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ROLL NO   **17P-6035(CS-A)**

COURSE   **Operating System Lab**

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System Administration :-> Lab Task #5

Here is the all screenshots that what I do and at last I provide puppet to what I want.

File   Edit   View   Search   Terminal   Help

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@85e19ff46d6a:/# apt install inetutils-ping net-tools wget -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ca-certificates libidn11 libpsl5 libssl1.1 netbase openssl
  publicsuffix
The following NEW packages will be installed:
  ca-certificates inetutils-ping libidn11 libpsl5 libssl1.1
  net-tools netbase openssl publicsuffix wget
0 upgraded, 10 newly installed, 0 to remove and 0 not upgraded.
Need to get 2913 kB of archives.
After this operation, 8750 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 libssl1.1 amd64 1.1.1f-1ubuntu2 [1318 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal/main amd64 openssl amd64 1.1.1f-1ubuntu2 [621 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal/main amd64 ca-certificates all 20190110ubuntu1 [146 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal/main amd64 netbase all 6.1 [13.1 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/main amd64 libpsl5 amd64 0.21.0-1ubuntu1 [51.5 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/main amd64 publicsuffix all 20200303.0012-1 [111 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/main amd64 wget amd64 1.20.3-1ubuntu1 [349 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/main amd64 libidn11 amd64 1.33-2.2ubuntu2 [46.2 kB]
Get:9 http://archive.ubuntu.com/ubuntu focal/universe amd64 inetutils-ping amd64 2:1.9.4-11 [60.8 kB]
Get:10 http://archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+git20180626.aebd88e-1ubuntu1 [196 kB]
Fetched 2913 kB in 1min 46s (27.5 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libssl1.1:amd64.
(Reading database ... 4122 files and directories currently installed.)
Preparing to unpack .../0-libssl1.1_1.1.1f-1ubuntu2_amd64.deb ...
Unpacking libssl1.1:amd64 (1.1.1f-1ubuntu2) ...
Selecting previously unselected package openssl.
Preparing to unpack .../1-openssl_1.1.1f-1ubuntu2_amd64.deb ...
Unpacking openssl (1.1.1f-1ubuntu2) ...
Selecting previously unselected package ca-certificates.
```

```
root@85e19ff46d6a:/# wget https://apt.puppetlabs.com/puppet6-release-bionic.deb
--2020-05-16 14:29:01--  https://apt.puppetlabs.com/puppet6-release-bionic.deb
Resolving apt.puppetlabs.com (apt.puppetlabs.com)... 13.35.183.25, 2600:9000:2136:6600:1d:fc37:1cc0:93a1, 2600:9000:2136:800:1d:fc37:1cc0:93a1
, ...
Connecting to apt.puppetlabs.com (apt.puppetlabs.com)|13.35.183.25|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11736 (11K) [application/x-debian-package]
Saving to: 'puppet6-release-bionic.deb'

puppet6-release-bionic.deb       100%[=====================================================>]  11.46K  --.-KB/s    in 0s

2020-05-16 14:29:07 (30.6 MB/s) - 'puppet6-release-bionic.deb' saved [11736/11736]

root@85e19ff46d6a:/#
```

```
root@85e19ff46d6a:/# dpkg -i puppet6-release-bionic.deb
Selecting previously unselected package puppet6-release.
(Reading database ... 4537 files and directories currently installed.)
Preparing to unpack puppet6-release-bionic.deb ...
Unpacking puppet6-release (6.0.0-8bionic) ...
Setting up puppet6-release (6.0.0-8bionic) ...
root@85e19ff46d6a:/# apt update
Get:1 http://apt.puppetlabs.com bionic InRelease [85.4 kB]
Get:2 http://apt.puppetlabs.com bionic/puppet6 amd64 Packages [46.7 kB]
Hit:3 http://archive.ubuntu.com/ubuntu focal InRelease
Get:4 http://apt.puppetlabs.com bionic/puppet6 all Packages [19.7 kB]
Hit:5 http://archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:6 http://archive.ubuntu.com/ubuntu focal-backports InRelease
Hit:7 http://security.ubuntu.com/ubuntu focal-security InRelease
Fetched 152 kB in 11s (14.1 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
root@85e19ff46d6a:/#
```

```
┌─tashfeen222@hp ~
└─$ sudo docker commit puppet-master puppet-6
[sudo] password for tashfeen222:
sha256:8b17c6f310b2844a95ee10c4d31525c94aa0c5bd3ea05e091eb86f40199d5a04
┌─tashfeen222@hp ~
└─$ sudo dockler images
sudo: dockler: command not found
┌─tashfeen222@hp ~
└─$ sudo docker images                                1 ↵
REPOSITORY          TAG          IMAGE ID          CREATED             SIZE
puppet-6            latest       8b17c6f310b2      About a minute ago  108MB
ubuntu-mysql        latest       b9159eaff4de      6 days ago          722MB
ubuntu-apache       latest       edd70fb0bfc1      6 days ago          283MB
<none>              <none>       a5dec0100cf4      6 days ago          283MB
ubuntu              latest       1d622ef86b13      3 weeks ago         73.9MB
┌─tashfeen222@hp ~
└─$
```

```
                                    root@85e19ff46d6a: /
File  Edit  View  Search  Terminal  Help
                          1d022cfd0b1J           J wccno uyo      7J1Jno
┌─tashfeen222@hp ~
└─$ sudo docker exec -it  puppet-master bash
root@85e19ff46d6a:/# apt install puppetserver
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ca-certificates-java dbus fontconfig-config fonts-dejavu-core
  java-common krb5-locales libapparmor1 libavahi-client3
  libavahi-common-data libavahi-common3 libbsd0 libcups2 libdbus-1-3
  libexpat1 libfontconfig1 libfreetype6 libgssapi-krb5-2
  libjpeg-turbo8 libjpeg8 libk5crypto3 libkeyutils1 libkrb5-3
  libkrb5support0 liblcms2-2 libnspr4 libnss3 libpcsclite1
  libpng16-16 libsqlite3-0 libx11-6 libx11-data libxau6 libxcb1
  libxdmcp6 libxext6 libxi6 libxrender1 libxtst6
  openjdk-8-jre-headless puppet-agent ucf x11-common
Suggested packages:
  default-dbus-session-bus | dbus-session-bus default-jre
  cups-common krb5-doc krb5-user liblcms2-utils pcscd libnss-mdns
  fonts-dejavu-extra fonts-ipafont-gothic fonts-ipafont-mincho
  fonts-wqy-microhei fonts-wqy-zenhei fonts-indic
The following NEW packages will be installed:
  ca-certificates-java dbus fontconfig-config fonts-dejavu-core
  java-common krb5-locales libapparmor1 libavahi-client3
  libavahi-common-data libavahi-common3 libbsd0 libcups2 libdbus-1-3
  libexpat1 libfontconfig1 libfreetype6 libgssapi-krb5-2
  libjpeg-turbo8 libjpeg8 libk5crypto3 libkeyutils1 libkrb5-3
  libkrb5support0 liblcms2-2 libnspr4 libnss3 libpcsclite1
  libpng16-16 libsqlite3-0 libx11-6 libx11-data libxau6 libxcb1
  libxdmcp6 libxext6 libxi6 libxrender1 libxtst6
  openjdk-8-jre-headless puppet-agent puppetserver ucf x11-common
0 upgraded, 43 newly installed, 0 to remove and 0 not upgraded.
Need to get 118 MB of archives.
After this operation, 328 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 libapparmor1 amd64 2.13.3-7ubuntu5 [34.3 kB]
Get:2 http://apt.puppetlabs.com bionic/puppet6 amd64 puppet-agent amd64 6.15.0-1bionic [22.8 MB]
Get:3 http://archive.ubuntu.com/ubuntu focal/main amd64 libdbus-1-3 amd64 1.12.16-2ubuntu2 [179 kB]
```

```
root@85e19ff46d6a:/# vi /etc/default/puppetserver
root@85e19ff46d6a:/#
```

```
##########################################
# Init settings for puppetserver
##########################################


# Location of your Java binary (version 8)
JAVA_BIN="/usr/bin/java"

# Modify this if you'd like to change the memory allocation, enable JM
X, etc
JAVA_ARGS="-Xms64m -Xmx512m -Djruby.logger.class=com.puppetlabs.jruby_
utils.jruby.Slf4jLogger"

# Modify this as you would JAVA_ARGS but for non-service related subco
mmands
JAVA_ARGS_CLI="${JAVA_ARGS_CLI:-}"

# Modify this if you'd like TrapperKeeper specific arguments
TK_ARGS=""

# These normally shouldn't need to be edited if using OS packages
USER="puppet"
GROUP="puppet"
INSTALL_DIR="/opt/puppetlabs/server/apps/puppetserver"
CONFIG="/etc/puppetlabs/puppetserver/conf.d"

# Bootstrap path
BOOTSTRAP_CONFIG="/etc/puppetlabs/puppetserver/services.d/,/opt/puppet
labs/server/apps/puppetserver/config/services.d/"

# SERVICE_STOP_RETRIES can be set here to alter the default stop timeo
ut in
# seconds.  For systemd, the shorter of this setting or 'TimeoutStopSe
c' in
# the systemd.service definition will effectively be the timeout which
 is used.
SERVICE_STOP_RETRIES=60

-- INSERT --                                        9,28           Top
```

```
root@85e19ff46d6a:/# /opt/puppetlabs/bin/puppetserver  ca setup
Generation succeeded. Find your files in /etc/puppetlabs/puppet/ssl/ca
root@85e19ff46d6a:/#
```

```
root@85e19ff46d6a:/# service puppetserver start
root@85e19ff46d6a:/# service puppetserver status
 * puppetserver is running
root@85e19ff46d6a:/# netstat -ntulp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:8140            0.0.0.0:*               LISTEN      -
root@85e19ff46d6a:/#
```

```
root@85e19ff46d6a:/# vi ~/.bashrc
root@85e19ff46d6a:/# source ~/.bashrc
root@85e19ff46d6a:/# puppet
See 'puppet help' for help on available puppet subcommands
root@85e19ff46d6a:/#
```

```
root@85e19ff46d6a:/# puppet --version
6.15.0
root@85e19ff46d6a:/# echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/opt/pu
etlabs/bin
root@85e19ff46d6a:/#
```

```
root@85e19ff46d6a:/# puppet resource user
user { '_apt':
  ensure             => 'present',
  gid                => 65534,
  home               => '/nonexistent',
  password           => '*',
  password_max_age   => 99999,
  password_min_age   => 0,
  password_warn_days => 7,
  provider           => 'useradd',
  shell              => '/usr/sbin/nologin',
  uid                => 100,
}
user { 'backup':
  ensure             => 'present',
  comment            => 'backup',
  gid                => 34,
  home               => '/var/backups',
  password           => '*',
  password_max_age   => 99999,
  password_min_age   => 0,
  password_warn_days => 7,
  provider           => 'useradd',
  shell              => '/usr/sbin/nologin',
  uid                => 34,
}
user { 'bin':
  ensure             => 'present',
  comment            => 'bin',
  gid                => 2,
  home               => '/bin',
  password           => '*',
  password_max_age   => 99999,
  password_min_age   => 0,
  password_warn_days => 7,
  provider           => 'useradd',
  shell              => '/usr/sbin/nologin',
  uid                => 2,
```

```
  ensure              => 'present',
  comment             => 'www-data',
  gid                 => 33,
  home                => '/var/www',
  password            => '*',
  password_max_age    => 99999,
  password_min_age    => 0,
  password_warn_days  => 7,
  provider            => 'useradd',
  shell               => '/usr/sbin/nologin',
  uid                 => 33,
}
root@85e19ff46d6a:/# puppet resource user root
user { 'root':
  ensure              => 'present',
  comment             => 'root',
  gid                 => 0,
  home                => '/root',
  password            => '*',
  password_max_age    => 99999,
  password_min_age    => 0,
  password_warn_days  => 7,
  provider            => 'useradd',
  shell               => '/bin/bash',
  uid                 => 0,
}
root@85e19ff46d6a:/# puppet resource package
package { 'adduser':
  ensure   => '3.118ubuntu2',
  provider => 'apt',
}
package { 'alsa-topology-conf':
  ensure   => '1.2.2-1',
  provider => 'apt',
}
package { 'alsa-ucm-conf':
  ensure   => '1.2.2-1',
  provider => 'apt',
}
```

```
    }
}
path => /usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/
opt/puppetlabs/bin
processors => {
  count => 4,
  isa => "x86_64",
  models => [
    "Intel(R) Core(TM) i3-5005U CPU @ 2.00GHz",
    "Intel(R) Core(TM) i3-5005U CPU @ 2.00GHz",
    "Intel(R) Core(TM) i3-5005U CPU @ 2.00GHz",
    "Intel(R) Core(TM) i3-5005U CPU @ 2.00GHz"
  ],
  physicalcount => 1,
  speed => "1.90 GHz"
}
puppetversion => 6.15.0
ruby => {
  platform => "x86_64-linux",
  sitedir => "/opt/puppetlabs/puppet/lib/ruby/site_ruby/2.5.0",
  version => "2.5.8"
}
system_uptime => {
  days => 0,
  hours => 2,
  seconds => 9831,
  uptime => "2:43 hours"
}
timezone => UTC
virtual => docker
root@85e19ff46d6a:/# facter -p | grep hostname
2020-05-16 15:31:36.755520 WARN  puppetlabs.facter - skipping external
 facts for "/opt/puppetlabs/puppet/cache/facts.d": No such file or dir
ectory
  /etc/hostname => {
  hostname => "85e19ff46d6a",
    mount => "/etc/hostname",
root@85e19ff46d6a:/#
```

```
root@85e19ff46d6a:/# facter -p | grep fqdn
2020-05-16 15:32:00.017175 WARN  puppetlabs.facter - skipping external
 facts for "/opt/puppetlabs/puppet/cache/facts.d": No such file or dir
ectory
  fqdn => "85e19ff46d6a.Home",
root@85e19ff46d6a:/#
```

File   Edit   View   Search   Terminal   Help

```
file{ '/tmp/config-example':
        ensure=>'file',
        mode=>'0664',
        owner=>'root',
        group=>'root',
        content=>"Hello World \n",

}
~
~
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~
~
~
~
~
~
~
~
-- INSERT --                                    6,28-35          All
```

```
root@85e19ff46d6a:/tmp# ls
hsperfdata_puppet  hsperfdata_root  jruby-5302  test01.pp
root@85e19ff46d6a:/tmp# puppet apply test01.pp
Notice: Compiled catalog for 85e19ff46d6a.home in environment production in 0.02 seconds
Notice: /Stage[main]/Main/File[/tmp/config-example]/ensure: defined content as '{md5}9267511a22ee72ad81ec3e0c674b115e'
Notice: Applied catalog in 0.10 seconds
root@85e19ff46d6a:/tmp# ls -lh
total 20K
-rw-rw-r-- 1 root    root      13 May 16 15:38 config-example
drwxr-x--- 2 puppet puppet 4.0K May 16 15:19 hsperfdata_puppet
drwxr-xr-x 2 root    root   4.0K May 16 15:03 hsperfdata_root
drwxr-x--- 2 puppet puppet 4.0K May 16 15:19 jruby-5302
-rw-r--r-- 1 root    root     124 May 16 15:38 test01.pp
root@85e19ff46d6a:/tmp# cat config-example
Hello World
root@85e19ff46d6a:/tmp# vi test01.pp
root@85e19ff46d6a:/tmp# puppet apply test01.pp
Notice: Compiled catalog for 85e19ff46d6a.home in environment production in 0.02 seconds
Notice: /Stage[main]/Main/File[/tmp/config-example]/mode: mode changed '0664' to '0644'
Notice: Applied catalog in 0.03 seconds
root@85e19ff46d6a:/tmp# ls -lh
total 20K
-rw-r--r-- 1 root    root      13 May 16 15:38 config-example
drwxr-x--- 2 puppet puppet 4.0K May 16 15:19 hsperfdata_puppet
drwxr-xr-x 2 root    root   4.0K May 16 15:03 hsperfdata_root
drwxr-x--- 2 puppet puppet 4.0K May 16 15:19 jruby-5302
-rw-r--r-- 1 root    root     124 May 16 15:39 test01.pp
root@85e19ff46d6a:/tmp# chmod 600  config-example
root@85e19ff46d6a:/tmp# ls -lh
total 20K
-rw------- 1 root    root      13 May 16 15:38 config-example
drwxr-x--- 2 puppet puppet 4.0K May 16 15:19 hsperfdata_puppet
drwxr-xr-x 2 root    root   4.0K May 16 15:03 hsperfdata_root
drwxr-x--- 2 puppet puppet 4.0K May 16 15:19 jruby-5302
-rw-r--r-- 1 root    root     124 May 16 15:39 test01.pp
root@85e19ff46d6a:/tmp# puppet apply test01.pp
Notice: Compiled catalog for 85e19ff46d6a.home in environment production in 0.02 seconds
Notice: /Stage[main]/Main/File[/tmp/config-example]/mode: mode changed '0600' to '0644'
```

File   Edit   View   Search   Terminal   Help

```
file{ '/tmp/config-example':
        ensure=>'file',
        mode=>'0644',
        owner=>'root',
        group=>'root',
        content=>"Hello ${hostname} \n",

}
~
~
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~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                    6,34-41        All
```

```
root@85e19ff46d6a:/tmp# vi test01.pp
root@85e19ff46d6a:/tmp# puppet apply test01.pp
Notice: Compiled catalog for 85e19ff46d6a.home in environment producti
on in 0.02 seconds
Notice: /Stage[main]/Main/File[/tmp/config-example]/content: content c
hanged '{md5}9267511a22ee72ad81ec3e0c674b115e' to '{md5}2913edbabd7489
d12754963c97287d5f'
Notice: Applied catalog in 0.17 seconds
root@85e19ff46d6a:/tmp# cat config-example
Hello 85e19ff46d6a
root@85e19ff46d6a:/tmp#
```

File Edit View Search Terminal Help

```
file{ '/tmp/config-example':
        ensure=>'file',
        mode=>'0644',
        owner=>'root',
        group=>'root',
        content=>"Hello ${hostname} \n",

}

package {'apache2' :
        ensure=>'installed',


}

service{'apache2' :
        ensure=>'running',
        require=> Package['apache2']



}
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
-- INSERT --                                    20,1             All
```

```
root@85e19ff46d6a:/tmp# vi test01.pp
root@85e19ff46d6a:/tmp# puppet apply test01.pp
Notice: Compiled catalog for 85e19ff46d6a.home in environment production in 0.02 seconds
Notice: /Stage[main]/Main/File[/tmp/config-example]/content: content changed '{md5}9267511a22ee72ad81ec3e0c674b115e' to '{md5}2913edbabd7489d1
2754963c97287d5f'
Notice: Applied catalog in 0.17 seconds
root@85e19ff46d6a:/tmp# cat config-example
Hello 85e19ff46d6a
root@85e19ff46d6a:/tmp# netstat -ntulp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:8140            0.0.0.0:*               LISTEN      -
root@85e19ff46d6a:/tmp# vi test01.pp
root@85e19ff46d6a:/tmp# puppet apply test01.pp
Notice: Compiled catalog for 85e19ff46d6a.home in environment production in 1.05 seconds
q
Notice: /Stage[main]/Main/Package[apache2]/ensure: created
Notice: /Stage[main]/Main/Service[apache2]/ensure: ensure changed 'stopped' to 'running'
Notice: Applied catalog in 159.10 seconds
root@85e19ff46d6a:/tmp# q
bash: q: command not found
root@85e19ff46d6a:/tmp# netstat -ntulp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:8140            0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN      6302/apache2
root@85e19ff46d6a:/tmp# service apache2 status
 * apache2 is running
root@85e19ff46d6a:/tmp#
```

←←←←←←← ←← THE END ←←←←←←←←←