# *LAB 07*

## NAME: SHUMAIL ZAHRA
## REGISTRATION #: 2023-BSE-061
## DEPARTMENT: BSE(5B)

## LAB TASK

### Task 1 — Print & filter environment variables

task1_printenv_all



task1_grep_shell_home_user.

## Task 2 — Export DB_* variables temporarily and observe scope

task2_exports_all

```
        USER=shumail
shumail@shumail1:~$ export DB_URL="postgres://db.example.local:5432/mydb"
shumail@shumail1:~$ export DB_USER="labuser"
shumail@shumail1:~$ export DB_PASSWORD="labpass123"
shumail@shumail1:~$
```

task2_echoes_all

```
shumail@shumail1:~$ export DB_PASSWORD="labpass123
shumail@shumail1:~$ echo "$DB_URL"
postgres://db.example.local:5432/mydb
shumail@shumail1:~$ echo "$DB_USER"
labuser
shumail@shumail1:~$
shumail@shumail1:~$
shumail@shumail1:~$ echo "$DB_PASSWORD"
labpass123
shumail@shumail1:~$
```

task2_printenv_grep_db

```
        labpass123
shumail@shumail1:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$ _
```

task2_after_restart_checks

```
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$ echo "$DB_URL"
postgres://db.example.local:5432/mydb
shumail@shumail1:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$
```

task2_export_echo_printenv_combined

```
shumail@shumail1:~$ export DB_URL="postgres://db.example.local:5432/mydb"
shumail@shumail1:~$ export DB_USER="labuser"
shumail@shumail1:~$ export DB_PASSWORD="labpass123"
shumail@shumail1:~$ echo "$DB_URL"
postgres://db.example.local:5432/mydb
shumail@shumail1:~$ echo "$DB_USER"
labuser
shumail@shumail1:~$
shumail@shumail1:~$
shumail@shumail1:~$ echo "$DB_PASSWORD"
labpass123
shumail@shumail1:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$ echo "$DB_URL"
postgres://db.example.local:5432/mydb
shumail@shumail1:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$ _
```

## Task 3 — Make DB_* variables persistent in ~/.bashrc

task3_bashrc_added

```
        alias ls='ls --color=auto'
        #alias dir='dir --color=auto'
        #alias vdir='vdir --color=auto'

        alias grep='grep --color=auto'
        alias fgrep='fgrep --color=auto'
        alias egrep='egrep --color=auto'
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'

# Add an "alert" alias for long running commands.  Use like so:
#   sleep 10; alert
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&|]\s*alert$//'\''
)"'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# 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
# Lab 7 persistent DB variables
export DB_URL="postgres://db.example.local:5432/mydb"

export DB_USER="labuser"

export DB_PASSWORD="labpass123"_
~
~
-- INSERT --                                                          123,32        Bot
```

task3_source_and_verification

```
.bashrc  120L, 8918B written
shumail@shumail1:~$ source ~/.bashrc
shumail@shumail1:~$ echo "$DB_URL"
postgres://db.example.local:5432/mydb
shumail@shumail1:~$ echo "$DB_USER"
labuser
shumail@shumail1:~$
shumail@shumail1:~$ echo "$DB_PASSWORD"
labpass123
shumail@shumail1:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$
```

task3_after_restart_persistent

```
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$ echo "$DB_URL"
postgres://db.example.local:5432/mydb
shumail@shumail1:~$ printenv | grep '^DB_'
DB_PASSWORD=labpass123
DB_USER=labuser
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$
```

## Task 4 — System-wide environment variable, welcome script, and PATH

task4_etc_environment_before

```
DB_URL=postgres://db.example.local:5432/mydb
shumail@shumail1:~$ sudo cat /etc/environment
[sudo] password for shumail:
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
shumail@shumail1:~$
```

task4_echo_path_before

```
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bi
shumail@shumail1:~$ echo "$PATH"
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
shumail@shumail1:~$ _
```

task4_etc_environment_edit_vim

```
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
Class="CC-5B"
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
```

task4_etc_environment_after

```
~
~
~
"/etc/environment" 2L, 120B written
shumail@shumail1:~$ sudo cat /etc/environment
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
Class="CC-5B"
shumail@shumail1:~$ _
```

task4_echo_class_and_path

```
shumail@shumail1:~$ echo $Class

shumail@shumail1:~$ echo "$PATH"
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
shumail@shumail1:~$ echo $Class

shumail@shumail1:~$
```

task4_welcome_create_and_chmod

```
shumail@shumail1:~$ cat > ~/welcome <<'EOF'
> #!/bin/bash
>
> echo "Welcome to Cloud Computing $USER"
>
> EOF
shumail@shumail1:~$ chmod +x ~/welcome
shumail@shumail1:~$
```

task4_welcome_run_dot

```
shumail@shumail1:~$ chmod +x ~/welcome
shumail@shumail1:~$ cd ~
shumail@shumail1:~$
shumail@shumail1:~$ ./welcome
Welcome to Cloud Computing shumail
shumail@shumail1:~$ _
```

task4_bashrc_path_line

```
    #alias vdir='vdir --color=auto'

    alias grep='grep --color=auto'
    alias fgrep='fgrep --color=auto'
    alias egrep='egrep --color=auto'
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'

# Add an "alert" alias for long running commands.  Use like so:
#   sleep 10; alert
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&|]\s*alert$//'\''
)"'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# 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
# Lab 7 persistent DB variables
export DB_URL="postgres://db.example.local:5432/mydb"

export DB_USER="labuser"

export DB_PASSWORD="labpass123"

# add at end:
PATH=$PATH:~
```

task4_bashrc_source_and_welcome

```
                    export DB_PASSWORD="labpass123"

                    # add at end:
                    PATH=$PATH:~
                    ~
                    ".bashrc" 126L, 3944B written
                    shumail@shumail1:~$ source ~/.bashrc
                    shumail@shumail1:~$ cd ~
                    shumail@shumail1:~$ welcome
                    Welcome to Cloud Computing shumail
                    shumail@shumail1:~$
```

**Task 5 — Block and allow SSH using ufw (firewall)**

task5_ufw_enable_and_status

```
        Welcome to Cloud Computing shumail
        shumail@shumail1:~$ sudo ufw enable
        Firewall is active and enabled on system startup
        shumail@shumail1:~$ sudo ufw status verbose
        Status: active
        Logging: on (low)
        Default: deny (incoming), allow (outgoing), deny (routed)
        New profiles: skip
        shumail@shumail1:~$
```

task5_ufw_deny_22_and_status

```
    shumail@shumail1:~$ sudo ufw deny 22/tcp
    Rule added
    Rule added (v6)
    shumail@shumail1:~$ sudo ufw status numbered
    Status: active

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

    shumail@shumail1:~$ _
```

task5_ssh_attempt_blocked

task5_ufw_allow_reload_status



task5_ssh_success_after_allow

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Syed> ssh shumail@192.168.183.132
shumail@192.168.183.132'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 Fri  7 Nov 05:41:50 UTC 2025

  System load:  0.15              Processes:             232
  Usage of /:   82.0% of 13.67GB  Users logged in:       1
  Memory usage: 10%               IPv4 address for ens33: 192.168.183.132
  Swap usage:   0%


Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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


Last login: Fri Nov  7 05:34:27 2025 from 192.168.183.132
shumail@shumail1:~$
```

**Task 6 — Configure SSH key-based login from Windows host**

task6_windows_sshkey_and_list

```
PS C:\Users\Syed> 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\Syed\.ssh\id_lab7
Your public key has been saved in C:\Users\Syed\.ssh\id_lab7.pub
The key fingerprint is:
SHA256:RapsuyKoiX30CjdcjnHEugl66nsqmKR5+Grm8VpP4pY lab_key
The key's randomart image is:
+--[ED25519 256]--+
|          .      |
|     .   o       |
|      o . .      |
|     + . .       |
|   . o * S       |
| o o.X .         |
|=*o+Ooo          |
|XBBE*...         |
|&XO=.+.          |
+----[SHA256]-----+
```

```
PS C:\Users\Syed> ls $env:USERPROFILE\.ssh
>>


    Directory: C:\Users\Syed\.ssh


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----         10/3/2025    6:44 PM                Lab2
d-----        10/22/2025    2:23 PM                Login_html
d-----        10/22/2025    2:01 PM                Style_sheets
-a----        10/14/2025    8:54 AM           3830 Activity.html
-a----        10/14/2025    8:54 AM           3830 activityy.html
-a----        10/13/2025    9:30 PM            640 asia.html
-a----        10/14/2025    8:51 AM            634 asiaa.html
-a----        10/13/2025    9:54 AM         520628 asia_map.png
-a----        10/13/2025    9:54 AM         520628 asia_map_labeled.png
-a----        10/14/2025    9:53 AM         156307 Assignment web.pdf
-a----         10/8/2025    2:14 PM           1712 Assignment1.html
-a----         10/8/2025    1:22 PM           1712 Assignment1.html.html
-a----         10/7/2025    9:16 PM           1712 Assignment1.txt
-a----         10/8/2025    2:03 PM           2312 Assignment2.html
-a----         10/7/2025    9:16 PM           2312 Assignment2.txt
-a----         10/3/2025    6:44 PM            108 config
-a----         10/3/2025    6:13 PM            102 config1.txt
-a----         10/3/2025    6:14 PM            114 config2.txt
-a----        10/14/2025    9:36 AM            545 continents.html
-a----        10/14/2025    8:51 AM            548 continentts.html
-a----         11/5/2025    8:34 PM           7966 ecoswap_home.html
-a----        10/21/2025    9:25 PM           3943 Form3.html
-a----        10/15/2025    8:48 PM           1747 Formm1.html
-a----        10/15/2025    4:18 PM           2501 Formm2.html
-a----         10/3/2025    8:25 AM            419 id_ed25519
-a----         10/3/2025   11:15 AM            110 id_ed25519.pub
-a----         10/3/2025    5:44 PM            419 id_ed25519_lab2
-a----         10/3/2025    6:06 PM            112 id_ed25519_lab2.pub
-a----         11/7/2025   10:46 AM            399 id_lab7
-a----         11/7/2025   10:46 AM             90 id_lab7.pub
-a----        10/14/2025    9:31 AM            418 indeex.html
-a----        10/29/2025    2:28 PM            947 INDEX.html
-a----         11/5/2025    8:33 PM            686 indexx.html
-a----        10/29/2025    2:32 PM            389 indexxx.html
-a----        10/30/2025   10:56 PM           2523 known_hosts
-a----        10/30/2025   10:56 PM           1775 known_hosts.old
```

task6_windows_public_key

```
PS C:\Users\Syed> type $env:USERPROFILE\.ssh\id_lab7.pub
>>
ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIGUOMvJcNRjrb1BSPV9ou/l/EOoNuWS52Puxtytvj6lr lab_key
PS C:\Users\Syed> ssh-keygen -t ed25519 -f $env:USERPROFILE\.ssh\id_lab7 -C "lab_key"
Generating public/private ed25519 key pair.
```

task6_windows_known_hosts_cleared_and_empty

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

task6_windows_ssh_accept_hostkey_and_login

```
PS C:\Users\Syed> ssh shumail@192.168.183.132
The authenticity of host '192.168.183.132 (192.168.183.132)' can't be established.
ED25519 key fingerprint is SHA256:zqVjpZWoA1zF0UlwdwCoIku7avyQy/iZhwYgHCBMXQU.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.183.132' (ED25519) to the list of known hosts.
shumail@192.168.183.132'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 Fri  7 Nov 05:57:54 UTC 2025

  System load:  0.0              Processes:            233
  Usage of /:   82.0% of 13.67GB Users logged in:      1
  Memory usage: 10%              IPv4 address for ens33: 192.168.183.132
  Swap usage:   0%


Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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


Last login: Fri Nov  7 05:41:51 2025 from 192.168.183.1
shumail@shumail1:~$
```

task6_windows_known_hosts_after_connect

```
Connection to 192.168.183.132 closed.
PS C:\Users\Syed> type $env:USERPROFILE\.ssh\known_hosts
192.168.183.132 ssh-ed25519 AAAAC3NzaC1lZDI1NTE5AAAAIKIgEcUOVAAzRXWTvBZ4ewZ4MAzKPjaFsLz3AwJICbrO
192.168.183.132 ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDYHjbRbpw1S8oi38ago7KpLgcUoyn/7ftZSVi65jRXI61hPSc9bgxBNZqXoZIAvuHEG3Cmvy9y8xB2ASW716eIE9GoidqUxmvGOvdXTzn5CUeuGjKihynsO7PMelzyp7KSuM0+79uGoUJVqXqIEeghmgU0NPRyFdBj
48yQCL9avQWkwumtpBL6UP0aBvKmSiL1OMCjFIcb6xvT1eT1EiFv1TAmvDZrXQt97ih5/fkTS8s2QNzcVEZpgM16rA2+pMWBG6prevhSpsKg2q5gc4ukqINsyvQLfYeg4pJKnSuVsUKN+nKXLr0ki6HVRos6thXVUkzymtFw2WIsOovpwUN7y04TJx2HyJ33d5Aq3e2LBGrXSzpzLmCjcNCPa
e614W3G4nsOD1OONnRypXTFHJs/SwOJzcNnZvbg2M9Eyyy1hw8bKWnenZ0xZjxKoBa8oBavY+PicN/ZRP99DJIdFinSSRPa91YQD8Z5aAIH+TEzdPDI6Y2hvJ0GhA3HF0I8P9WU=
192.168.183.132 ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBCLmSt2WuF6w6f+aG4NKaF/h7Mi+9L/CbqSNWUHCr1N+Ic9CQODbzie/VmWb4aefGvgEMUnXJ1+OvnLyymfAMKU=
PS C:\Users\Syed>
```

task6_server_clear_authorized_keys

```
22/tcp (v6)                    ALLOW       Anywhere (v6)

shumail@shumail1:~$ mkdir -p ~/.ssh
shumail@shumail1:~$ chmod 700 ~/.ssh
shumail@shumail1:~$ > ~/.ssh/authorized_keys
shumail@shumail1:~$ _
```

task6_server_add_key_and_show

```
shumail@shumail1:~$ echo "ssh-ed25519 AAAA... yourpublickey ... comment" >> ~/.ssh/authorized_keys
shumail@shumail1:~$ chmod 600 ~/.ssh/authorized_keys
shumail@shumail1:~$
shumail@shumail1:~$ cat ~/.ssh/authorized_keys
ssh-ed25519 AAAA... yourpublickey ... comment
shumail@shumail1:~$ _
```

task6_ssh_passwordless_login

```
PS C:\Users\Syed> ssh shumail@192.168.183.132
shumail@192.168.183.132'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 Fri  7 Nov 06:13:03 UTC 2025

  System load:  0.08              Processes:              234
  Usage of /:   82.0% of 13.67GB  Users logged in:        1
  Memory usage: 10%               IPv4 address for ens33: 192.168.183.132
  Swap usage:   0%


Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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


Last login: Fri Nov  7 05:57:54 2025 from 192.168.183.1
shumail@shumail1:~$
```

task6_ssh_with_identity_file

```
shumail@shumail1:~$ ssh -i ~/.ssh/id_lab7 shumail@192.168.183.132
shumail@192.168.183.132'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 Fri  7 Nov 06:16:47 UTC 2025

  System load:  0.0               Processes:              237
  Usage of /:   82.0% of 13.67GB  Users logged in:        1
  Memory usage: 10%               IPv4 address for ens33: 192.168.183.132
  Swap usage:   0%


Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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


Last login: Fri Nov  7 06:13:04 2025 from 192.168.183.1
shumail@shumail1:~$
```

**Exam Evaluation Questions**

**Q1: Quick Environment Audit**

EE_q1_env_all

```
ssh-ed25519 AAAA... yourpublickey ... comment
shumail@shumail1:~$ printenv

SHELL=/bin/bash
DB_PASSWORD=labpass123
PWD=/home/shumail
LOGNAME=shumail
XDG_SESSION_TYPE=tty
DB_USER=labuser
HOME=/home/shumail
LANG=en_GB.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=40;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:e
x=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=0
1;31:*.zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz
2=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:*.uim=01;31:*.sum=01;31:*.dum=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:*.asf=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:*.ogx=01;35:*.aac=00;36:*.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:*.dpk
g-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=192.168.183.132 44154 192.168.183.132 22
LESSCLOSE=/usr/bin/lesspipe %s %s
XDG_SESSION_CLASS=user
TERM=linux
LESSOPEN=| /usr/bin/lesspipe %s
USER=shumail
SHLVL=1
DB_URL=postgres://db.example.local:5432/mydb
XDG_SESSION_ID=7
XDG_RUNTIME_DIR=/run/user/1000
SSH_CLIENT=192.168.183.132 44154 22
XDG_DATA_DIRS=/usr/share/gnome:/usr/local/share:/usr/share:/var/lib/snapd/desktop
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/home/shumail
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus
SSH_TTY=/dev/pts/0
Class=CC-5B
_=/usr/bin/printenv
shumail@shumail1:~$
shumail@shumail1:~$
```

EE_q1_env_filters

```
shumail@shumail1:~$ printenv PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/home/shumail
shumail@shumail1:~$ printenv LANG
en_GB.UTF-8
shumail@shumail1:~$ printenv PWD
/home/shumail
shumail@shumail1:~$ _
```

## Q2: Short-lived Student Info

EE_q2_exports

```
shumail@shumail1:~$
shumail@shumail1:~$ export STUDENT_NAME="Shumail Zahra"
shumail@shumail1:~$ export STUDENT_ROLL_NUMBER="2023-BSE-061"
shumail@shumail1:~$ export STUDENT_SEMESTER="5"
shumail@shumail1:~$ _
```

EE_q2_echoes

```
shumail@shumail1:~$
shumail@shumail1:~$ echo $STUDENT_NAME
Shumail Zahra
shumail@shumail1:~$ echo $STUDENT_ROLL_NUMBER
2023-BSE-061
shumail@shumail1:~$ echo $STUDENT_SEMESTER
5
shumail@shumail1:~$
```

EE_q2_printenv_grep.

```
shumail@shumail1:~$ printenv | grep STUDENT_
STUDENT_NAME=Shumail Zahra
STUDENT_SEMESTER=5
STUDENT_ROLL_NUMBER=2023-BSE-061
shumail@shumail1:~$ _
```

EE_q2_after_restart

```
STUDENT_ROLL_NUMBER=2023-BSE-061
shumail@shumail1:~$ exit
logout
Connection to 192.168.183.132 closed.
shumail@shumail1:~$ echo $STUDENT_NAME

shumail@shumail1:~$ printenv | grep STUDENT_
shumail@shumail1:~$
shumail@shumail1:~$ _
```

## Q3: Make It Sticky (Persistence Check for Student Info)

EE_q3_bashrc_editor.

```
    . /usr/share/bash-completion/bash_completion
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi
# Lab 7 persistent DB variables
export DB_URL="postgres://db.example.local:5432/mydb"

export DB_USER="labuser"

export DB_PASSWORD="labpass123"

# add at end:
PATH=$PATH:~
export STUDENT_NAME="Shumail Zahra"

export STUDENT_ROLL_NUMBER="2023-BSE-061"

export STUDENT_SEMESTER="5"
                                              [ Wrote 131 lines ]
```