```
roedant@assignment12:~/testing_puppet$ sudo puppet apply testing_puppet.pp
Notice: Compiled catalog for assignment12.umn.edu in environment production in
Notice: /Stage[main]/Main/File[/tmp/hello.txt]/ensure: defined content as '{sh
Notice: Applied catalog in 0.02 seconds
roedant@assignment12:~/testing_puppet$ ls /tmp
hello.txt
snap-private-tmp
systemd-private-d889327c0fa444628b11ace849ebe9ee-ModemManager.service-IjO2Ni
systemd-private-d889327c0fa444628b11ace849ebe9ee-polkit.service-AJbs7Q
roedant@assignment12:~/testing_puppet$ cat /tmp/hello.txt
hello, world
roedant@assignment12:~/testing_puppet$ _
```
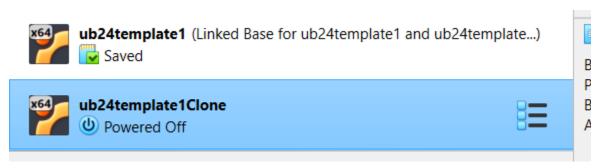
File   Machine   View   Input   Devices   Help

```
Ubuntu 24.04.1 LTS assignment12 tty1

assignment12 login: roedant
Password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-49-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:      https://landscape.canonical.com
 * Support:         https://ubuntu.com/pro

 System information as of Fri Nov 22 01:06:09 AM UTC 2024

  System load:           1.18
  Usage of /:            39.6% of 11.21GB
  Memory usage:          9%
  Swap usage:            0%
  Processes:             112
  Users logged in:       0
  IPv4 address for enp0s3: 10.0.2.15
  IPv6 address for enp0s3: fd00::a00:27ff:fe82:5a10


Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


roedant@assignment12:~$
```

ub24template1 (Linked Base for ub24template1 and ub24template...)
☑ Saved

ub24template1Clone
⏻ Powered Off

```
fax:x:21:
voice:x:22:
cdrom:x:24:roedant
floppy:x:25:
tape:x:26:
sudo:x:27:roedant
audio:x:29:
dip:x:30:roedant
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
shadow:x:42:
utmp:x:43:
video:x:44:
sasl:x:45:
plugdev:x:46:roedant
staff:x:50:
games:x:60:
users:x:100:
nogroup:x:65534:
systemd-journal:x:999:
systemd-network:x:998:
systemd-timesync:x:997:
input:x:996:
sgx:x:995:
kvm:x:994:
render:x:993:
lxd:x:101:roedant
messagebus:x:102:
systemd-resolve:x:992:
_ssh:x:103:
polkitd:x:991:
crontab:x:990:
syslog:x:104:
uuidd:x:105:
rdma:x:106:
tcpdump:x:107:
tss:x:108:
landscape:x:109:
fwupd-refresh:x:989:
roedant:x:1000:
puppet:x:110:
group01:x:1001:user04,user06
group02:x:1002:user06
user04:x:1003:
user06:x:1004:
roedant@assignment12:~/puppet-dev$ nano server_users_group.pp
```

Q1. Why were you not able to log in as user06? (just write down what you think at this point) Don't read ahead and come back and "fix" this question. What are you thinking right now?

At this point, I think the reason I couldn't log in as user06 might be because the password for the user wasn't set up correctly in the Puppet manifest. The password was entered as plain text (password => 'user06'), but passwords usually need to be hashed (encrypted) to work properly. Without a proper hashed password, the system probably doesn't recognize the login credentials as valid.

Q2. what "managehome" does.
The managehome option in Puppet tells the system whether to create a home directory for a user when the user is created.
- If managehome => true, Puppet will automatically create a home directory for the user.
- If managehome => false, Puppet won't create the home directory.
In short, managehome => true makes sure the user has their own space on the system where files can be stored, like "Documents" or "Downloads" on your computer.

```
roedant@assignment12:~/puppet-dev$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:997:997:systemd Time Synchronization:/:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:992:992:systemd Resolver:/:/usr/sbin/nologin
pollinate:x:102:1::/var/cache/pollinate:/bin/false
polkitd:x:991:991:User for polkitd:/:/usr/sbin/nologin
syslog:x:103:104::/nonexistent:/usr/sbin/nologin
uuidd:x:104:105::/run/uuidd:/usr/sbin/nologin
tcpdump:x:105:107::/nonexistent:/usr/sbin/nologin
tss:x:106:108:TPM software stack,,,:/var/lib/tpm:/bin/false
landscape:x:107:109::/var/lib/landscape:/usr/sbin/nologin
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin
usbmux:x:108:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
sshd:x:109:65534::/run/sshd:/usr/sbin/nologin
roedant:x:1000:1000:Quan Nguyen:/home/roedant:/bin/bash
puppet:x:110:110:Puppet configuration management daemon,,,:/var/lib/puppet:/usr/sbin/nologin
user04:x:1001:1003::/home/user04:/bin/bash
user06:x:1002:1004::/home/user06:/bin/sh
roedant@assignment12:~/puppet-dev$
```

```
GNU nano 4.5                                          server_users_group.pp
group { 'group01':
        ensure => present,
}

group { 'group02':
        ensure => present,
}

user { 'user04':
        ensure => present,
        shell => '/bin/bash',
        password => '$6$xyz%RS.wHeM.mhNC01xrp5Zds0ubSAKobEjpYvIWroBijzm0tuqFQ1C6iBejYnxrEonuCOM0
        groups => 'group01',
        managehome => true,
}

user { 'user06':
        ensure => present,
        password => 'user06',
        groups => ['group01', 'group02'],
}




                                                                        [ Read 21 lines ]
^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
```

Q3. **In a short paragraph explain the difference between a declarative and imperative language. Please don't search the web. Use the Lecture Presentation for this module.**

A declarative language focuses on what the end result should be, without specifying the steps needed to achieve it. It describes the desired state of the system, and the system itself figures

out how to get there. For example, in Puppet, we define the packages and services we want installed and running, and Puppet takes care of the details.

An imperative language, on the other hand, focuses on how to achieve a task by specifying the exact steps or commands that need to be followed. In an imperative language, you would write out the specific instructions to install a package or start a service, step by step.