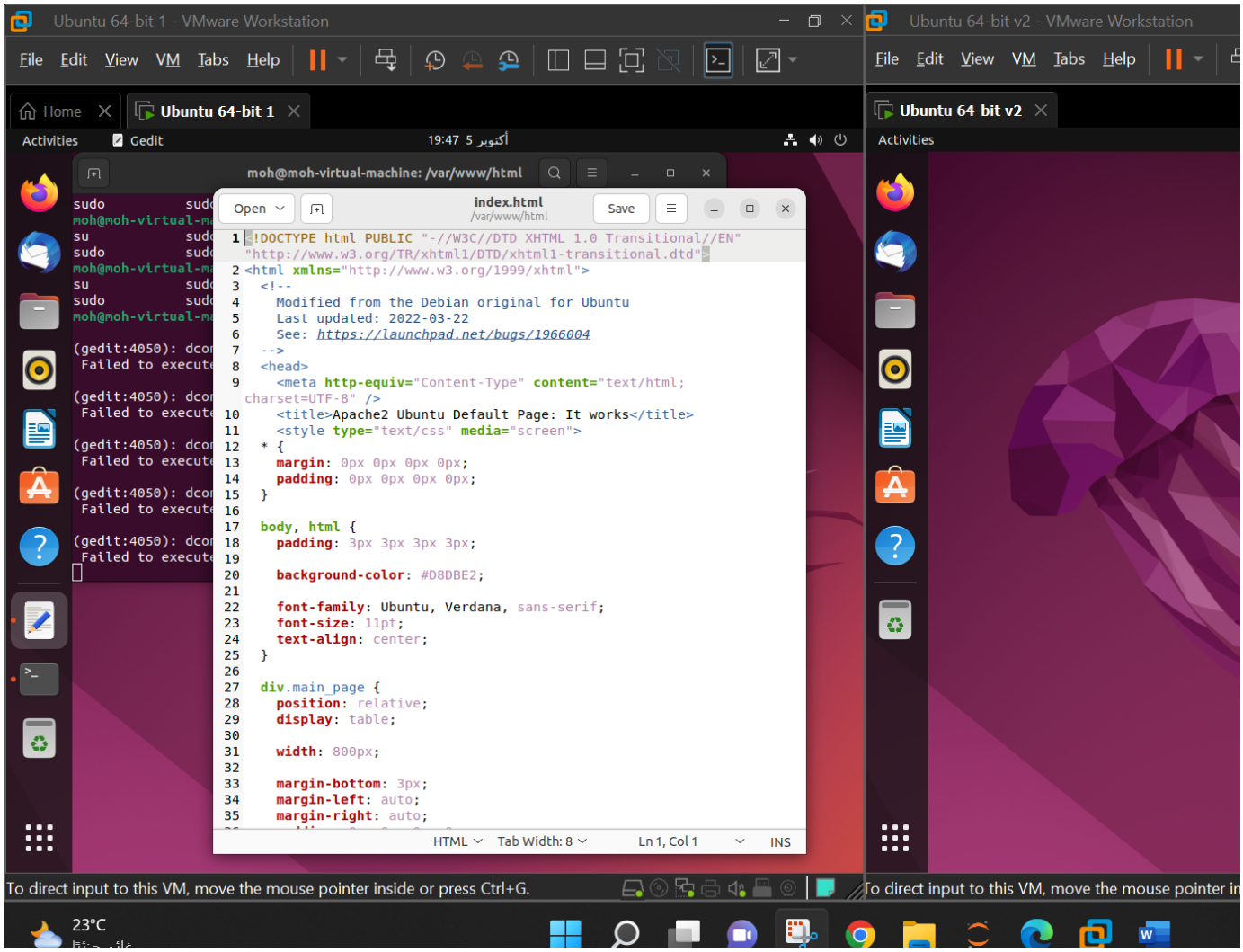
Lab Task

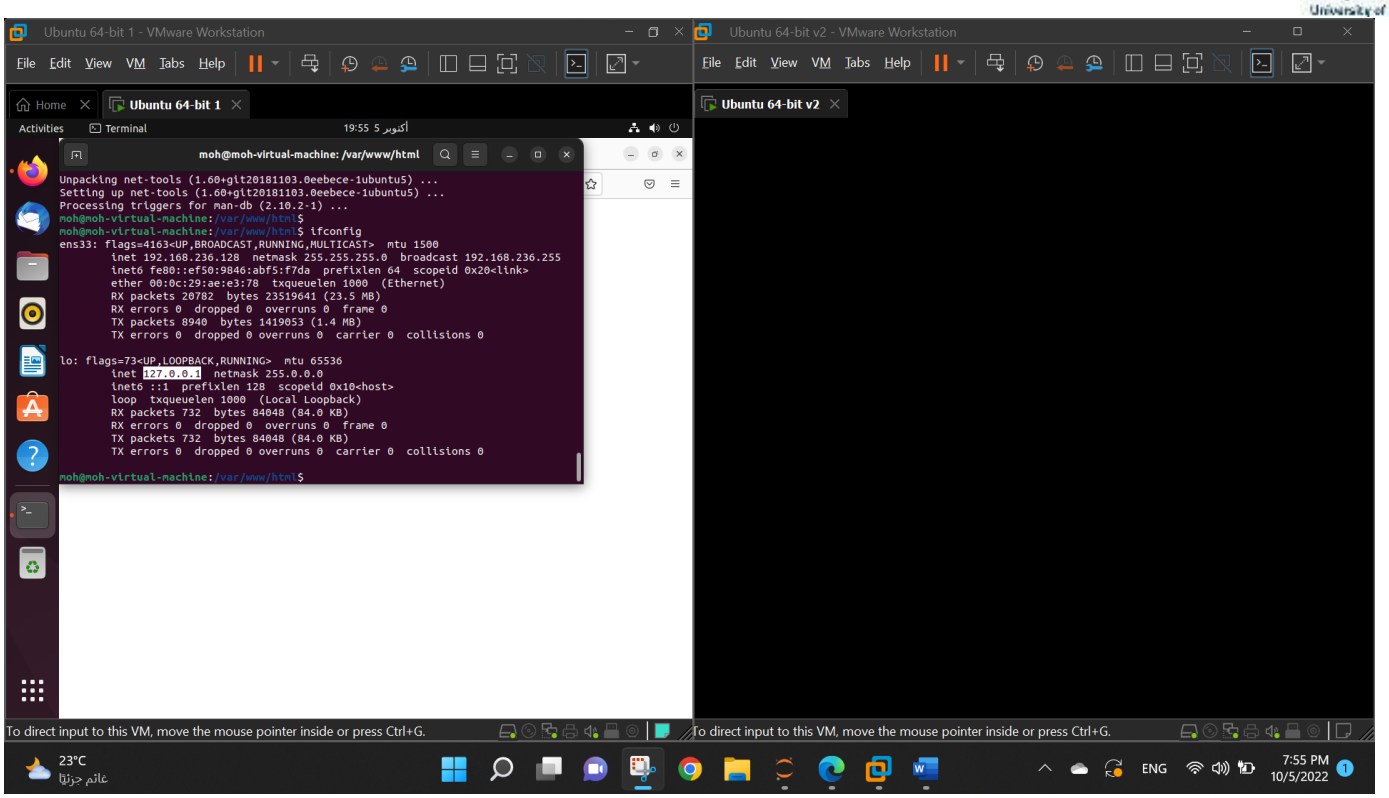
1. Report all outputs of all commands on the procedure above in addition to the below configuration settings.

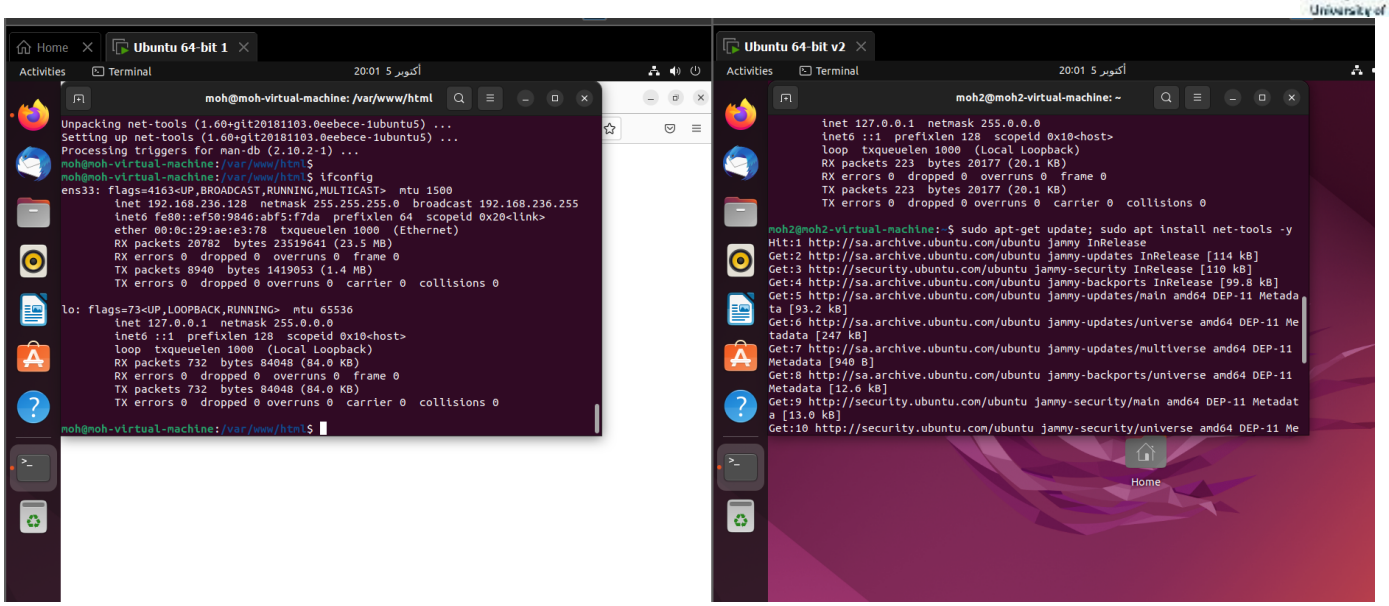
Lab Report

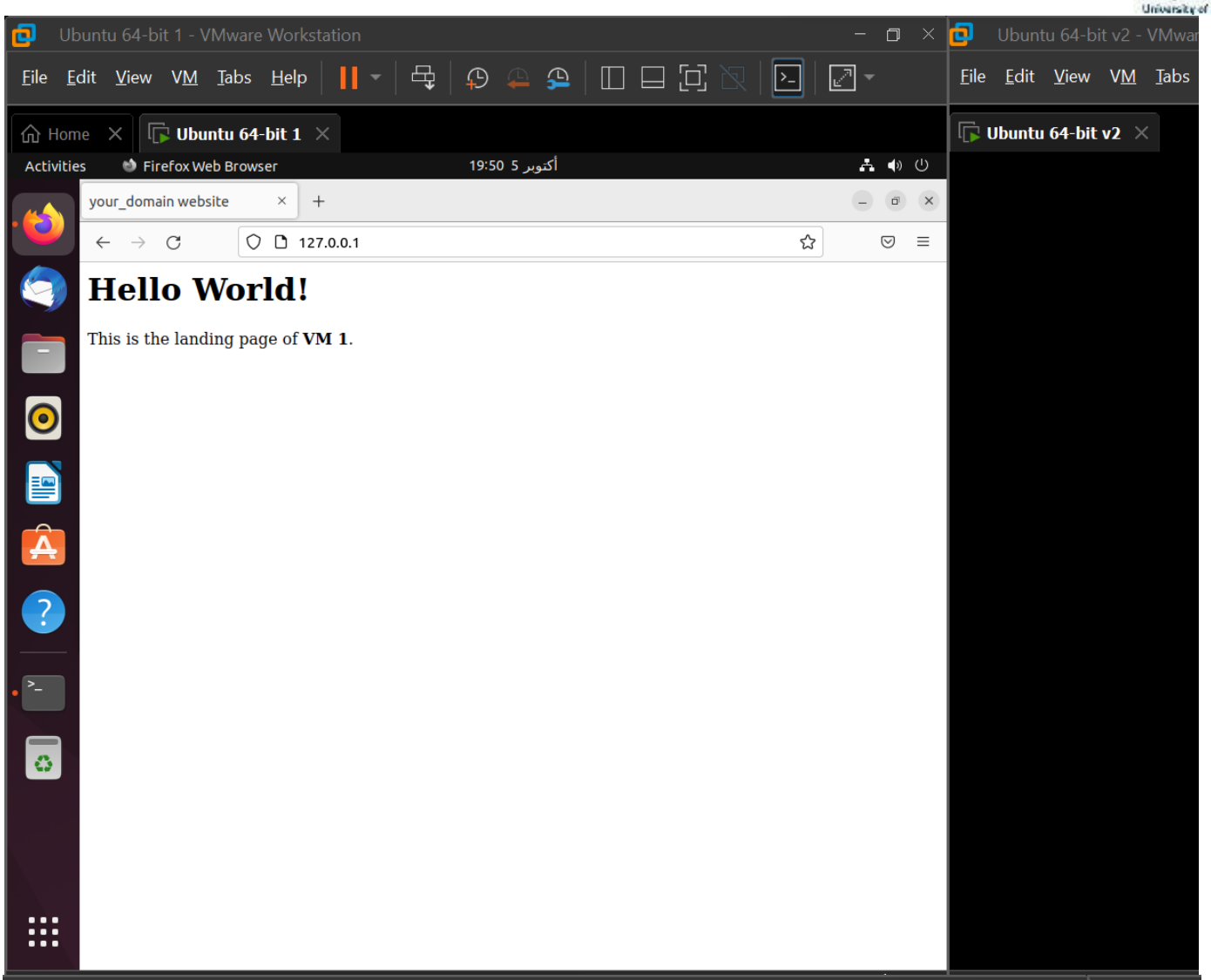
For the lab report, take a screenshots of your VMware Workstation configuration and include Command Line logs for the Virtual Machines as requested in the Lab Task.

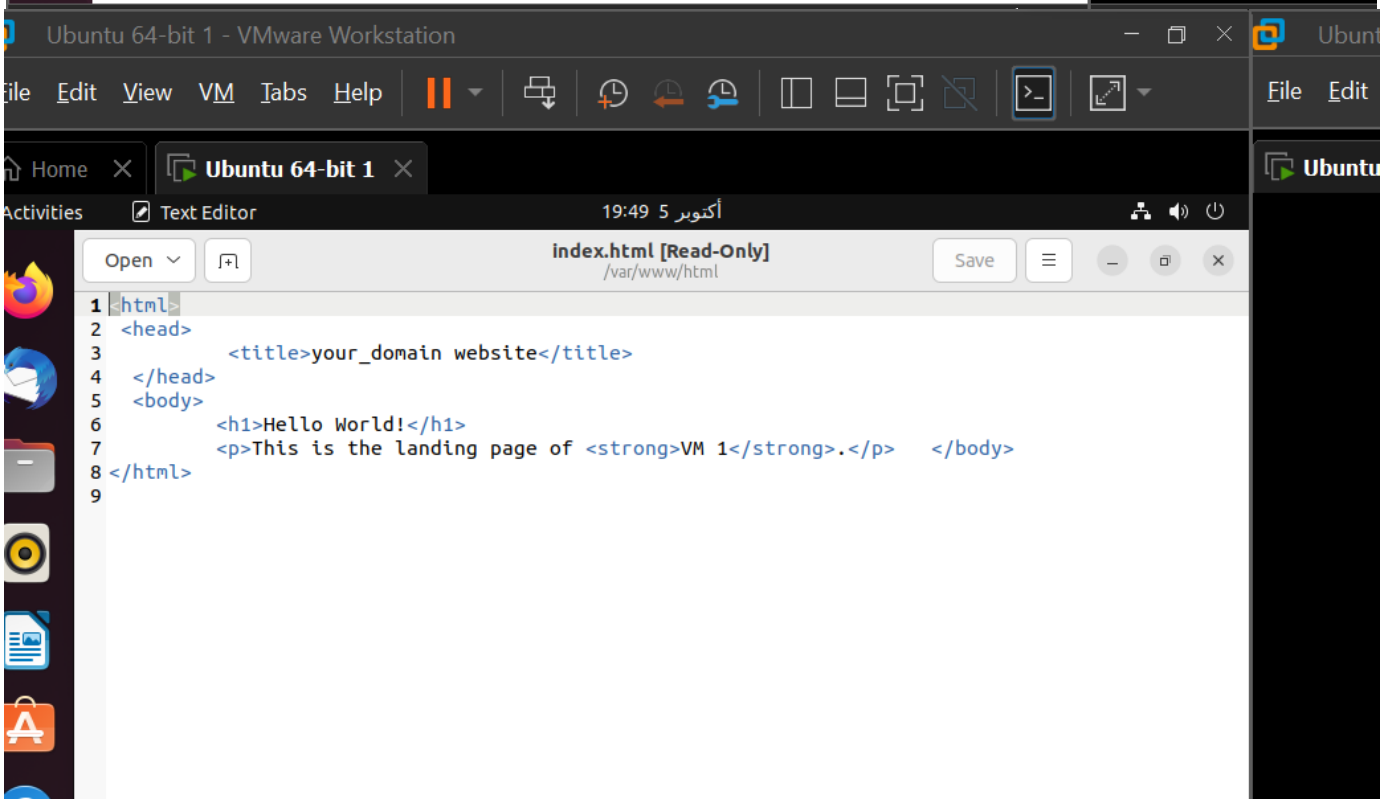


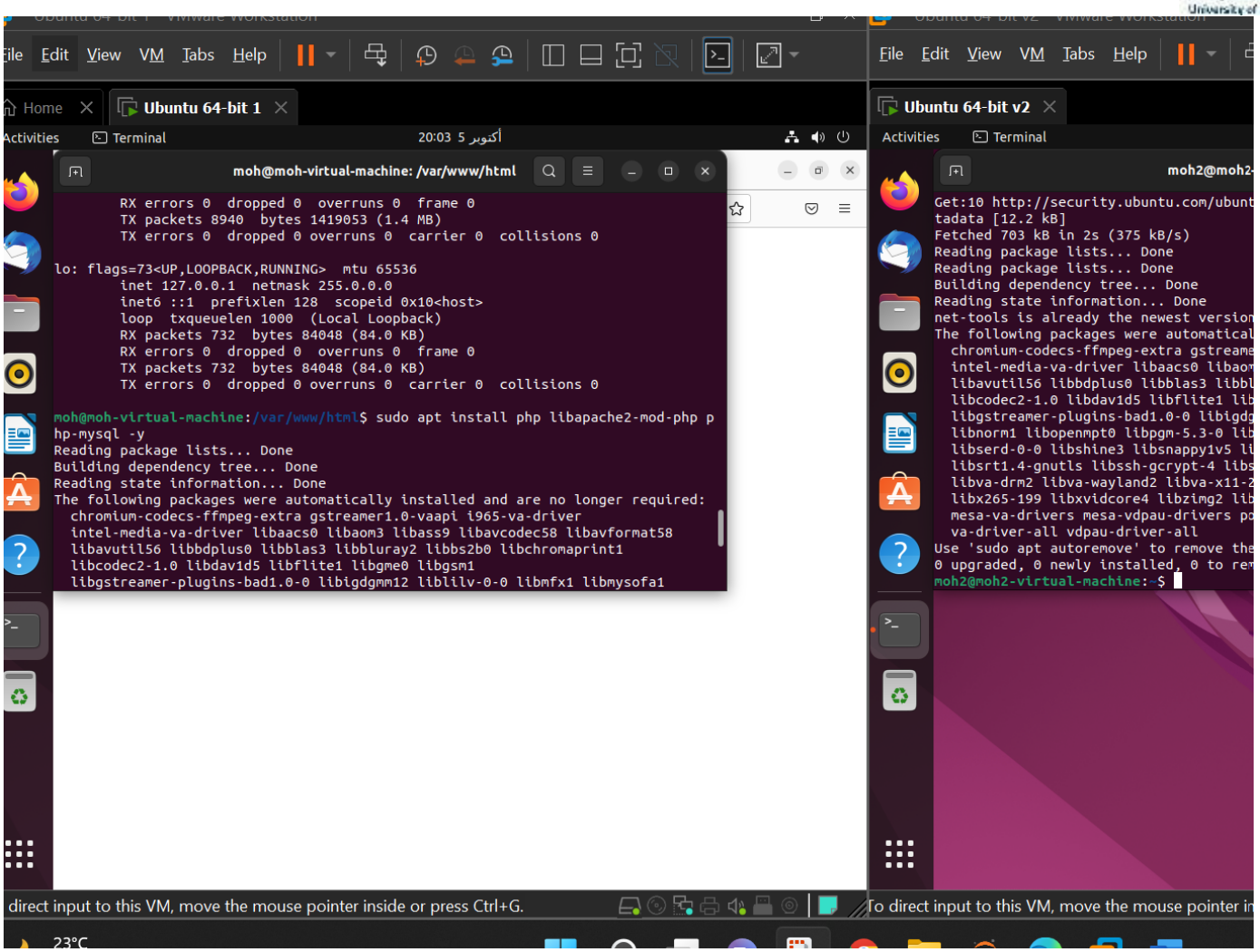

Ubuntu 64-bit 1 - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Gedit
19:47 5 أكتوبر
moh@moh-virtual-machine: /var/www/html
Open
index.html
/var/www/html
Save
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<!--
Modified from the Debian original for Ubuntu
Last updated: 2022-03-22
See: https://launchpad.net/bugs/1966004
-->
<head>
<meta http-equiv="Content-Type" content="text/html;
charset=UTF-8" />
<title>Apache2 Ubuntu Default Page: It works</title>
<style type="text/css" media="screen">
* {
margin: 0px 0px 0px 0px;
padding: 0px 0px 0px 0px;
}
body, html {
padding: 3px 3px 3px 3px;
background-color: #D8DBE2;
font-family: Ubuntu, Verdana, sans-serif;
font-size: 11pt;
text-align: center;
}
div.main_page {
position: relative;
display: table;
width: 800px;
margin-bottom: 3px;
margin-left: auto;
margin-right: auto;
HTML
Tab Width: 8
Ln 1, Col 1
INS
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.
Ubuntu 64-bit v2 - VMware Workstation
File Edit View VM Tabs Help
Ubuntu 64-bit v2
Activities
To direct input to this VM, move the mouse pointer in
23°C

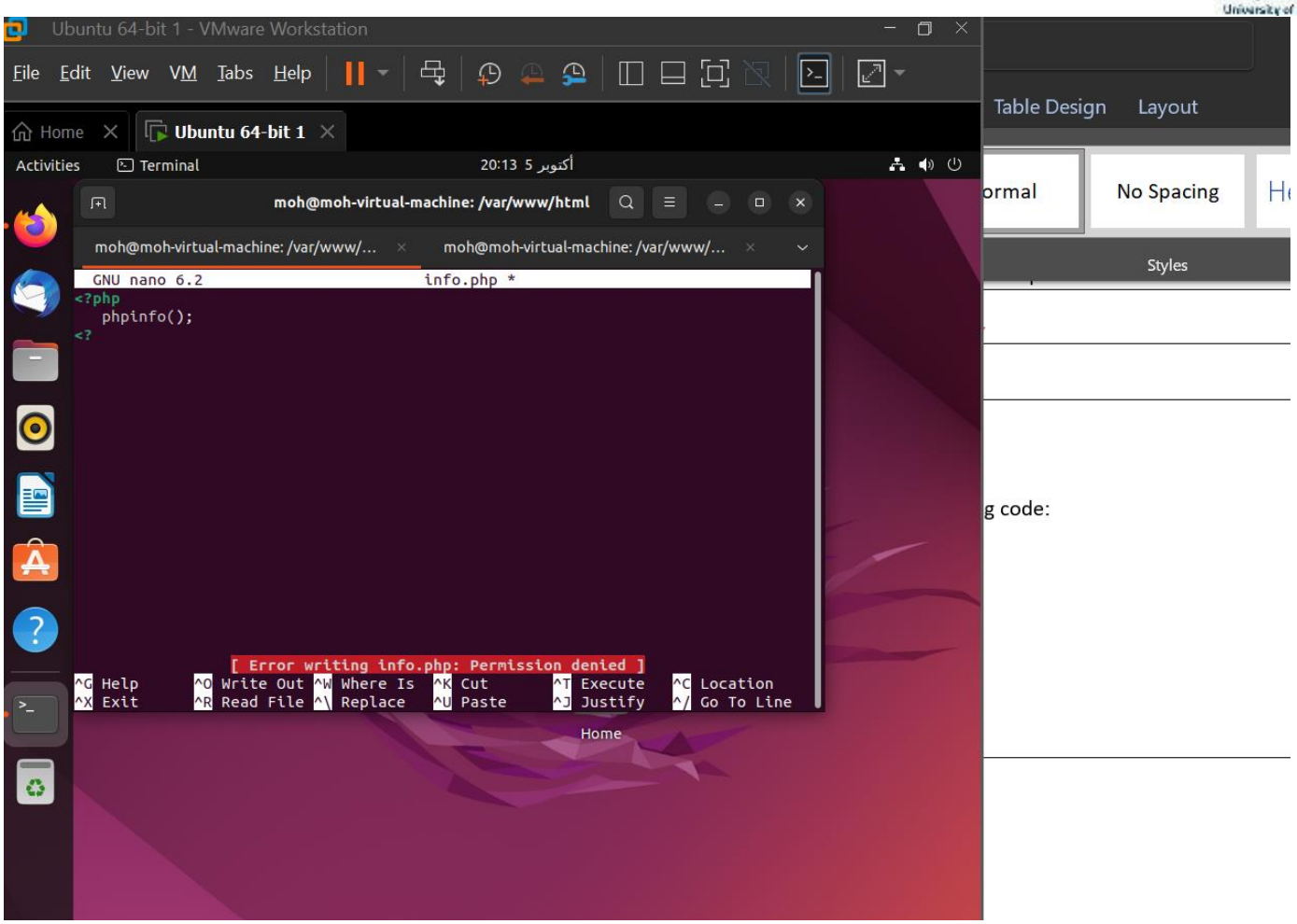

Ubuntu 64-bit 1 - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Terminal
19:55 5 أكتوبر
moh@moh-virtual-machine: /var/www/html
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
moh@moh-virtual-machine:/var/www/html$
moh@moh-virtual-machine:/var/www/html$ ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.236.128 netmask 255.255.255.0 broadcast 192.168.236.255
inet6 fe80::ef50:9846:abf5:f7da prefixlen 64 scopeid 0x20<link>
ether 00:0c:29:ae:e3:78 txqueuelen 1000 (Ethernet)
RX packets 20782 bytes 23519641 (23.5 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 8940 bytes 1419053 (1.4 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 732 bytes 84048 (84.0 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 732 bytes 84048 (84.0 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
moh@moh-virtual-machine:/var/www/html$
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.
Ubuntu 64-bit v2 - VMware Workstation
File Edit View VM Tabs Help
Ubuntu 64-bit v2
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.
23°C
عاتم جزئيا
ENG
7:55 PM
10/5/2022

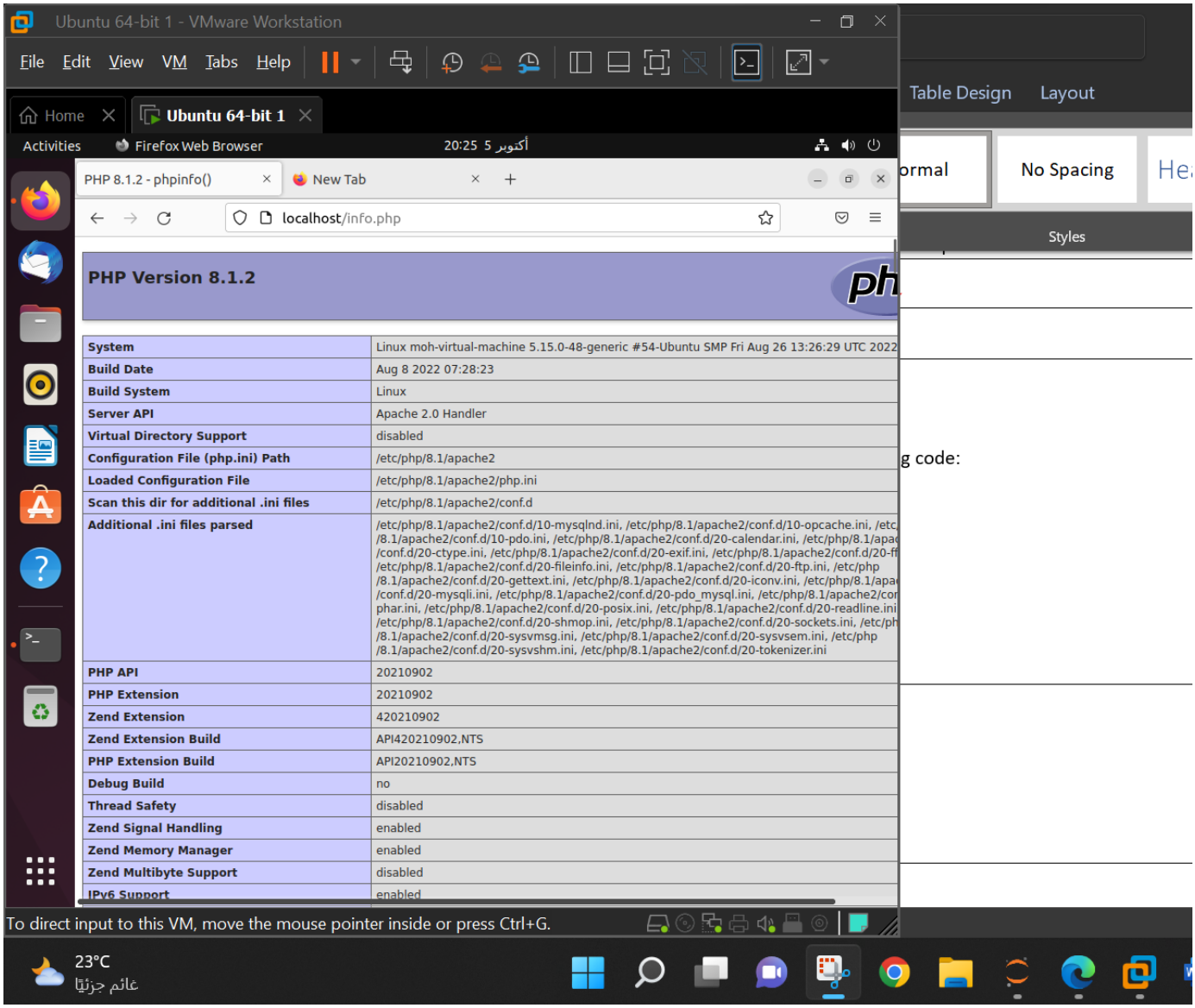

Home
Ubuntu 64-bit 1
Activities
Terminal
5 أكتوبر 20:01
moh@moh-virtual-machine: /var/www/html
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
moh@moh-virtual-machine:/var/www/html$
moh@moh-virtual-machine:/var/www/html$ ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 192.168.236.128 netmask 255.255.255.0 broadcast 192.168.236.255
inet6 fe80::ef50:9846:abf5:f7da prefixlen 64 scopeid 0x20<link>
ether 00:0c:29:ae:e3:78 txqueuelen 1000 (Ethernet)
RX packets 20782 bytes 23519641 (23.5 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 8940 bytes 1419053 (1.4 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 732 bytes 84048 (84.0 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 732 bytes 84048 (84.0 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
moh@moh-virtual-machine:/var/www/html$
Ubuntu 64-bit v2
Activities
Terminal
5 أكتوبر 20:01
moh2@moh2-virtual-machine: ~
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 223 bytes 20177 (20.1 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 223 bytes 20177 (20.1 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
moh2@moh2-virtual-machine:~$ sudo apt-get update; sudo apt install net-tools -y
Hit:1 http://sa.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://sa.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:4 http://sa.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:5 http://sa.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metadata [93.2 kB]
Get:6 http://sa.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11 Metadata [247 kB]
Get:7 http://sa.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-11 Metadata [940 B]
Get:8 http://sa.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-11 Metadata [12.6 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metadata [13.0 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 Me
Home


Ubuntu 64-bit 1 - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Firefox Web Browser
19:50 5 أكتوبر
your_domain website
127.0.0.1
Hello World!
This is the landing page of VM 1.
Ubuntu 64-bit v2 - VMwar
File Edit View VM Tabs
Ubuntu 64-bit v2


Ubuntu 64-bit 1 - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Text Editor
19:49 5 أكتوبر
Open
index.html [Read-Only]
/var/www/html
Save
1 <html>
2 <head>
3 <title>your_domain website</title>
4 </head>
5 <body>
6 <h1>Hello World!</h1>
7 This is the landing page of VM 1. </body>
8 </html>
9
File Edit


File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Terminal
20:03 5 أكتوبر
moh@moh-virtual-machine: /var/www/html
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 8940 bytes 1419053 (1.4 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 732 bytes 84048 (84.0 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 732 bytes 84048 (84.0 KB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
moh@moh-virtual-machine:/var/www/html$ sudo apt install php libapache2-mod-php php-mysql -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58
libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1
libcodec2-1.0 libdav1d5 libflite1 libgme0 libgsm1
libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libmfx1 libmysofa1
direct input to this VM, move the mouse pointer inside or press Ctrl+G.
File Edit View VM Tabs Help
Ubuntu 64-bit v2
Activities
Terminal
Get:10 http://security.ubuntu.com/ubuntu
tadata [12.2 kB]
Fetched 703 kB in 2s (375 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
net-tools is already the newest version
The following packages were automatical
chromium-codecs-ffmpeg-extra gstreame
intel-media-va-driver libaacs0 libaom
libavutil56 libbdplus0 libblas3 libbl
libcodec2-1.0 libdav1d5 libflite1 lib
libgstreamer-plugins-bad1.0-0 libigdg
libnorm1 libopenmpt0 libpgm-5.3-0 lib
libserd-0-0 libshine3 libsnappy1v5 li
libsrt1.4-gnutls libssh-gcrypt-4 libs
libva-drm2 libva-wayland2 libva-x11-2
libx265-199 libxvidcore4 libzimg2 lib
mesa-va-drivers mesa-vdpau-drivers p
va-driver-all vdpau-driver-all
Use 'sudo apt autoremove' to remove the
0 upgraded, 0 newly installed, 0 to re
moh2@moh2-virtual-machine:~$
To direct input to this VM, move the mouse pointer in
23°C


Ubuntu 64-bit 1 - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Terminal
20:13 5 أكتوبر
moh@moh-virtual-machine: /var/www/html
moh@moh-virtual-machine: /var/www/...
moh@moh-virtual-machine: /var/www/...
GNU nano 6.2 info.php *
<?php
phpinfo();
<?
[Error writing info.php: Permission denied]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line
Home
Table Design
Layout
ormal
No Spacing
Styles
g code:


Ubuntu 64-bit 1 - VMware Workstation
File Edit View VM Tabs Help
Home
Ubuntu 64-bit 1
Activities
Firefox Web Browser
20:25 5 أكتوبر
PHP 8.1.2 - phpinfo()
New Tab
localhost/info.php
PHP Version 8.1.2
System Linux moh-virtual-machine 5.15.0-48-generic #54-Ubuntu SMP Fri Aug 26 13:26:29 UTC 2022
Build Date Aug 8 2022 07:28:23
Build System Linux
Server API Apache 2.0 Handler
Virtual Directory Support disabled
Configuration File (php.ini) Path /etc/php/8.1/apache2
Loaded Configuration File /etc/php/8.1/apache2/php.ini
Scan this dir for additional .ini files /etc/php/8.1/apache2/conf.d
Additional .ini files parsed /etc/php/8.1/apache2/conf.d/10-mysqlnd.ini, /etc/php/8.1/apache2/conf.d/10-opcache.ini, /etc/php/8.1/apache2/conf.d/10-pdo.ini, /etc/php/8.1/apache2/conf.d/20-calendar.ini, /etc/php/8.1/apache2/conf.d/20-ctype.ini, /etc/php/8.1/apache2/conf.d/20-exif.ini, /etc/php/8.1/apache2/conf.d/20-fileinfo.ini, /etc/php/8.1/apache2/conf.d/20-ftp.ini, /etc/php/8.1/apache2/conf.d/20-gettext.ini, /etc/php/8.1/apache2/conf.d/20-iconv.ini, /etc/php/8.1/apache2/conf.d/20-mysqli.ini, /etc/php/8.1/apache2/conf.d/20-pdo_mysql.ini, /etc/php/8.1/apache2/conf.d/20-phar.ini, /etc/php/8.1/apache2/conf.d/20-posix.ini, /etc/php/8.1/apache2/conf.d/20-readline.ini, /etc/php/8.1/apache2/conf.d/20-shmop.ini, /etc/php/8.1/apache2/conf.d/20-sockets.ini, /etc/php/8.1/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.1/apache2/conf.d/20-sysvsem.ini, /etc/php/8.1/apache2/conf.d/20-sysvshm.ini, /etc/php/8.1/apache2/conf.d/20-tokenizer.ini
PHP API 20210902
PHP Extension 20210902
Zend Extension 420210902
Zend Extension Build API420210902,NTS
PHP Extension Build API20210902,NTS
Debug Build no
Thread Safety disabled
Zend Signal Handling enabled
Zend Memory Manager enabled
Zend Multibyte Support disabled
IPv6 Support enabled
To direct input to this VM, move the mouse pointer inside or press Ctrl+G.
23°C
غائم جزئيًا
Table Design
Layout
No Spacing
Styles
g code: