

Submitted By: Inshal Nasir

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
inshal@inshal:~$
```

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:/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
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
uidd:x:104:105::/run/uidd:/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$0BNfxCjx4.6QuLVk733Wd8NT0lxdR9h0rA230tLQ12:20399:0:99999:7:
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:!:20305:0:99999:7:::
systemd-timesync:!:20305:0:99999:7:::
dhcpcd:!:20305:0:99999:7:::
messagebus:!:20305:0:99999:7:::
systemd-resolve:!:20305:0:99999:7:::
pollinate:!:20305:0:99999:7:::
polkitd:!:20305:0:99999:7:::
syslog:!:20305:0:99999:7:::
uidd:!:20305:0:99999:7:::
tcpdump:!:20305:0:99999:7:::
tss:!:20305:0:99999:7:::
landscape:!:20305:0:99999:7:::
fwupd-refresh:!:20305:0:99999:7:::

```

**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
```

```
uuuid:x:104:105::/run/uuuid:/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 ---w---, 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
multipath: sda: failed to get sysfs uid: No such file or directory
multipath: sda: failed to get sda 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
multipathd[481]: uevent trigger error
multipath: sda: failed to get sysfs uid: No such file or directory
multipath: sda: failed to get sda 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
~
```

```
fatima@fatima:~$ ./setup.sh
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

```

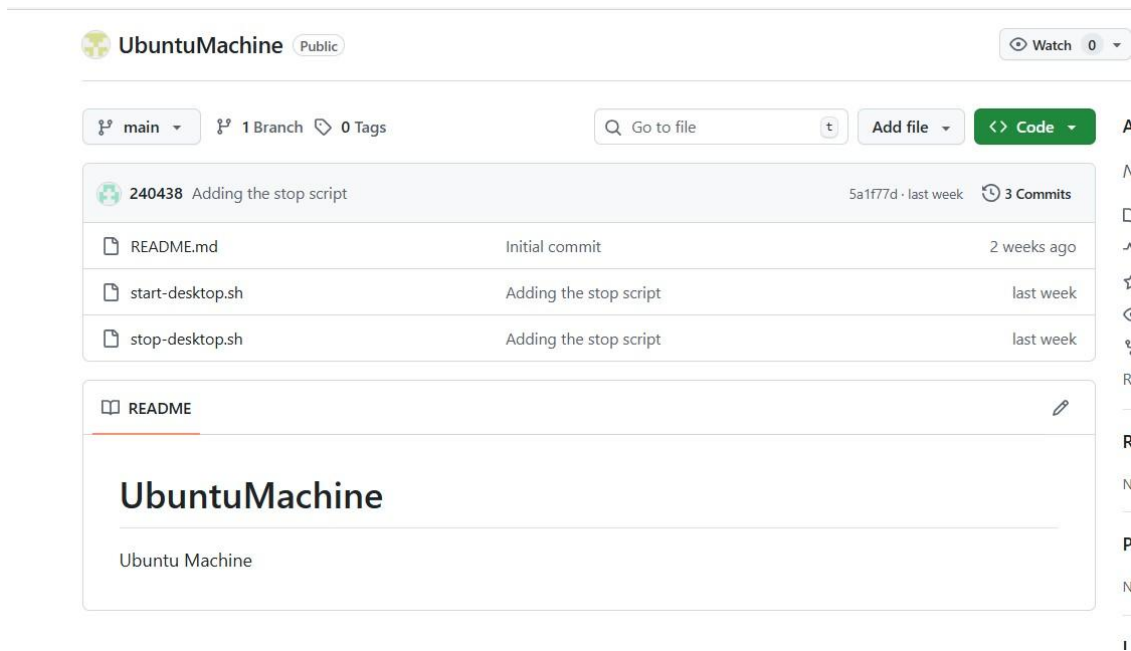
```

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

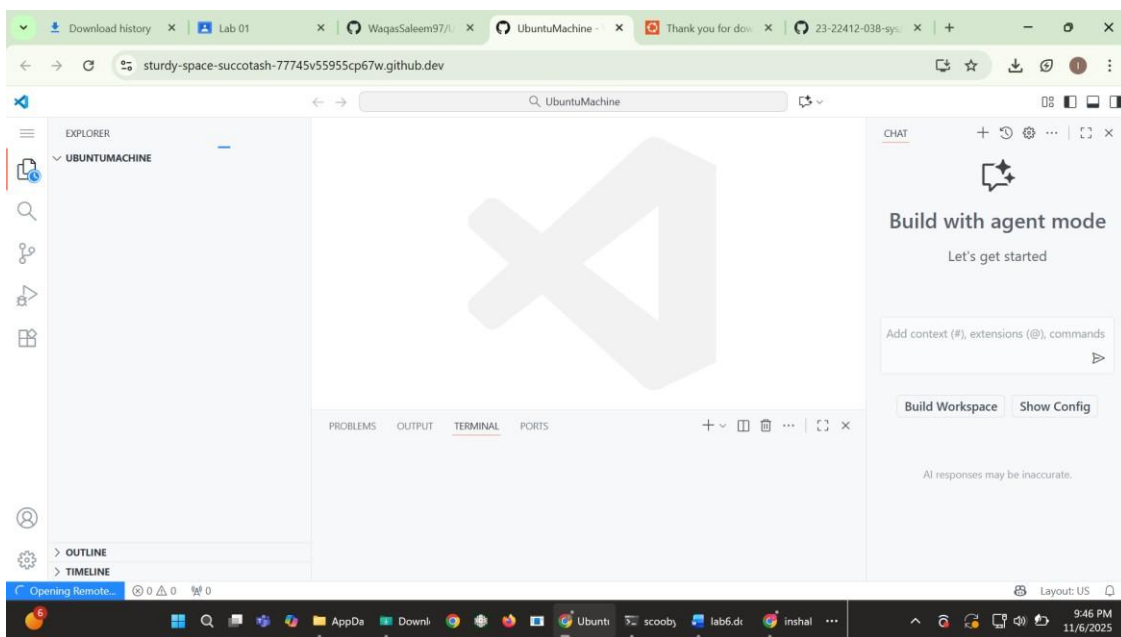
```

Task # 14

Fork into your account



## Opening codespace



## Exexuting command

```
@23-22412-038-sys →/workspaces/UbuntuMachine (main) $ ls -l start-desktop.sh stop-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/pkg/misc/debrepo/conda stable InRelease [3961 B]
Get:3 https://repo.anaconda.com/pkg/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

```

<div> <div>PROBLEMS</div> <div>OUTPUT</div> <div>DEBUG CONSOLE</div> <div>TERMINAL</div> <div>PORTS <span>3</span></div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>					
	Port	Forwarded Add...	Running Process	Visibility	Origin
	5900	https://upgraded...	x11vnc -display :1 -rfbauth /h...	Private	Auto Forwarded
	5901	https://upgraded...	x11vnc -display :1 -rfbauth /h...	Private	Auto Forwarded
	6080	https://upgraded...	/usr/bin/python3 /usr/bin/we...	Private	Auto Forwarded
	Add Port				

<https://upgraded-winner-x5g457jr79qhv9q5-6080.app.github.dev/vnc.html>

Applications





## 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): libxfce4ui-WARNING **: 20:10:35.131: ICE I/O Error

(xfce4-power-manager:23817): libxfce4ui-WARNING **: 20:10:35.131: Disconnected from session manager.

(xfce4-panel:23789): libxfce4ui-WARNING **: 20:10:35.132: ICE I/O Error

(xfce4-panel:23789): libxfce4ui-WARNING **: 20:10:35.135: Disconnected from session manager.
```