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Lab 5: Bash scripting

- Upload the shell script files to moodle.
- Screenshot of the results when you execute the scripts are important

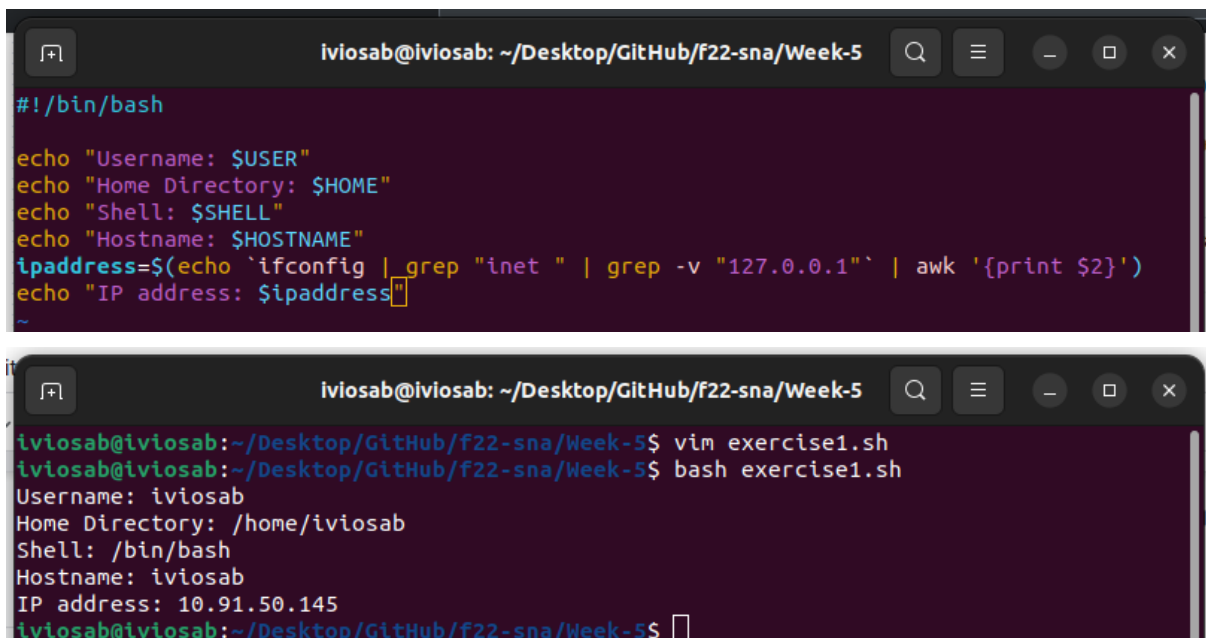
1. Develop a shell script that displays the following details of the logged-in user from the environment variables:

- Login username
- Home directory
- Shell
- The hostname of the system
- The script should extract the IP address of the system from the `ifconfig` or `ip` command. Save the IP address to the `ipaddress` variable and display it as output.

Sample output:

```
Username: user1
Home Directory: /home/user1
Shell: /bin/bash
Hostname: ubuntuvm
IP address: 10.1.1.1
```

Answer:



The first screenshot shows a terminal window with the following commands and output:

```
#!/bin/bash
echo "Username: $USER"
echo "Home Directory: $HOME"
echo "Shell: $SHELL"
echo "Hostname: $HOSTNAME"
ipaddress=$(echo `ifconfig | grep "inet " | grep -v "127.0.0.1"` | awk '{print $2}')
echo "IP address: $ipaddress"
```

The second screenshot shows the same terminal window with the following commands and output:

```
ivosab@ivosab: ~/Desktop/GitHub/f22-sna/Week-5
ivosab@ivosab:~/Desktop/GitHub/f22-sna/Week-5$ vim exercise1.sh
ivosab@ivosab:~/Desktop/GitHub/f22-sna/Week-5$ bash exercise1.sh
Username: ivosab
Home Directory: /home/ivosab
Shell: /bin/bash
Hostname: ivosab
IP address: 10.91.50.145
ivosab@ivosab:~/Desktop/GitHub/f22-sna/Week-5$
```

2. Backups are important in system administration. Create a script that will backup your home directory.

- The backup file should be compressed to `tar.gz`.
- All files and directory permissions should be preserved in the backup.
- The backup destination directory is `/backups/`
- The script should create the destination folder if it doesn't already exist.
- The backup file name should take the format

`home_backup_month_day_year_hour_minute_second.tar.gz`.

For example `home_backup_Sep_18_2022_02_30_02.tar.gz`

A typical real life scenario is keeping backups of websites. Administrators are usually interested in backing up `/var/www/html`.

Answer:

First we check if `"/backups/"` exist or not

If not we make it

Then we `'cd'` into it

Then set the date and time language to english (it's in russian on my machine for some reason)

Then we just `'tar'` the home directory

We use the `'p'` flag to preserve the permissions of the files put in the archive for restoration later.

And for the file name we utilize the `'date'` command with its various features.

```
iviosab@iviosab: ~/Desktop/GitHub/f22-sna/Week-5
#!/bin/bash
cd /
#now we're in the root dir
if [ -d "/backups" ]
then
    echo "Directory exist"
else
    `sudo mkdir backups`
    echo "Directory created"
fi
#now we made the backups dir if it didn't exist
cd backups
#now we're in the backups dir
LC_TIME=en_US.utf-8
sudo tar cpzf home_backup_`date +"%b"`.`date +"%d"`.`date +"%Y"`.`date +"%H"`.`date +"%M"`.`date +"%S"`.tar.gz $HOME
```

```
iviosab@iviosab:~/Desktop/GitHub/f22-sna/Week-5$ vim exercise2.sh
iviosab@iviosab:~/Desktop/GitHub/f22-sna/Week-5$ bash exercise2.sh
[sudo] password for iviosab:
Directory created
tar: Removing leading `/' from member names
tar: /home/iviosab/.config/google-chrome/Default: file changed as we read it
tar: /home/iviosab/.config/google-chrome: file changed as we read it
tar: /home/iviosab/snap/spotify/common/.cache/spotify/Browser: file changed as we read it
tar: Removing leading `/' from hard link targets
tar: /home/iviosab/.cache/google-chrome/Default/Cache/Cache_Data: file changed as we read it
tar: /home/iviosab: file changed as we read it
iviosab@iviosab:~/Desktop/GitHub/f22-sna/Week-5$ ls /backups/
home_backup_Sep_30_2022_17_38_39.tar.gz
iviosab@iviosab:~/Desktop/GitHub/f22-sna/Week-5$
```

3. Write a bash script that scans the entire system for files that contain the string `"/bin/bash"`. The script should print only the matches that the currently logged in user has execute permission on.

Answer:

```
#!/bin/bash
find / -type f -executable -exec grep -Rl "/bin/bash" {} \; 2> /dev/null
```

```
ivosab@ivosab: ~/Desktop/GitHub/f22-sna/Week-5$ bash exercise3.sh
/opt/google/chrome/google-chrome
/snap/telegram-desktop/4208/bin/desktop-launch
/snap/telegram-desktop/4208/bin/hooks-configure-desktop
/snap/telegram-desktop/4208/usr/share/bug/systemd/script
/snap/telegram-desktop/4116/bin/desktop-launch
/snap/telegram-desktop/4116/bin/hooks-configure-desktop
/snap/telegram-desktop/4116/usr/share/bug/systemd/script
/snap/gnome-42-2204/29/command-chain/desktop-launch
/snap/gnome-42-2204/29/command-chain/hooks-configure-desktop
/snap/gnome-42-2204/29/usr/bin/ldd
/snap/gnome-42-2204/29/usr/bin/libtool
/snap/gnome-42-2204/29/usr/bin/tzselect
/snap/gnome-42-2204/29/usr/bin/xzdiff
/snap/snap-store/582/autostart/setup-autostart
/snap/snap-store/582/snap/command-chain/desktop-launch
/snap/snap-store/582/snap/command-chain/hooks-configure-desktop
/snap/snap-store/592/autostart/setup-autostart
/snap/snap-store/592/snap/command-chain/desktop-launch
```