

COURSE : CLOUD COMPUTING LAB INSTRUCTOR : SIR MUHAMMAD SHOAIB

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Reg # 2023-SE-038

**LAB # 06**

**TASK # 01**

Set a root password (Ubuntu root is disabled by default; this enables su - temporarily for the lab)

```
inshal@inshal:~$ sudo passwd root
[sudo] password for inshal:
New password:
Retype new password:
passwd: password updated successfully
```

Switch to root and verify

```
inshal@inshal:~$ su -
Password:
root@inshal:~# id
uid=0(root) gid=0(root) groups=0(root)
root@inshal:~#
```

Switch back to your normal user:

```
root@inshal:~# exit
logout
inshal@inshal:~$ whoami
inshal
inshal@inshal:~$
```

**TASK # 02**

Create user tom

```
inshal@inshal:~$ sudo adduser tom
info: Adding user `tom' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `tom' (1001) ...
info: Adding new user `tom' (1001) with group `tom (1001)' ...
info: Creating home directory `/home/tom' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for tom
Enter the new value, or press ENTER for the default
    Full Name []: inshal
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n]
info: Adding new user `tom' to supplemental / extra groups `users' ...
info: Adding user `tom' to group `users' ...
```

Verify tom in system files (view and visually confirm presence):

```
inshal@inshal:~$ 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:/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
lapt: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
dhpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhpcd:/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
```

```
inshal@inshal:~$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,inshal
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
voice:x:22:
cdrom:x:24:inshal
floppy:x:25:
tape:x:26:
sudo:x:27:inshal
audio:x:29:
dip:x:30:inshal
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
```

```
inshal@inshal:~$ sudo cat /etc/shadow
root:$y$j9T$ENoprgu8qsk6uBwNRF3SD1$0BNfxCjx4.6QuLVk733Wd8NTo0lxR9h0rA230tlQ12:20399:0:99999:7:
daemon:*:20305:0:99999:7:::
bin:*:20305:0:99999:7:::
sys:*:20305:0:99999:7:::
sync:*:20305:0:99999:7:::
games:*:20305:0:99999:7:::
man:*:20305:0:99999:7:::
lp:*:20305:0:99999:7:::
mail:*:20305:0:99999:7:::
news:*:20305:0:99999:7:::
uucp:*:20305:0:99999:7:::
proxy:*:20305:0:99999:7:::
www-data:*:20305:0:99999:7:::
backup:*:20305:0:99999:7:::
list:*:20305:0:99999:7:::
irc:*:20305:0:99999:7:::
_apt:*:20305:0:99999:7:::
nobody:*:20305:0:99999:7:::
systemd-network!*:20305:::::
systemd-timesync!*:20305:::::
dhcpcd!:20305:::::
messagebus!:20305:::::
systemd-resolve!*:20305:::::
pollinate!:20305:::::
polkitd!:20305:::::
syslog!:20305:::::
uuidd!:20305:::::
tcpdump!:20305:::::
tss!:20305:::::
landscape!:20305:::::
fwupd-refresh!*:20305:::::
```

**Task 3 – Create groups; change tom’s primary and secondary groups** Create groups and verify by viewing /etc/group (visually confirm entries exist):

```
inshal@inshal:~$ sudo addgroup designer
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `designer' (GID 1003) ...
inshal@inshal:~$ sudo addgroup design
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `design' (GID 1004) ...
inshal@inshal:~$ cat /etc/groups
cat: /etc/groups: No such file or directory
inshal@inshal:~$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,inshal
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
voice:x:22:
cdrom:x:24:inshal
floppy:x:25:
tape:x:26:
sudo:x:27:inshal
audio:x:29:
dip:x:30:inshal
```

Change tom’s primary group to designer and verify:

```
inshal@inshal:~$ sudo usermod -g designer tom
inshal@inshal:~$ id tom
uid=1001(tom) gid=1003(designer) groups=1003(designer),100(users)
inshal@inshal:~$ |
```

Add secondary groups developer and devops to tom and verify:

```
inshal@inshal:~$ sudo usermod -aG designer,design tom
inshal@inshal:~$ id tom
uid=1001(tom) gid=1003(designer) groups=1003(designer),100(users),1004(design)
inshal@inshal:~$ |
```

Replace all secondary groups so only tom (user's own group) remains and verify

```
inshal@inshal:~$ sudo usermod -G tom tom
inshal@inshal:~$ id tom
uid=1001(tom) gid=1003(designer) groups=1003(designer),1001(tom)
inshal@inshal:~$ |
```

#### Task 4 – Create/delete users (Jerry, Scooby) and groups (jolly, anime) Create

users:

```
inshal@inshal:~$ sudo adduser Jerry
err: Please enter a username matching the regular expression
      configured via the NAME_REGEX configuration variable. Use the
      '--allow-bad-names' option to relax this check or reconfigure
      NAME_REGEX in configuration.
inshal@inshal:~$ |
```

Try to log in as Scooby immediately (expected authentication failure because there is no password yet)

```
inshal@inshal:~$ su - scooby
Password:
```

Set a password for Scooby

```
scooby@inshal:~$ sudo passwd scooby
[sudo] password for scooby:
New password:
Retype new password:
passwd: password updated successfully
scooby@inshal:~$ |
```

```
Password:
su: warning: cannot change directory to /home/Scooby: No such file or directory
```

```
scooby@inshal:~$ ls -ld /home/scooby
drwxr-x--- 2 scooby scooby 4096 Nov  7 05:33 /home/scooby
scooby@inshal:~$ |
```

```
scooby@inshal:~$ sudo mkdir -p /home/scooby
scooby@inshal:~$ sudo chown scooby:scooby /home/scooby
scooby@inshal:~$ sudo chmod 750 /home/scooby
scooby@inshal:~$ ls -ld /home/scooby
drwxr-x--- 2 scooby scooby 4096 Nov  7 05:33 /home/scooby
```

```
scooby@inshal:~$ su - Scooby
pwd
ls -la
su: user Scooby does not exist or the user entry does not contain all the required fields
/home/scooby
total 24
drwxr-x--- 2 scooby scooby 4096 Nov  7 05:33 .
drwxr-xr-x  6 root   root   4096 Nov  7 05:36 ..
-rw-----  1 scooby scooby    5 Nov  7 05:33 .bash_history
-rw-r--r--  1 scooby scooby  220 Nov  7 05:22 .bash_logout
-rw-r--r--  1 scooby scooby 3771 Nov  7 05:22 .bashrc
-rw-r--r--  1 scooby scooby  807 Nov  7 05:22 .profile
-rw-r--r--  1 scooby scooby     0 Nov  7 05:32 .sudo_as_admin_successful
scooby@inshal:~$ exit
cat /etc/passwd
logout
```

```
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
fatima:x:1000:1000:fatima:/home/fatima:/bin/bash
tom:x:1001:1004:,,,:/home/tom:/bin/bash
Scooby:x:1002:1005::/home/Scooby:/bin/sh
```

## TASK # 05

```
~$ sudo useradd student
```

```
Password:
$ touch file1
$ mkdir -p dir1
$ touch dir1/file2
$ ls -l
total 4
drwxrwxr-x 2 student student 4096 Nov  6 15:17 dir1
-rw-rw-r-- 1 student student     0 Nov  6 15:16 file1

$ sudo chgrp devops file1
$ ls -l file1
-rw-rw-r-- 1 tom devops 0 Nov  6 15:16 file1
```

```
$ ls -l file1  
-rw-rw-r-- 1 tom devops 0 Nov  6 15:16 file1  
$ ls -l  
total 4  
drwxrwxr-x 2 student student 4096 Nov  6 15:17 dir1  
-rw-rw-r-- 1 tom      devops      0 Nov  6 15:16 file1  
$ ls -l dir1  
total 0  
-rw-rw-r-- 1 student student 0 Nov  6 15:17 file2  
$ ls il /dev/null  
ls: cannot access 'il': No such file or directory  
/dev/null  
$ ls -l /dev/null  
crw-rw-rw- 1 root root 1, 3 Nov  6 11:44 /dev/null  
$ file file1 dir1 /dev/null  
file1:      empty  
dir1:      directory  
/dev/null: character special (1/3)
```

```
$ exit
```

#### TASK #06

```
password:  
$ cd ~  
$ ls -l file1  
-rw-rw-r-- 1 tom devops 0 Nov  6 15:16 file1
```

```
$ sudo chmod -rwx file1  
[sudo] password for student:  
chmod: file1: new permissions are -----, not -----  
$ ls -l file1  
-----w 1 tom devops 0 Nov  6 15:16 file1
```

```
$ sudo chmod +r file1  
$ ls -l file1  
-r--rw-r-- 1 tom devops 0 Nov  6 15:16 file1
```

```
$ sudo chmod u+x file1  
$ ls -l file1  
-r-xrw-r-- 1 tom devops 0 Nov  6 15:16 file1
```

```
$ sudo chmod ugo-rwx file1  
$ ls -l file1  
----- 1 tom devops 0 Nov  6 15:16 file1
```

#### TASK # 07

```
password:  
$ cd ~  
$ ls -l file1  
----- 1 tom devops 0 Nov  6 15:16 file1
```

```
$ sudo chmod ugo=rwx file1  
$ ls -l file1  
-rwxrwxrwx 1 tom devops 0 Nov  6 15:16 file1
```

```
$ sudo chmod go=rw file1  
$ ls -l file1  
-rwxrw-rw- 1 tom devops 0 Nov  6 15:16 file1  
$
```

```
$ sudo chmod ugo= file1  
$ ls -l file1  
----- 1 tom devops 0 Nov  6 15:16 file1  
$
```

Task # 08

```
Password:  
$ cd ~  
$ ls -l file1  
----- 1 tom devops 0 Nov  6 15:16 file1  
$
```

```
$ sudo chmod 777 file1  
$ ls -l file1  
-rwxrwxrwx 1 tom devops 0 Nov  6 15:16 file1  
$
```

```
$ sudo chmod 700 file1  
$ ls -l file1  
-rwx----- 1 tom devops 0 Nov  6 15:16 file1  
$
```

```
$ sudo chmod 744 file1  
$ ls -l file1  
-rwxr--r-- 1 tom devops 0 Nov  6 15:16 file1  
$
```

Task # 09

```
$ sudo cat /var/log/syslog | less  
$
```

```
log | head  
multipathd[481]: sda: failed to get udev uid: No data available  
multipathd[481]: sda: failed to get sysuid: No such file or directory  
multipathd[481]: sda: failed to get sgio uid: No such file or directory  
multipathd[481]: sda: failed to get path uid  
multipathd[481]: sda: failed to get sysuid: No such file or directory  
multipathd[481]: sda: failed to get sgio uid: No such file or directory  
multipathd[481]: sda: failed to get udev uid: No data available  
multipathd[481]: sda: failed to get path uid
```

```
$ sudo grep -i systemd /var/log/syslog > ~/syslog_systemd.txt  
$
```

```
$ sudo journalctl | less  
$ sudo journalctl -u systemd | grep -i error > ~/journal_errors.txt  
$
```

Task # 10

```
#!/bin/bash
# Define and show var1
var1="Hello from Lab 6"
echo "var1: $var1"
~
```

```
# Directory check
if [ -d "dir1" ]; then
    echo "Directory dir1 exists."
else
    echo "Directory dir1 does not exist. Creating..."
    mkdir -p "dir1"
    echo "Directory dir1 created."
fi
~
```

```
Directory dir1 does not exist. Creating...
Directory dir1 created.
fatima@fatima: ~|
```

### Task # 11

```
#!/bin/bash
num=$1
str=$2
~
```

```
$ cd ~
$ vim setup.sh
$ chmod +x setup.sh
$ ./setup.sh 10 student
```

```
if [ "$num" -eq 10 ]; then
    echo "$num is equal to 10 (-eq)."
else
    echo "$num is NOT equal to 10 (-eq)."
fi
~
```

```
: vim setup.sh
: ./setup.sh 10 student
1: [: : integer expression expected
10 (-eq).
: vim setup.sh
: ./setup.sh 7 student
1: [: : integer expression expected
10 (-eq).
```

```
if [ -z "$str" ]; then
    echo "Second argument is empty (zero-length)."
else
    echo "Second argument is not empty."
fi
```

```
Second argument is empty (zero-length).
```

Task # 12

```
#!/bin/bash
# Script to demonstrate printing all user-entered arguments using $*
~
```

```
: vim setup.sh
: ./setup.sh
|
```

```
# Print all arguments using $*
echo "Printing all arguments using \$*:"
for arg in $*; do
    echo "Argument: $arg"
done
```

```
Printing all arguments using $*:
Argument: one
Argument: two
Argument: words
Argument: three
```

Task # 14

Fork into your account

The screenshot shows a GitHub Codespace interface for the repository 'UbuntuMachine'. At the top, there's a navigation bar with 'main' (branch), '1 Branch', '0 Tags', a search bar ('Go to file'), an 'Add file' button, a 'Code' dropdown, and a 'Watch 0' button. Below the navigation is a list of commits:

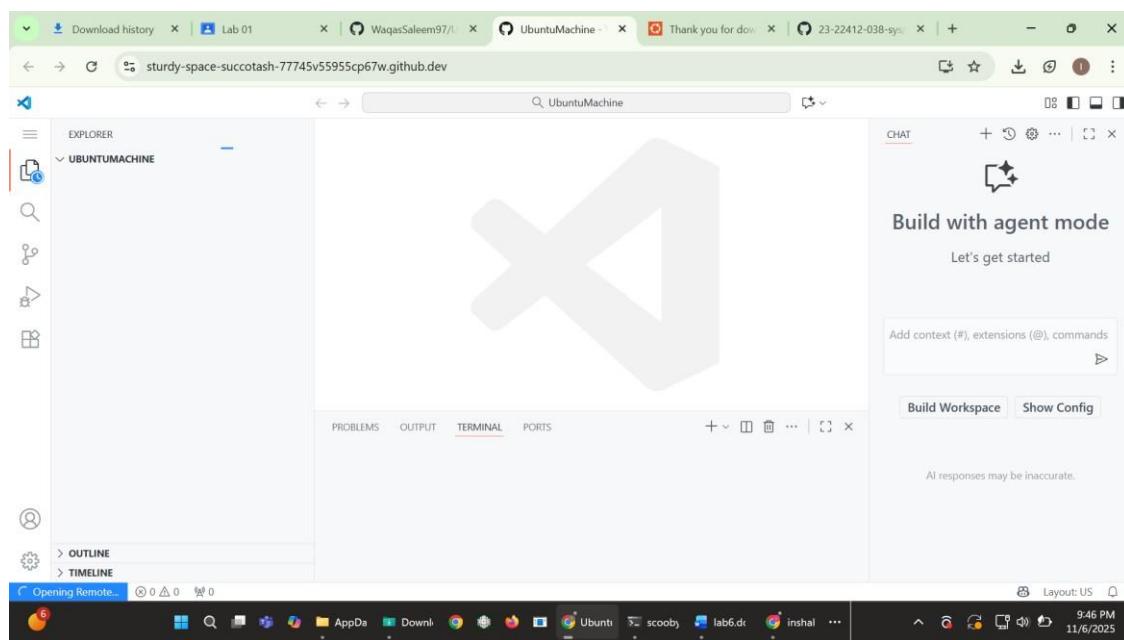
Commit	Message	Date
240438 Adding the stop script	Initial commit	2 weeks ago
start-desktop.sh	Adding the stop script	last week
stop-desktop.sh	Adding the stop script	last week

Below the commits is the 'README' file content:

```
UbuntuMachine
```

Ubuntu Machine

## Opening codespace



## Exexuting command

```
@23-22412-038-sys → /workspaces/UbuntuMachine (main) $ ls -l start-desktop.sh sto  
p-desktop.sh  
-rwxrwxrwx 1 codespace root 1333 Nov 7 05:45 start-desktop.sh  
-rwxrwxrwx 1 codespace root 428 Nov 7 05:45 stop-desktop.sh
```

```

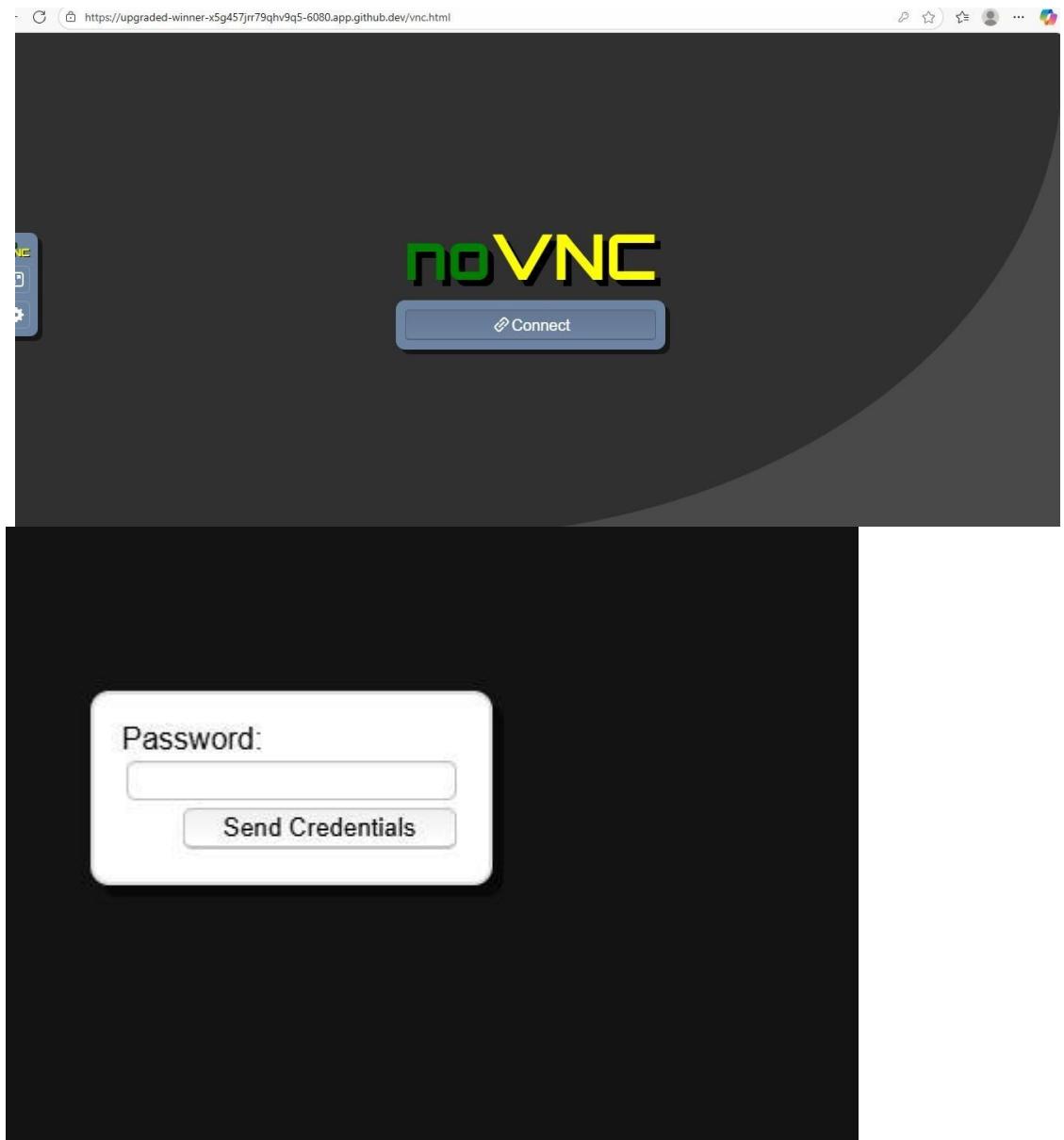
[*] Updating system and installing dependencies...
Get:1 https://dl.yarnpkg.com/debian stable InRelease
Get:2 https://repo.anaconda.com/pkgs/misc/debrepo/conda stable InRelease [3961 B]
Get:3 https://repo.anaconda.com/pkgs/misc/debrepo/conda stable/main amd64 Packages [4557 B]
Get:4 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:5 https://dl.yarnpkg.com/debian stable/main all Packages [11.8 kB]
Get:6 https://packages.microsoft.com/repos/microsoft-ubuntu-noble-prod noble InRelease [366 B]
Get:7 https://packages.microsoft.com/repos/microsoft-ubuntu-noble-prod noble/main all Packages [643 B]
Get:8 https://packages.microsoft.com/repos/microsoft-ubuntu-noble-prod noble/main amd64 Packages [66.5 kB]
Get:9 https://dl.yarnpkg.com/debian stable/main amd64 Packages [11.8 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble/restricted amd64 Packages [117 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1170 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [331 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble/main amd64 Packages [1808 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [19.3 MB]
Get:18 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [2703 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [33.1 kB]
Get:20 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1639 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1939 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [2005 kB]

```

0

PROBLEMS	OUTPUT	DEBUG CONSOLE	TERMINAL	POR	T	X
Port	Forwarded Add...	Running Process		Visibility	Origin	
● 5900	https://upgraded-winner-x5g457jrr79qh9q5-6080.app.github.dev/vnc.html	x11vnc -display :1 -rfbauth /h...	Private	Auto Forwarded		
● 5901	https://upgraded-winner-x5g457jrr79qh9q5-6080.app.github.dev/vnc.html	x11vnc -display :1 -rfbauth /h...	Private	Auto Forwarded		
● 6080	https://upgraded-winner-x5g457jrr79qh9q5-6080.app.github.dev/vnc.html	/usr/bin/python3 /usr/bin/we...	Private	Auto Forwarded		
	<a href="#">Add Port</a>					





### Stopping setup

```
[*] Stopping noVNC server...

Terminating WebSockets proxy (23988)
[*] Stopping x11vnc server...
In exit
caught signal: 15
06/11/2025 20:10:35 deleted 60 tile_row polling images.
[*] Stopping XFCE desktop session...
[*] Stopping virtual X server (Xvfb)...
[✓] All services stopped.

(xfce4-power-manager:23817): libxfc4ui-WARNING **: 20:10:35.131: ICE I/O Error
(xfce4-power-manager:23817): libxfc4ui-WARNING **: 20:10:35.131: Disconnected from session manager.
(xfce4-panel:23789): libxfc4ui-WARNING **: 20:10:35.132: ICE I/O Error
(xfce4-panel:23789): libxfc4ui-WARNING **: 20:10:35.135: Disconnected from session manager.
```