



Bachelor of Science in Computer Science and
Information Technology

Laboratory Report On

Cloud Computing

Submitted By :

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Semester : 8th

Section : B

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Submitted To:

Department of computer Science

Prime College

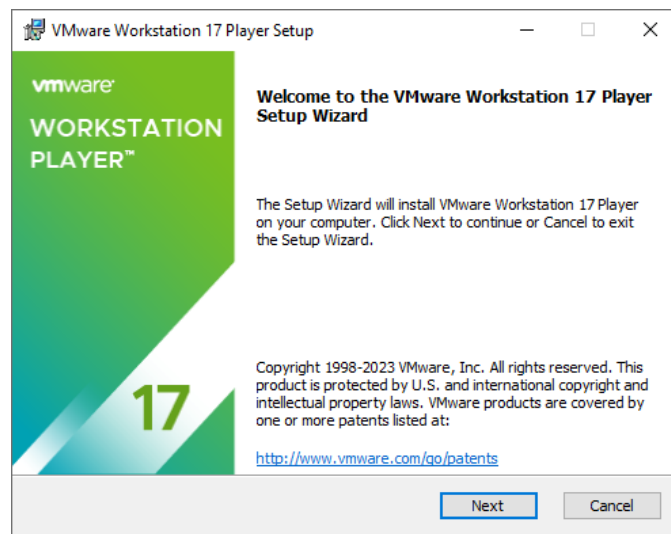
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8	Write a program for the MapReduce for the following diagram	

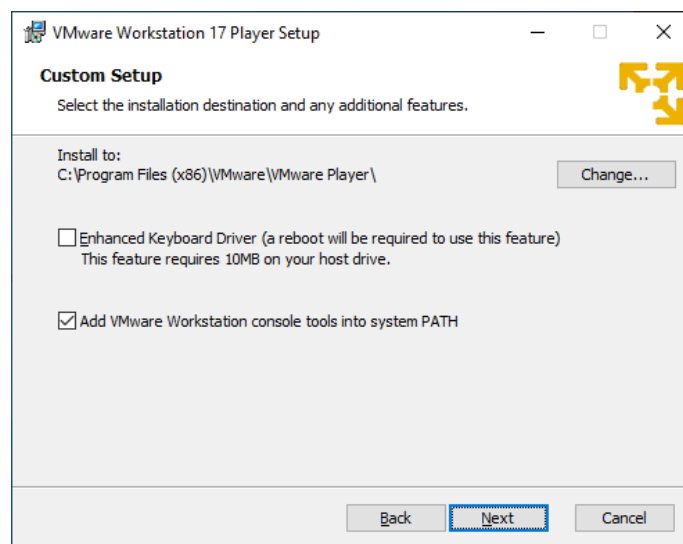
Lab1.

Install VMware in Windows

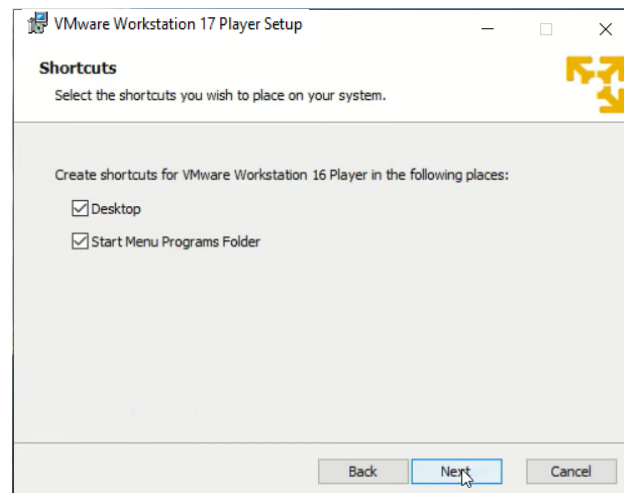
1. Open web browser and go to the following VMware Player official site:
<http://www.vmware.com/products/player>
Click "Try for free".
Beside "VMware Workstation 16 Player for Windows 64-bit" click "Download Now".
2. After downloading run the setup file.
3. Following contains the contents of the setup file:



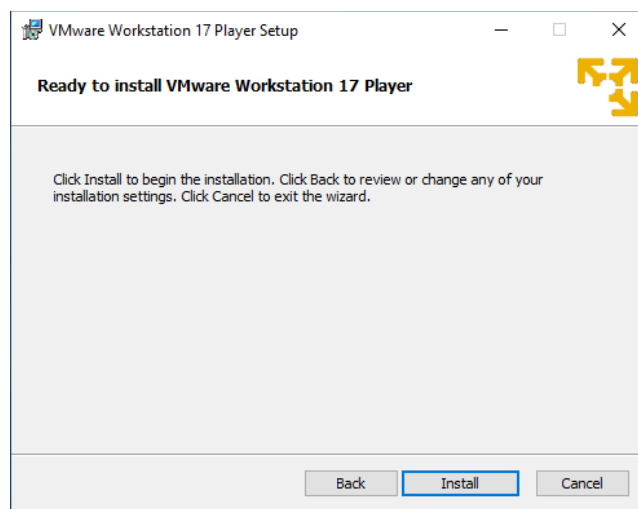
2. Next step, select the destination where the application is to be installed.



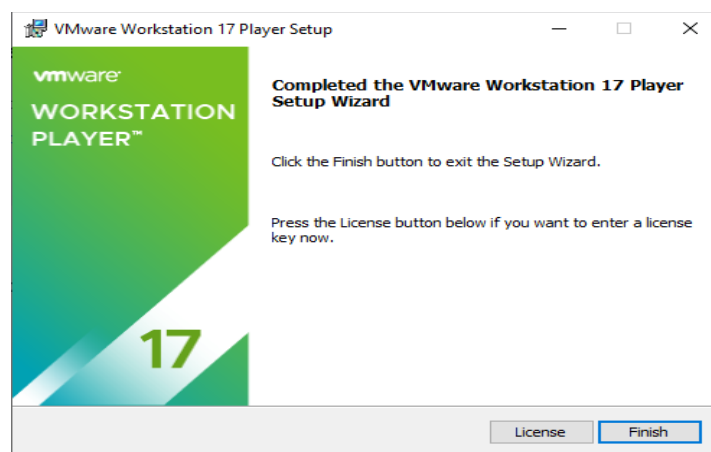
3. Tick the options if you want to create shortcuts.



4. Select install and wait for installation to complete.



5. Click on finish and run the application.



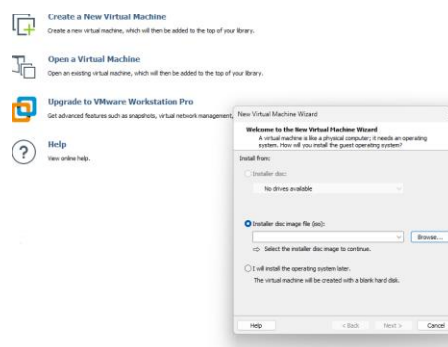
Lab 2.

Install Centos 7 in vmware

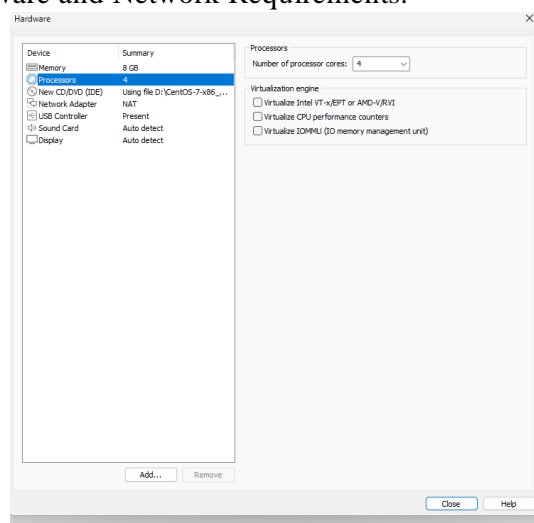
1. Download Centos 7 ISO image from browser and run the setup file.



2. Select the downloaded ISO of centos 7.



3. Give the path and name to the machine where it is to be installed.
4. Configure the Hardware and Network Requirements.



5. Click on finish and run the Centos 7 installer.

```

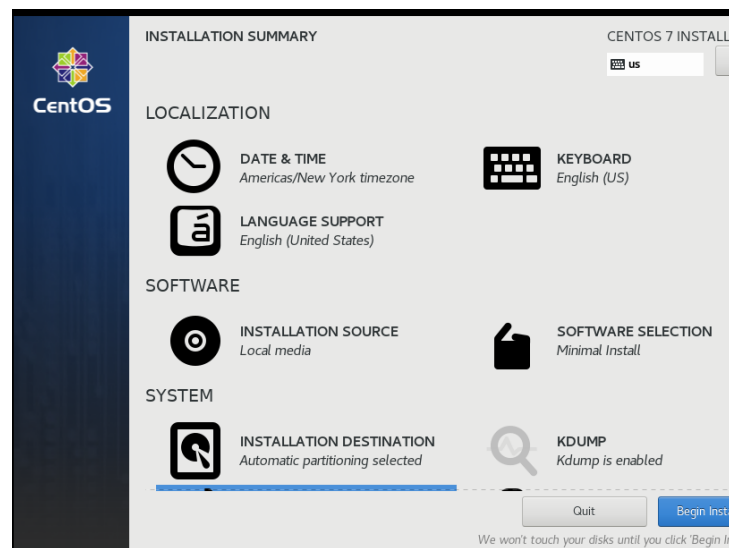
[ OK ] Reached target Switch Root.
[ OK ] Started Plymouth switch root service.
Starting Switch Root...

Welcome to CentOS Linux 7 (Core)!

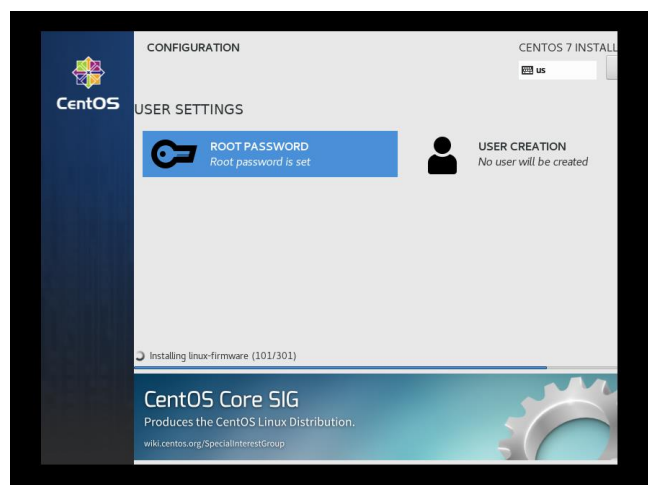
[ OK ] Stopped Switch Root.
[ OK ] Stopped Journal Service.
Starting Journal Service...
[ OK ] Listening on udev Kernel Socket.
Mounting Huge Pages File System...
[ OK ] Created slice User and Session Slice.
[ OK ] Listening on Delayed Shutdown Socket.
Mounting Backing File System...
Starting Create list of required static device nodes for the current kernel...
[ OK ] Listening on /dev/initctl Compatibility Named Pipe.
[ OK ] Set up automount Arbitrary Executable File Formats File System Automount Point.
[ OK ] Listening on udev Control Socket.
[ OK ] Reached target Timers.
[ OK ] Stopped target Switch Root.
[ OK ] Stopped target Initrd File System.
[ OK ] Created slice system-automount.slice.
Starting Remount Root and Kernel File Systems...
Starting Availability of block devices...
Starting Read and set NFS domainname from /etc/sysconfig/network...
Mounting POSIX Message Queue File System...
[ OK ] Listening on LVM2 metadata daemon socket.
[ OK ] Reached target Slices.
[ OK ] Listening on LVM2 poll daemon socket.
[ OK ] Reached target Paths.
[ OK ] Created slice system-serializers.slice.
[ OK ] Stopped target Initrd File System.
Starting Apply Kernel Variables...
[ OK ] Reached target Swap.
Mounting Temporary Directory...
[ OK ] Mounted Backing File System.
[ OK ] Mounted Huge Pages File System.
[ OK ] Mounted POSIX Message Queue File System.
[ OK ] Started Create list of required static device nodes for the current kernel.
[ OK ] Started Remount Root and Kernel File System.
[ OK ] Started Availability of block devices.
[ OK ] Started Read and set NFS domainname from /etc/sysconfig/network.
[ OK ] Mounted Temporary Directory.
[ OK ] Started Apply Kernel Variables.
Starting Rebuild Hardware Database...
Starting Configure read-only root support...
Starting Create Static Device Nodes in /dev...

```

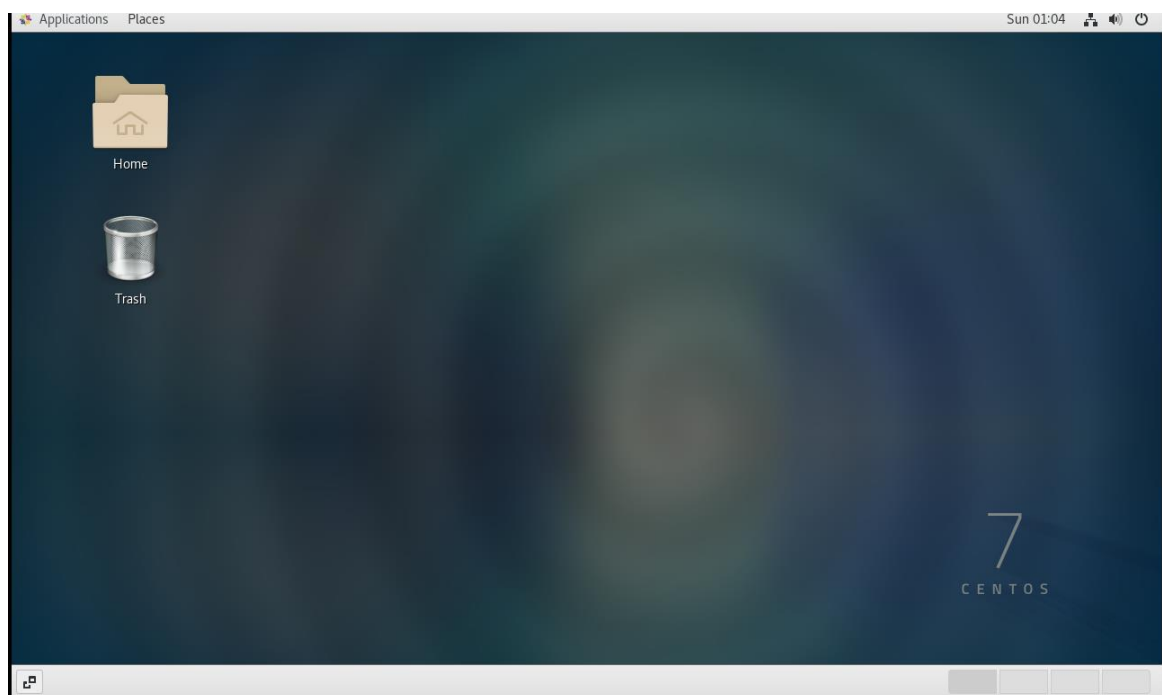
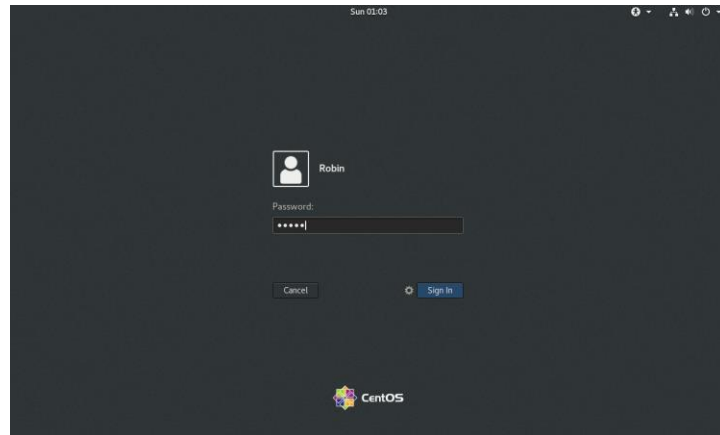
6. Configure date and time, disk partition and network requirements.



7. Give root password and create user as per need.



8. After the installation the following is the authentication page for login.



LAB 3

Show the RSA level authentication using ssh keygen.

Command:

ssh-keygen

```
File Edit View Search Terminal Help
[robin@robin ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/robin/.ssh/id_rsa):
Created directory '/home/robin/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/robin/.ssh/id_rsa.
Your public key has been saved in /home/robin/.ssh/id_rsa.pub.
The key's fingerprint is:
SHA256:p+dD8h/jIWeyCqA1A6iIeUhZXhck5B+6jw/cONQFg6s robin@robin.devkotaamniltech.com
The key's randomart image is:
+----[RSA 2048]-----+
| o o..+o+. |
|.+. o.o o |
|=o= .+. |
|*o.+ .+ o |
|.. oo oS + |
|Eo.+..*.. |
| *..+o + |
| = .ooo + |
|..o .oo |
+----[SHA256]-----+
[robin@robin ~]$
```

```

[root@robin ~]# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Created directory '/root/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:AWqZ0k+zzLt3m56+cSBkDQ5XnCo8JsaPapIQuQsC0x0 root@robin.devkotaamniltech.com
The key's randomart image is:
+---[RSA 2048]-----+
|      . +o..      |
|      EB +o      |
|    + o=.+.o      |
|    = o*o. .      |
|    .o=oo. S      |
|    = *.o . .      |
|    ++ = . .      |
|    =. . . .      |
|    o oo +Bo      |
+---[SHA256]-----+
[root@robin ~]#

```

In Windows:

Command

ssh-keygen -t rsa

```

C:\Users\ASUS>ssh -keygen -t rsa
Bad escape character 'ygen'.

C:\Users\ASUS>ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (C:\Users\ASUS/.ssh/id_rsa):
C:\Users\ASUS/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\ASUS/.ssh/id_rsa
Your public key has been saved in C:\Users\ASUS/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:Vuwn8W0mPVnrX8vMRsKqOpk7hd2ESkOCX3WRiqm9s18 asus@Robin
The key's randomart image is:
+---[RSA 3072]-----+
|      . . . oo      |
|      . . o ...      |
|      . + o *      |
|      . = = +      |
|      + S = B .      |
|      . = o O * o      |
|      = .E= + .      |
|      B .. o+.o      |
|      +Oo. o*.      |
+---[SHA256]-----+

C:\Users\ASUS>

```



```

C:\Users\ASUS\.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\ASUS\.ssh/id_rsa
Your public key has been saved in C:\Users\ASUS\.ssh/id_rsa.pub
The key fingerprint is:
SHA256:Vuwn8W0mPVnrX8vMRsKq0pk7hd2ESkOCX3WRiqm9s18 asus@Robin
The key's randomart image is:
+---[RSA 3072]-----+
|  .  .  oo          |
|  .  o  ...         |
|  . + o *           |
|  . = = +           |
|  + S = B .         |
|  . = o O * o       |
|  . = .E= + .       |
|  B  .. o+.o        |
|  +Oo.  o*.         |
+---[SHA256]-----+

C:\Users\ASUS>scp id_rsa.pub robin@192.168.6.128:~/.ssh/authorized_keys
ssh: connect to host 192.168.6.128 port 22: Connection timed out
lost connection

C:\Users\ASUS>scp id_rsa.pub robin@192.168.6.128:~/.ssh/authorized_keys
ssh: connect to host 192.168.6.128 port 22: Connection timed out
lost connection

C:\Users\ASUS>

```

```

LentOS / 64-bit - VMware Workstation 1 / Player (non-commercial use only)
Player | [Icons] | [Maximize] [Close]
Applications Places Terminal
root@robin:/
File Edit View Search Terminal Help

Similar command is: 'ssh'
[root@robin ~]# ssh robin@192.168.6.128
robin@192.168.6.128's password:
Last login: Mon Jun 10 06:35:14 2024
[robin@robin ~]$ su -
Password:
Last login: Mon Jun 10 20:39:15 PDT 2024 on pts/0
[root@robin ~]# sudo -i
[root@robin ~]# cd /
[root@robin /]# pwd
/
[root@robin /]# touch authorized_keys
[root@robin /]# ls -la
total 32
dr-xr-xr-x. 17 root root 247 Jun 10 20:41 .
dr-xr-xr-x. 17 root root 247 Jun 10 20:41 ..
-rw-r--r--. 1 root root 0 Jun 10 20:41 authorized_keys
lrwxrwxrwx. 1 root root 7 Jun 9 00:53 bin -> usr/bin
dr-xr-xr-x. 5 root root 4096 Jun 9 02:58 boot
drwxr-xr-x. 19 root root 3280 Jun 10 06:35 dev
drwxr-xr-x. 153 root root 12288 Jun 10 20:29 etc
drwxr-xr-x. 5 root root 41 Jun 9 02:15 home
lrwxrwxrwx. 1 root root 7 Jun 9 00:53 lib -> usr/lib
lrwxrwxrwx. 1 root root 9 Jun 9 00:53 lib64 -> usr/lib64
drwxr-xr-x. 2 root root 6 Apr 10 2018 media
drwxr-xr-x. 3 root root 18 Jun 9 02:25 mnt

```

Lab 4

Install Apache server

Commands:

Yum update

```
vim-filesystem           Xi
vim-minimal              Xi
virt-what                Xi
webkitgtk4               Xi
webkitgtk4-jsc           Xi
wpa_supplicant           Xi
xfsdump                  Xi
xmlsec1                  Xi
xmlsec1-openssl          Xi
xorg-x11-drv-ati         Xi
xorg-x11-server-Xorg     Xi
xorg-x11-server-common   Xi
xz                       Xi
xz-libs                  Xi
zenity                   Xi
zlib                     Xi
```

```
Transaction Summary
=====
Install      2 Packages
Upgrade    351 Packages

Total download size: 619 M
Is this ok [y/d/N]: █
```

Install httpd

yum install httpd

```
Complete!
[root@localhost ~]# yum install httpd
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.6-99.el7.centos.1 will be installed
--> Processing Dependency: httpd-tools = 2.4.6-99.el7.centos.1 for package: httpd-2.4.6-99.el7.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.6-99.el7.centos.1.x86_64
--> Processing Dependency: libaprutil-1.so.0()(64bit) for package: httpd-2.4.6-99.el7.centos.1.x86_64
--> Processing Dependency: libapr-1.so.0()(64bit) for package: httpd-2.4.6-99.el7.centos.1.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.4.8-7.el7 will be installed
--> Package apr-util.x86_64 0:1.5.2-6.el7_9.1 will be installed
--> Package httpd-tools.x86_64 0:2.4.6-99.el7.centos.1 will be installed
--> Package mailcap.noarch 0:2.1.41-2.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package             Arch      Version              Repository    Size
=====
Installing:
httpd               x86_64    2.4.6-99.el7.centos.1 updates      2.7 M
Installing for dependencies:
apr                 x86_64    1.4.8-7.el7          base          184 k
apr-util            x86_64    1.5.2-6.el7_9.1      updates       92 k
httpd-tools         x86_64    2.4.6-99.el7.centos.1 updates       94 k
mailcap             noarch    2.1.41-2.el7         base          31 k
=====

Transaction Summary
=====
Install 1 Package (+4 Dependent packages)

Total download size: 3.0 M
Installed size: 10 M
Is this ok [y/d/N]: █
```

Add services for http and https in firewall and reload the firewall

firewall-cmd --permanent --add-service=http

firewall-cmd --permanent --add-service=https

Reload the service

firewall-cmd --reload

```
Complete!
[root@localhost ~]# firewall-cmd --permanent --add-service=http
success
[root@localhost ~]# firewall-cmd --permanent --add-service=https
success
[root@localhost ~]# firewall-cmd --reload
success
[root@localhost ~]# █
```

Start the service and check status

systemctl start httpd

systemctl status httpd

```
File Edit View Search Terminal Help
Dependency Installed:
  apr.x86_64 0:1.4.8-7.el7                                apr-util.x86_64 0:1.5.2-6.el7_9.1
  httpd-tools.x86_64 0:2.4.6-99.el7.centos.1              mailcap.noarch 0:2.1.41-2.el7

Complete!
[root@localhost ~]# firewall-cmd --permanent --add-service=http
success
[root@localhost ~]# firewall-cmd --permanent --add-service=https
success
[root@localhost ~]# firewall-cmd --reload
success
[root@localhost ~]# systemctl status https
Unit https.service could not be found.
[root@localhost ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd(8)
           man:apachectl(8)
[root@localhost ~]# systemctl start httpd
[root@localhost ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: active (running) since Sun 2024-06-09 02:34:30 PDT; 14s ago
     Docs: man:httpd(8)
           man:apachectl(8)
  Main PID: 75628 (httpd)
    Status: "Total requests: 0; Current requests/sec: 0; Current traffic:  0 B/sec"
     Tasks: 6
    CGroup: /system.slice/httpd.service
            └─75628 /usr/sbin/httpd -DFOREGROUND
              └─75632 /usr/sbin/httpd -DFOREGROUND
                └─75633 /usr/sbin/httpd -DFOREGROUND
                  └─75634 /usr/sbin/httpd -DFOREGROUND
                    └─75635 /usr/sbin/httpd -DFOREGROUND
                      └─75636 /usr/sbin/httpd -DFOREGROUND

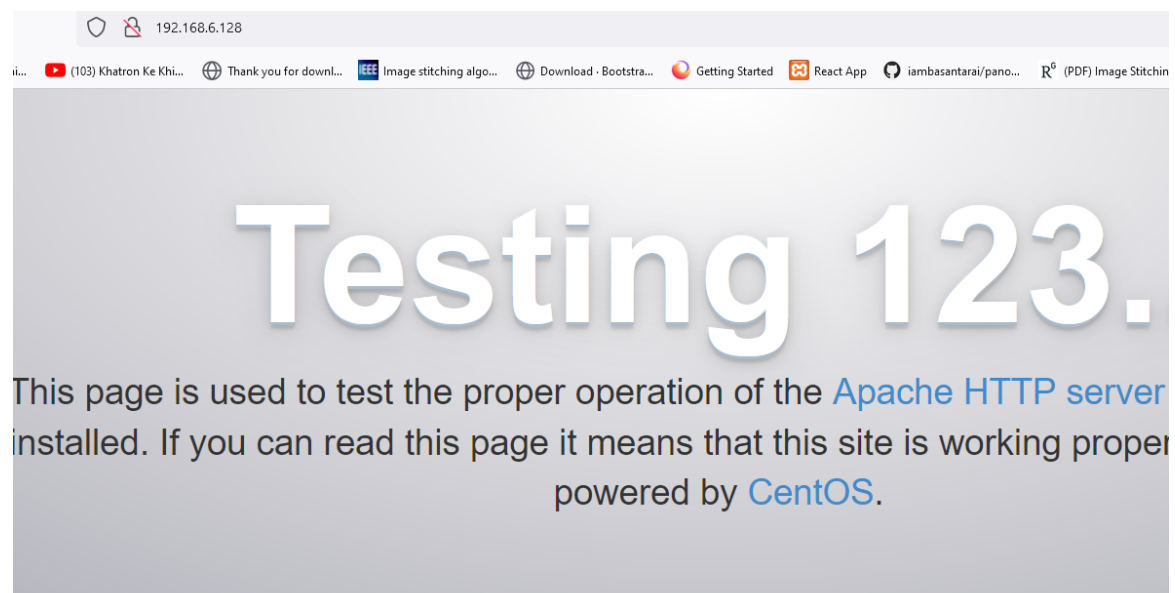
Jun 09 02:34:30 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Jun 09 02:34:30 localhost.localdomain httpd[75628]: AH00558: httpd: Could not reliably determine t...age
Jun 09 02:34:30 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost ~]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.6.128 netmask 255.255.255.0 broadcast 192.168.6.255
    inet6 fe80::a16f:6825:679e:94ac prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:b1:6e:7c txqueuelen 1000 (Ethernet)
    RX packets 508349 bytes 744533980 (710.0 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 233679 bytes 14097424 (13.4 MiB)
    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 74 bytes 6224 (6.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 74 bytes 6224 (6.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:75:fa:17 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@localhost ~]# ^C
[root@localhost ~]# █
```

Open web page in browser



ust visiting?

he website you just visited is either experiencing problems

Are you the Administrator?

You should add your website content to the direc

Install MySQL

Command:

First install weget,download MySQL repo and install it

- `sudo yum install wget`
- wget <https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm>
- `sudo rpm -ivh mysql80-community-release-el7-3.noarch.rpm`

```
CentOS / 64-bit - VMware Workstation 17 Player (Non-commercial use only)

Player | [Icons] | [Icons] | [Icons] | [Icons] | [Icons] | [Icons] | [Icons] | [Icons] | [Icons]
Applications | Places | Terminal | Mon 20:53 | [Icons]

root@robin:~

File Edit View Search Terminal Help

[robin@robin ~]$ su -
Password:
Last login: Mon Jun 10 20:40:38 PDT 2024 on pts/1
[root@robin ~]# sudo yum install wget
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
base | 3.6 kB | 00:00:0
extras | 2.9 kB | 00:00:0
updates | 2.9 kB | 00:00:0
updates/7/x86_64/primary_db | 27 MB | 00:00:0
Package wget-1.14-18.el7_6.1.x86_64 already installed and latest version
Nothing to do
[root@robin ~]#
```

```

root@robin ~]# wget https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm
2024-06-10 20:54:30-- https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm
Resolving dev.mysql.com (dev.mysql.com)... 23.47.233.155, 2600:140f:5:49c::2e31, 2600:140f:5:4b8::2e31
Connecting to dev.mysql.com (dev.mysql.com)|23.47.233.155|:443... connected.
HTTP request sent, awaiting response... 302 Moved Temporarily
Location: https://repo.mysql.com//mysql80-community-release-el7-3.noarch.rpm [following]
2024-06-10 20:54:30-- https://repo.mysql.com//mysql80-community-release-el7-3.noarch.rpm
Resolving repo.mysql.com (repo.mysql.com)... 118.214.139.213, 2600:140f:4:d9a::1, 2600:140f:4:d93::1d68
Connecting to repo.mysql.com (repo.mysql.com)|118.214.139.213|:443... connected.
HTTP request sent, awaiting response... 200 OK
Content-Length: 26024 (25K) [application/x-redhat-package-manager]
Saving to: 'mysql80-community-release-el7-3.noarch.rpm'

0%[=====] 26,024      --.-K/s   in 0.0s

2024-06-10 20:54:30 (613 KB/s) - 'mysql80-community-release-el7-3.noarch.rpm' saved [26024/26024]

root@robin ~]#

```

```

File Edit View Search Terminal Help
Connecting to dev.mysql.com (dev.mysql.com)|23.47.233.155|:443... connected.
HTTP request sent, awaiting response... 302 Moved Temporarily
Location: https://repo.mysql.com//mysql80-community-release-el7-3.noarch.rpm [following]
2024-06-10 20:54:30-- https://repo.mysql.com//mysql80-community-release-el7-3.noarch.rpm
Resolving repo.mysql.com (repo.mysql.com)... 118.214.139.213, 2600:140f:4:d9a::1, 2600:140f:4:d93::1d68
Connecting to repo.mysql.com (repo.mysql.com)|118.214.139.213|:443... connected.
HTTP request sent, awaiting response... 200 OK
Content-Length: 26024 (25K) [application/x-redhat-package-manager]
Saving to: 'mysql80-community-release-el7-3.noarch.rpm'

100%[=====] 26,024      --.-K/s   in 0.0s

2024-06-10 20:54:30 (613 KB/s) - 'mysql80-community-release-el7-3.noarch.rpm' saved [26024/26024]

[root@robin ~]# sudo rpm -ivh mysql80-community-release-el7-3.noarch.rpm
warning: mysql80-community-release-el7-3.noarch.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
Preparing...
Updating / installing...
 1:mysql80-community-release-el7-3
[root@robin ~]#

```

Install the MySQL and import RPM-GPG-KEY

a) **sudo rpm --import https://repo.mysql.com/RPM-GPG-KEY-mysql-2023**

b) **sudo yum install mysql-server**

```

File Edit View Search Terminal Help
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                               Arch      Version
=====
Installing:
mysql-community-libs                  x86_64    8.0.37-1.el7
replacing mariadb-libs.x86_64 1:5.5.68-1.el7
mysql-community-libs-compat           x86_64    8.0.37-1.el7
replacing mariadb-libs.x86_64 1:5.5.68-1.el7
mysql-community-server                 x86_64    8.0.37-1.el7
Installing for dependencies:
mysql-community-client                 x86_64    8.0.37-1.el7
mysql-community-client-plugins         x86_64    8.0.37-1.el7
mysql-community-common                 x86_64    8.0.37-1.el7
mysql-community-icu-data-files         x86_64    8.0.37-1.el7
=====

Transaction Summary
-----
Install 3 Packages (+4 Dependent packages)

Total download size: 89 M
Is this ok [y/d/N]:

```

Start service

sudo systemctl start mysqld

sudo systemctl enable mysqld

```
Replaced:
  mariadb-libs.x86_64 1:5.5.68-1.el7

Complete!
[root@robin ~]# sudo systemctl start mysqld
[root@robin ~]# sudo systemctl enable mysqld
[root@robin ~]#
```

Set password for root for security

sudo grep 'temporary password' /var/log/mysqld.log

sudo mysql_secure_installation

```
File Edit View Search Terminal Help
[robin@robin ~]$ su -
Password:
Last login: Mon Jun 10 20:52:03 PDT 2024 on pts/2
[root@robin ~]# sudo mysql_secure_installation

Securing the MySQL server deployment.

Enter password for user root:

The existing password for the user account root has expired. Please set a new password.

New password:

Re-enter new password:
... Failed! Error: Your password does not satisfy the current policy requirements

New password:

Re-enter new password:
The 'validate_password' component is installed on the server.
The subsequent steps will run with the existing configuration
of the component.
Using existing password for root.

Estimated strength of the password: 100
Change the password for root ? ((Press y|Y for Yes, any other key for No) : n

... skipping.
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : yes
Success.

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? (Press y|Y for Yes, any other key for No) : yes
Success.
```

By default, MySQL comes with a database named 'test' that

Verify Installation

mysql -u root -p

```
... Snapping...
Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
[root@robin ~]# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.37 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql>
```

Create database:

Create database robin_db;

```
mysql> create database robin_db;
Query OK, 1 row affected (0.00 sec)
```

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| robin_db |
| sys |
+-----+
5 rows in set (0.01 sec)

mysql>
```

Lab 5

Website hosting

Set apache server and fire wall

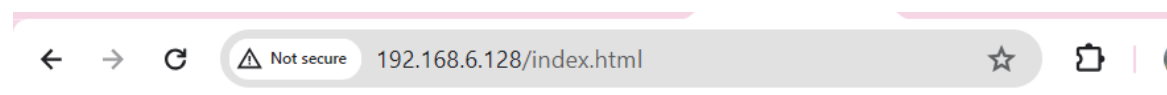
- a. `sudo yum install httpd -y`
- b. `sudo systemctl start httpd`
- c. `sudo systemctl enable httpd`
- d. `sudo firewall-cmd --permanent --add-service=http`
- e. `sudo firewall-cmd --permanent --add-service=https`
- f. `sudo firewall-cmd --reload`

Create html file in window

And run this command in terminal

`scp C:\Users\ASUS\Desktop\RobinWeb\index.html`

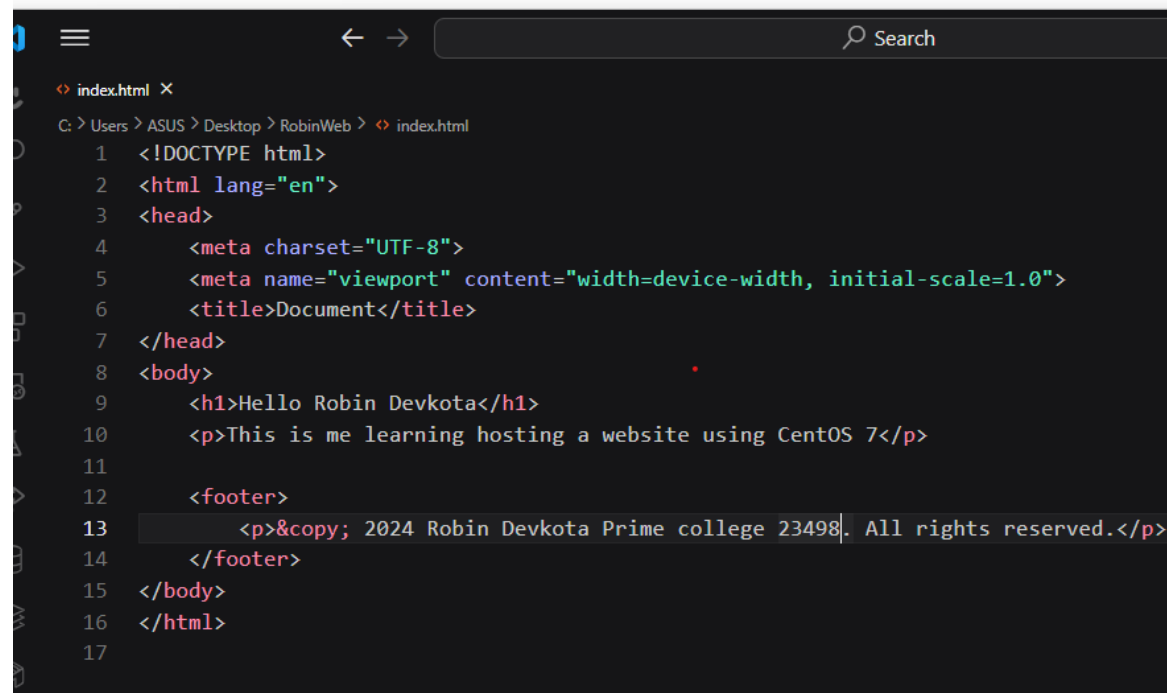
`root@192.168.6.128:/var/www/html/index.html`



Hello Robin Devkota

This is me learning hosting a website using CentOS 7

© 2024 Robin Devkota Prime college 23498. All rights reserved.



LAB 6

Create a user and set the permissions for the user.

Command:

Add User

sudo adduser Robin2

set Password

sudo passwd Robin2

grant permission

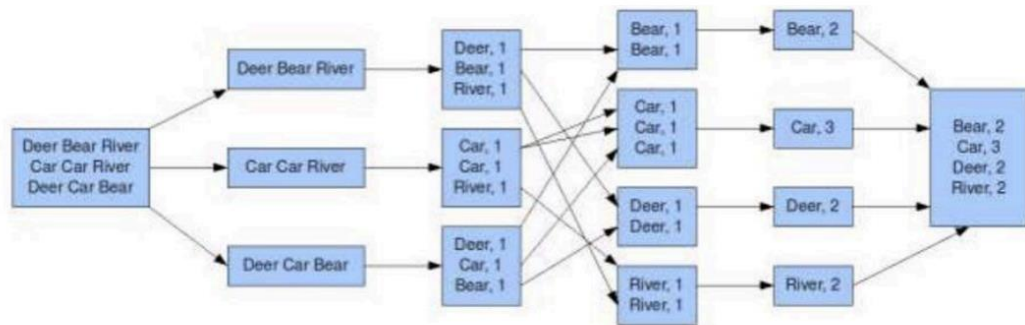
sudo usermod -aG wheel Robin2

wheel mean administrative privileges

```
[root@robin ~]# sudo adduser Robin2
[root@robin ~]# sudo passwd Robin2
Changing password for user Robin2.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@robin ~]# sudo usermod -aG sudo username
usermod: group 'sudo' does not exist
[root@robin ~]# sudo usermod -aG sudo Robin2
usermod: group 'sudo' does not exist
[root@robin ~]# ^C
[root@robin ~]# sudo usermod -aG wheel Robin2
[root@robin ~]# █
```

LAB 7

Write a program for the MapReduce for the following diagram



Program:

input.txt

requirement.txt

Map_Robin.py

To run the code run the following command:

pip install requirement.txt => to install dependencies

To run the code:

python map_Robin.py input.txt

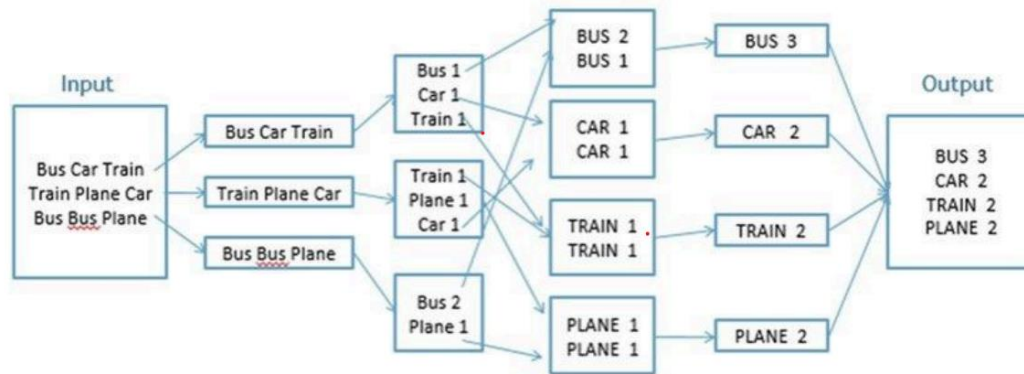
```
Map_Robin.py X
1 from mrjob.job import MRJob
2
3 class Reduce(MRJob):
4     def mapper(self, _, line):
5         for word in line.split():
6             yield word, 1
7
8     def reducer(self, word, counts):
9         yield word, sum(counts)
10
11 if __name__ == '__main__':
12     Reduce.run()
13
```

Output:

```
PS C:\Users\ASUS\Desktop\RobinWeb> python map_Robin.py input.txt
No configs found; falling back on auto-configuration
No configs specified for inline runner
Creating temp directory C:\Users\ASUS\AppData\Local\Temp\map_Robin.ASUS.20240611.085438.170041
Running step 1 of 1...
job output is in C:\Users\ASUS\AppData\Local\Temp\map_Robin.ASUS.20240611.085438.170041\output
Streaming final output from C:\Users\ASUS\AppData\Local\Temp\map_Robin.ASUS.20240611.085438.170041\output...
"Bear" 2
"Car" 3
"Deer" 2
"River" 2
Removing temp directory C:\Users\ASUS\AppData\Local\Temp\map_Robin.ASUS.20240611.085438.170041...
PS C:\Users\ASUS\Desktop\RobinWeb>
```

LAB 8

Write a program for the MapReduce for the following diagram.



Program:

Input2.txt

Robin_count.py

```
terminal RobinWeb
# Input2.txt
1 Bus Car Train
2 Train Plane Car
3 Bus Bus Plane
4

# Robin_count.py
1 from collections import defaultdict
2
3 def read_input(file_path):
4     with open(file_path, 'r') as f:
5         for line in f:
6             yield line.strip()
7
8 def mapper(line):
9     for word in line.split():
10        yield word, 1
11
12 def reducer(word, counts):
13     return word, sum(counts)
14
15 def main(file_path):
16     lines = read_input(file_path)
17     mapped = []
18     for line in lines:
19         mapped.extend(list(mapper(line)))
20
21     grouped = defaultdict(list)
22     for word, count in mapped:
23         grouped[word].append(count)
24
25     reduced = []
26     for word, counts in grouped.items():
27         reduced.append((word, sum(counts)))
28
29     for word, count in reduced:
30         print(f"{word}: {count}")
31
32 if __name__ == '__main__':
33     main('Input2.txt')
```

Output:

```
PS C:\Users\ASUS\Desktop\RobinWeb> python Robin_count.py
>>
Bus: 3
Car: 2
Train: 2
Plane: 2
PS C:\Users\ASUS\Desktop\RobinWeb>
```