

Fatima Jinnah Women University

Subject: Cloud Computing



Name:

Tehreem khan(5-B)

Registration number:

2023-BSE-064

Submitted To:

Sir Shoaib

LAB 7

Task 1

```
tehreem064@tehreem:~$ printenv
SHELL=/bin/bash
PWD=/home/tehreem064
LOGNAME=tehreem064
XDG_SESSION_TYPE=tty
HOME=/home/tehreem064
LANG=en_US.UTF-8
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33;01:cd=4
0;33;01:or=40;31;01:mi=00:su=37;41:sg=30;43:ca=00:tw=30;42:ow=34;42:st=37;44:ex=01
;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.taz=01;31:*.lha=01;31:*.lz4=
01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.z
ip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=0
1;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz
=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war=01;31:*.ear=01;31:*.sar=01;31:*.r
ar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.
cab=01;31:*.wim=01;31:*.swm=01;31:*.dwm=01;31:*.esd=01;31:*.avif=01;35:*.jpg=01;35
:*.jpeg=01;35:*.mjpg=01;35:*.mjpeg=01;35:*.gif=01;35:*.bmp=01;35:*.pbm=01;35:*.pgm
=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:*.
png=01;35:*.svg=01;35:*.svgz=01;35:*.mng=01;35:*.pcx=01;35:*.mov=01;35:*.mpg=01;35
:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.webm=01;35:*.webp=01;35:*.ogm=01;35:*.mp4=
01;35:*.m4v=01;35:*.mp4v=01;35:*.vob=01;35:*.qt=01;35:*.nuv=01;35:*.wmv=01;35:*.as
f=01;35:*.rm=01;35:*.rmvb=01;35:*.flc=01;35:*.avi=01;35:*.fli=01;35:*.flv=01;35:*.
gl=01;35:*.dl=01;35:*.xcf=01;35:*.xwd=01;35:*.yuv=01;35:*.cgm=01;35:*.emf=01;35:*.
ogv=01;35:*.ogv=01;35:*.aac=00;36:*.au=00;36:*.flac=00;36:*.m4a=00;36:*.mid=00;36:
```

```
tehreem064@tehreem:~$ printenv | grep SHELL
printenv | grep HOME
printenv | grep USER
SHELL=/bin/bash
HOME=/home/tehreem064
USER=tehreem064
tehreem064@tehreem:~$
```

Task 2

```
tehreem064@tehreem:~$ export DB_URL="postgres://db.example.local:5432/mydb"
export DB_USER="labuser"
export DB_PASSWORD="labpass123"
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo "$DB_URL"
echo "$DB_USER"
echo "$DB_PASSWORD"
postgres://db.example.local:5432/mydb
labuser
labpass123
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
tehreem064@tehreem:~$
```

```

tehreem064@tehreem:~$ echo "$DB_URL"
printenv | grep '^DB_'
postgres://db.example.local:5432/mydb
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
tehreem064@tehreem:~$ █

```

Task 3

```

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
  if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi

# add at the end:
# Lab 7 persistent DB variables
export DB_URL="postgres://db.example.local:5432/mydb"
export DB_USER="labuser"
export DB_PASSWORD="labpass123"
-- INSERT --

```

124,32

Bot

```

tehreem064@tehreem:~$ vim ~/.bashrc
tehreem064@tehreem:~$ source ~/.bashrc
echo "$DB_URL"
echo "$DB_USER"
echo "$DB_PASSWORD"
printenv | grep '^DB_'
postgres://db.example.local:5432/mydb
labuser
labpass123
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
tehreem064@tehreem:~$ █

```

```

tehreem064@tehreem:~$ echo "$DB_URL"
printenv | grep '^DB_'
postgres://db.example.local:5432/mydb
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
tehreem064@tehreem:~$ █

```

Task 4

```
tehreem064@tehreem:~$ sudo cat /etc/environment
[sudo] password for tehreem064:
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo "$PATH"
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
tehreem064@tehreem:~$
```

```
Class="CC-<your_class_name>"

PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
~
~
~
~
~
```

```
tehreem064@tehreem:~$ cat /etc/environment

Class="CC-<your_class_name>"

PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo $Class
echo "$PATH"

/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ cat > ~/welcome <<'EOF'
#!/bin/bash
echo "Welcome to Cloud Computing $USER"
EOF

chmod +x ~/welcome
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ cd ~
./welcome
Welcome to Cloud Computing tehreem064
tehreem064@tehreem:~$
```

```

tehreem064@tehreem:~$ cd ~
./welcome
Welcome to Cloud Computing tehreem064
tehreem064@tehreem:~$ vim ~/.bashrc
# add at end:
PATH=$PATH:~
fi

# colored GCC warnings and errors
#export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'

# some more ls aliases
alias ll='ls -alF'
alias la='ls -A'
alias l='ls -CF'

```

```

tehreem064@tehreem:~$ source ~/.bashrc
cd ~
welcome
Welcome to Cloud Computing tehreem064
tehreem064@tehreem:~$ █

```

Task 5

```

tehreem064@tehreem:~$ sudo ufw enable
sudo ufw status verbose
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), deny (routed)
New profiles: skip
tehreem064@tehreem:~$ █

```

```

tehreem064@tehreem:~$ sudo ufw deny 22/tcp
sudo ufw status numbered
Rule added
Rule added (v6)
Status: active

```

	To	Action	From
	--	-----	----
[1]	22/tcp	DENY IN	Anywhere
[2]	22/tcp (v6)	DENY IN	Anywhere (v6)

```
tehreem064@tehreem:~$ ssh tehreem064@192.168.40.128
The authenticity of host '192.168.40.128 (192.168.40.128)' can't be established.
ED25519 key fingerprint is SHA256:0edOf/UUC6yLvniYmM3hBL2KTnIfGlAiv+dmM5Q2jgM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.40.128' (ED25519) to the list of known hosts.
tehreem064@192.168.40.128's password:
Permission denied, please try again.
tehreem064@192.168.40.128's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-87-generic x86_64)
```

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

System information as of Mon Nov 17 03:22:27 PM UTC 2025

```
System load:  0.21           Processes:            239
Usage of /:    94.4% of 9.75GB Users logged in:       1
Memory usage:  13%           IPv4 address for ens33: 192.168.40.128
Swap usage:    0%
```

=> / is using 94.4% of 9.75GB

Expanded Security Maintenance for Applications is not enabled.

11 updates can be applied immediately.

To see these additional updates run: apt list --upgradable

12 additional security updates can be applied with ESM Apps.

Learn more about enabling ESM Apps service at <https://ubuntu.com/esm>

Last login: Mon Nov 17 15:15:02 2025 from 192.168.40.1

```
tehreem064@tehreem:~$ sudo ufw allow 22/tcp
```

```
sudo ufw reload
```

```
sudo ufw status
```

```
[sudo] password for tehreem064:
```

```
Rule updated
```

```
Rule updated (v6)
```

```
Firewall reloaded
```

```
tehreem064@tehreem:~$ sudo ufw allow 22/tcp
```

```
sudo ufw reload
```

```
sudo ufw status
```

```
[sudo] password for tehreem064:
```

```
Rule updated
```

```
Rule updated (v6)
```

```
Firewall reloaded
```

```
Status: active
```

To	Action	From
--	-----	----
22/tcp	ALLOW	Anywhere
22/tcp (v6)	ALLOW	Anywhere (v6)

```
tehreem064@tehreem:~$ ssh tehreem064@192.168.40.128
tehreem064@192.168.40.128's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-87-generic x86_64)

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

System information as of Mon Nov 17 03:22:27 PM UTC 2025

System load:  0.21           Processes:           239
Usage of /:   94.4% of 9.75GB Users logged in:       1
Memory usage: 13%           IPv4 address for ens33: 192.168.40.128
Swap usage:   0%

=> / is using 94.4% of 9.75GB

Expanded Security Maintenance for Applications is not enabled.

11 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

12 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

Last login: Mon Nov 17 15:22:27 2025 from 192.168.40.128
tehreem064@tehreem:~$ █
```

Task 6

```
PS C:\Users\tehre> ssh-keygen -t ed25519 -f "$env:USERPROFILE\.ssh\id_lab7" -C "lab_key"
Generating public/private ed25519 key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\tehre\.ssh\id_lab7
Your public key has been saved in C:\Users\tehre\.ssh\id_lab7.pub
The key fingerprint is:
SHA256:-----[Redacted]----- lab_key
The key's randomart image is:
+--[ED25519 256]--+
|      .+oo.OB+   |
|      . oo*+.o.  |
|      o.o. ..    |
|      .   .. *   |
|      S o =..*.  |
|      + oo*. B   |
|      . =...+*o  |
|      * ....E.   |
|      o.o.       |
+-----[SHA256]-----+
PS C:\Users\tehre> ls -la ~/.ssh
Get-ChildItem : A parameter cannot be found that matches parameter name 'la'.
At line:1 char:4
+ ls -la ~/.ssh
+ ~~~~~
+ CategoryInfo          : InvalidArgument: (:) [Get-ChildItem], ParameterBindin
gException
+ FullyQualifiedErrorId : NamedParameterNotFound,Microsoft.PowerShell.Commands.
GetChildItemCommand
PS C:\Users\tehre> ls "$env:USERPROFILE\.ssh"

Directory: C:\Users\tehre\.ssh

Mode                LastWriteTime         Length Name
----                -
-a----           10/3/2025   6:11 AM             116 config
-a----           10/3/2025   5:39 AM             419 id_ed25519
-a----           10/3/2025   5:39 AM             109 id_ed25519.pub
-a----           11/17/2025   8:46 PM             399 id_lab7
-a----           11/17/2025   8:46 PM              90 id_lab7.pub
-a----           10/17/2025   9:19 PM          1674 known_hosts
-a----           10/17/2025   9:19 PM             925 known_hosts.old

PS C:\Users\tehre>
```

```
PS C:\Users\tehre> type $env:USERPROFILE\.ssh\id_lab7.pub
ssh-ed25519 -----[Redacted]----- lab_key
PS C:\Users\tehre>
```

```
PS C:\Users\tehre> Clear-Content $env:USERPROFILE\.ssh\known_hosts
PS C:\Users\tehre> type $env:USERPROFILE\.ssh\known_hosts
PS C:\Users\tehre>
```



```

PS C:\Users\tehre> ssh tehreem064@192.168.40.128
The authenticity of host '192.168.40.128 (192.168.40.128)' can't be established.
ED25519 key fingerprint is SHA256:0edOf/UUC6yLvnIYmM3hBL2KTnIfG1Aiv+dmM5Q2jgM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])?
Host key verification failed.
PS C:\Users\tehre> ssh tehreem064@192.168.40.128
The authenticity of host '192.168.40.128 (192.168.40.128)' can't be established.
ED25519 key fingerprint is SHA256:0edOf/UUC6yLvnIYmM3hBL2KTnIfG1Aiv+dmM5Q2jgM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.40.128' (ED25519) to the list of known hosts.
tehreem064@192.168.40.128's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-87-generic x86_64)

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

System information as of Mon Nov 17 03:49:57 PM UTC 2025

System load:  0.01          Processes:            252
Usage of /:   94.4% of 9.75GB Users logged in:      1
Memory usage: 14%          IPv4 address for ens33: 192.168.40.128
Swap usage:   0%

=> / is using 94.4% of 9.75GB

Expanded Security Maintenance for Applications is not enabled.

11 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

12 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

Last login: Mon Nov 17 15:43:04 2025 from 192.168.40.128

```

```

PS C:\Users\tehre> type $env:USERPROFILE\.ssh\known_hosts
192.168.40.128 ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIAiU1IbIPbdtprKRGYSOLz67r1/P6FjkpmFiEiXhE9
U1L
192.168.40.128 ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQDIU7Gds5dY6xGpXj2gpavat94Er734AuHSQqg2o
COVKQfvktcuDjkZqQ6tmFow8jviPiaTXxrBXXKyCFfRqs0Q5Jz0cKAjT7cnJaDrVp+NvoTCiFHCkgW4+4gPGfcBmIQ8J
ZS85L6cW2fB4pgCRxfxIkXa9pQuM2jlylnQxocgQspQJ7JicV5B2jX1JrNVqh+Zm59sb8eF5MMoMR8os12dHnP8MkLmw
KXEYKYKR+aJk6MqGi8ZD1N7FenikXymTkmRay8KH07xR6pEVBZShMlIX+dKJrESq/QZ8PFggbOWHdyPAEwsKeAb+yYOq
eWyr4wXX6+lvqp1nIHuVJS1Soz82Rzbkv7abKioN1lFL7m+QG4ueYj20vp4BqoS5r0Z70F9yG11pZtokhTyXLZjh0J
73dTumAq5ch2bUAuaw4tLJdGVUXG0fD0o11nbApp2cj6NZFziJC2S5Wi14TOgPDj6wLGJ6VP3ZWCa4Xruy+a6iU8udqc
VhZ076pMkbeLn8=
192.168.40.128 ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBISL/
1u0a4Y4o9QBMTkYkTKep0cws7oU4AoBY+zmpcRtdnDpTMavH155EgoBT3ZPyMxNP3AjbZ3CjgQjRQou8YY=
PS C:\Users\tehre>

```

```

tehreem064@tehreem:~$ mkdir -p ~/.ssh
chmod 700 ~/.ssh
> ~/.ssh/authorized_keys

```

```

tehreem064@tehreem:~$ echo "ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIAiU1IbIPbdtprKRGYSOLz67r1/P6FjkpmFiEiXhE9U1L" >> ~/.ssh/authorized_keys
tehreem064@tehreem:~$ chmod 600 ~/.ssh/authorized_keys
tehreem064@tehreem:~$ cat ~/.ssh/authorized_keys
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIAiU1IbIPbdtprKRGYSOLz67r1/P6FjkpmFiEiXhE9U1L
tehreem064@tehreem:~$ █

```

```
tehreem064@192.168.40.128's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-87-generic x86_64)

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

System information as of Mon Nov 17 04:46:32 PM UTC 2025

System load: 0.12          Processes:                254
Usage of /:  94.4% of 9.75GB Users logged in:          1
Memory usage: 14%          IPv4 address for ens33: 192.168.40.128
Swap usage:  0%

=> / is using 94.4% of 9.75GB

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

11 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

12 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

Last login: Mon Nov 17 16:38:01 2025 from 192.168.40.1
```

```
tehreem064@tehreem:~$ ssh -i ~/.ssh/id_lab7 tehreem064@192.168.40.128
tehreem064@192.168.40.128's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-87-generic x86_64)

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

System information as of Mon Nov 17 04:46:32 PM UTC 2025

System load: 0.12          Processes:                254
Usage of /:  94.4% of 9.75GB Users logged in:          1
Memory usage: 14%          IPv4 address for ens33: 192.168.40.128
Swap usage:  0%

=> / is using 94.4% of 9.75GB

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

11 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

12 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

Last login: Mon Nov 17 16:46:33 2025 from 192.168.40.1
tehreem064@tehreem:~$
```

Exam Evaluation Questions

Q1

```
tehreem064@tehreem:~$ env
SHELL=/bin/bash
DB_PASSWORD=labpass123
PWD=/home/tehreem064
LOGNAME=tehreem064
XDG_SESSION_TYPE=ttty
DB_USER=labuser
HOME=/home/tehreem064
LANG=en_US.UTF-8
LS_COLORS=rs=0:di=01:34:ln=01:36:mh=00:pi=40:33:so=01:35:do=01:35:bd=40:33:ol=cd=40:33:or=40:31:01:mi=00:su=37:41:sg=30:43:ca=00:tw=30:42:ow=34:42:st=37:44:ex=01:32:
*.tar=01:31:*.tgz=01:31:*.arc=01:31:*.arj=01:31:*.taz=01:31:*.lha=01:31:*.lzh=01:31:*.lзма=01:31:*.tlz=01:31:*.txz=01:31:*.tzo=01:31:*.t7z=01:31:*.zip=01:31:
*.z=01:31:*.dz=01:31:*.gz=01:31:*.lrz=01:31:*.lrz=01:31:*.lzo=01:31:*.xz=01:31:*.zst=01:31:*.tazet=01:31:*.bz2=01:31:*.bz=01:31:*.tbz=01:31:*.tbz2=01:31:*.tz=01:31:*.deb
=01:31:*.rpm=01:31:*.jar=01:31:*.war=01:31:*.ear=01:31:*.sar=01:31:*.rar=01:31:*.alz=01:31:*.ace=01:31:*.zoo=01:31:*.cpio=01:31:*.7z=01:31:*.rz=01:31:*.cab=01:31:*.wim=
01:31:*.swm=01:31:*.dwm=01:31:*.esd=01:31:*.avif=01:35:*.jpg=01:35:*.jpeg=01:35:*.mjpg=01:35:*.mjpeg=01:35:*.gif=01:35:*.bmp=01:35:*.pbm=01:35:*.pgm=01:35:*.ppm=01:35:*.
tga=01:35:*.xbm=01:35:*.xpm=01:35:*.tif=01:35:*.tiff=01:35:*.png=01:35:*.svg=01:35:*.avq=01:35:*.mng=01:35:*.pcx=01:35:*.mov=01:35:*.mpg=01:35:*.mpeg=01:35:*.m2v=01:3
5:*.mkv=01:35:*.webm=01:35:*.webp=01:35:*.ogm=01:35:*.mp4=01:35:*.m4v=01:35:*.mp4v=01:35:*.vob=01:35:*.qt=01:35:*.nuv=01:35:*.wmv=01:35:*.asf=01:35:*.lm=01:35:*.rmvb=01:3
5:*.flv=01:35:*.avi=01:35:*.fli=01:35:*.flv=01:35:*.gl=01:35:*.dl=01:35:*.xcf=01:35:*.xwd=01:35:*.yuv=01:35:*.cgm=01:35:*.emf=01:35:*.ogv=01:35:*.ogx=01:35:*.aac=00:3
6:*.au=00:36:*.flac=00:36:*.m4a=00:36:*.mid=00:36:*.midi=00:36:*.mka=00:36:*.mp3=00:36:*.mpc=00:36:*.ogg=00:36:*.ra=00:36:*.wav=00:36:*.oga=00:36:*.opus=00:36:*.spx=00:
36:*.xspf=00:36:*=00:90:.*#=00:90:*.bak=00:90:*.crdownload=00:90:*.dpkg-dist=00:90:*.dpkg-new=00:90:*.dpkg-old=00:90:*.dpkg-tmp=00:90:*.old=00:90:*.orig=00:90:*.part=00
:90:*.rej=00:90:*.rpmnew=00:90:*.rpmorig=00:90:*.rpmsave=00:90:*.swp=00:90:*.tmp=00:90:*.ucf-dist=00:90:*.ucf-new=00:90:*.ucf-old=00:90:
SSH_CONNECTION=192.168.40.1 55725 192.168.40.128 22
LESSCLOSE=/usr/bin/lesspipe %s %s
XDG_SESSION_CLASS=user
TERM=xterm
LESSOPEN=| /usr/bin/lesspipe %s
USER=tehreem064
SHLVL=1
DB_URL=postgres:///db.example.local:5432/mydb
XDG_SESSION_ID=71
XDG_RUNTIME_DIR=/run/user/1000
SSH_CLIENT=192.168.40.1 55725 22
XDG_DATA_DIRS=/usr/share/games:/usr/local/share:/usr/share:/var/lib/snap/desktop
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus
SSH_TTY=/dev/pts/5
Class=CC<your_class_name>
./usr/bin/env
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
tehreem064@tehreem:~$ echo $LANG
en_US.UTF-8
tehreem064@tehreem:~$ echo $PWD
/home/tehreem064
tehreem064@tehreem:~$
```

Q2

```
tehreem064@tehreem:~$ export STUDENT_NAME="Tehreem"
export STUDENT_ROLL_NUMBER="2023-BSE-064"
export STUDENT_SEMESTER="5"
```

```
tehreem064@tehreem:~$ echo $STUDENT_NAME
Tehreem
echo $STUDENT_ROLL_NUMBER
2023-BSE-064
echo $STUDENT_SEMESTER
5
```

```
tehreem064@tehreem:~$ printenv | grep STUDENT_
STUDENT_NAME=Tehreem
STUDENT_SEMESTER=5
STUDENT_ROLL_NUMBER=2023-BSE-064
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo $STUDENT_NAME
Tehreem
echo $STUDENT_ROLL_NUMBER
2023-BSE-064
echo $STUDENT_SEMESTER
5
printenv | grep STUDENT_
STUDENT_NAME=Tehreem
STUDENT_SEMESTER=5
STUDENT_ROLL_NUMBER=2023-BSE-064
tehreem064@tehreem:~$
```

Q3

```
export STUDENT_NAME="Tehreem"
export STUDENT_ROLL_NUMBER="2023-BSE-064"
export STUDENT_SEMESTER="5"
```

^G Help	^O Write Out	^W Where Is	^K Cut	^T Execute	^C Location
^X Exit	^R Read File	^I Replace	^U Paste	^J Justify	^/ Go To Line

```
tehreem064@tehreem:~$ nano ~/.bashrc
tehreem064@tehreem:~$ nano ~/.bashrc
tehreem064@tehreem:~$ . ~/.bashrc
tehreem064@tehreem:~$ echo $STUDENT_NAME
echo $STUDENT_ROLL_NUMBER
echo $STUDENT_SEMESTER
Tehreem
2023-BSE-064
5
tehreem064@tehreem:~$ printenv | grep '^STUDENT_'
STUDENT_NAME=Tehreem
STUDENT_SEMESTER=5
STUDENT_ROLL_NUMBER=2023-BSE-064
tehreem064@tehreem:~$
```

```
tehreem064@tehreem:~$ echo $STUDENT_NAME
printenv | grep '^STUDENT_'
Tehreem
STUDENT_NAME=Tehreem
STUDENT_SEMESTER=5
STUDENT_ROLL_NUMBER=2023-BSE-064
tehreem064@tehreem:~$
```

Q4

```
tehreem064@tehreem:~$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
tehreem064@tehreem:~$ sudo ufw status
Status: active

To Action From
--
22/tcp ALLOW Anywhere
22/tcp (v6) ALLOW Anywhere (v6)

tehreem064@tehreem:~$
```

```

tehreem064@tehreem:~$ sudo nano /etc/ufw/before.rules
tehreem064@tehreem:~$ sudo ufw reload
Firewall reloaded
tehreem064@tehreem:~$ sudo ufw status numbered
Status: active

      To Action From
      --
[ 1] 22/tcp ALLOW IN Anywhere
[ 2] 22/tcp (v6) ALLOW IN Anywhere (v6)

tehreem064@tehreem:~$ █

```

```

PS C:\Users\tehre> ping 192.168.40.128

Pinging 192.168.40.128 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.

```

```

tehreem064@tehreem:~$ sudo ufw reload
Firewall reloaded
tehreem064@tehreem:~$ sudo ufw status
Status: active

To Action From
--
22/tcp ALLOW Anywhere
22/tcp (v6) ALLOW Anywhere (v6)

tehreem064@tehreem:~$ _

```

```

PS C:\Users\tehre> ping 172.17.0.1

Pinging 172.17.0.1 with 32 bytes of data:
Reply from 172.17.0.1: bytes=32 time=25ms TTL=249
Reply from 172.17.0.1: bytes=32 time=25ms TTL=249
Reply from 172.17.0.1: bytes=32 time=25ms TTL=249
Reply from 172.17.0.1: bytes=32 time=25ms TTL=249

Ping statistics for 172.17.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 25ms, Maximum = 25ms, Average = 25ms
PS C:\Users\tehre>

```