

Q2

```
mohammed@mohammed:~$ echo $PATH
/opt/ros/humble/bin:/opt/gcc-arm-none-eabi-9-2020-q2-update/bin:/home/mohammed/.local/bin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin
mohammed@mohammed:~$ echo $PATH
PATH
mohammed@mohammed:~$ echo $PATH
/opt/ros/humble/bin:/opt/gcc-arm-none-eabi-9-2020-q2-update/bin:/home/mohammed/.local/bin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin
mohammed@mohammed:~$ alias
alias alert='notify-send --urgency=low -l "${ $? }" && echo terminal || echo error)' "S(history|tail -n|sed -e '\s/\s*[0-9]+\s*//;s/;/&|]\s*alert$/\s*'\s*'"
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias ls='ls -C'
alias la='ls -A'
alias ll='ls -lF'
alias ls='ls --color=auto'
mohammed@mohammed:~$ cd
mohammed@mohammed:~$ vi .bashrc
mohammed@mohammed:~$ source .bashrc
mohammed@mohammed:~$ main
Enter the number you want to enter: 1
The value 1 found at position 1
Enter any number to exit: 5
mohammed@mohammed:~$
```

Nan2na2a

1.

```
mohammed@mohammed:~$ cat /etc/sh
shadow shadow: shells
mohammed@mohammed:~$ cat /etc/shells
# /etc/shells: valid login shells
/bin/sh
/bin/bash
/usr/bin/bash
/bin/rbash
/usr/bin/rbash
/usr/bin/sh
/bin/dash
/usr/bin/dash
/usr/bin/screen
mohammed@mohammed:~$
```

2.

```
SHELL=/bin/bash
ROS_VERSION=2
SESSION_MANAGER=local/mohammed:@/tmp/.ICE-unix/1274,unix/mohammed:/tmp/.ICE-unix/1274
QT_ACCESSIBILITY=1
COLORTERM=truecolor
XDG_CONFIG_DIRS=/etc/xdg/xdg-ubuntu:/etc/xdg
SSH_AGENT_LAUNCHER=gnome-keyring
XDG_MENU_PREFIX=gnome-
GNOME_DESKTOP_SESSION_ID=this-is-deprecated
ROS_PYTHON_VERSION=3
LANGUAGE=en
TERMINATOR_DBUS_PATH=/net/tenshu/Terminator2
LC_ADDRESS=ar_EG.UTF-8
GNOME_SHELL_SESSION_MODE=ubuntu
LC_NAME=ar_EG.UTF-8
SSH_AUTH_SOCK=/run/user/1000/ssh
TERMINATOR_UUID=urn:uuid:7330a97e-6373-479a-945e-c30da69ad562
XMODIFIERS=@Lm=ibus
DESKTOP_SESSION=ubuntu
LC_PAPER=ar_EG.UTF-8
GTK_MODULES=gail:atk-bridge
PWD=/home/mohammed
LOGNAME=mohammed
XDG_SESSION_DESKTOP=ubuntu
XDG_SESSION_TYPE=wayland
SYSTEMD_EXEC_PID=1549
XAUTHORITY=/run/user/1000/.mutter-Xwaylandauth.40ULE2
HOME=/home/mohammed
USERNAME=mohammed
TM_CONFIG_PHASE=1
LC_PAPER=ar_EG.UTF-8
LANG=en_US.UTF-8
LS_COLORS=rs=0:di=01;34;ln=01;35;mh=00;pl=40;33;so=01;35;do=01;35;bd=40;33;01;cd=40;33;01;or=40;33;01;nl=00;su=37;41;sg=30;43;ca=30;41;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;*.lzma=01;31;*.lzx=01;31;*.t7z=01;31;*.zip=01;31;*.z=01;31;*.gz=01;31;*.lrz=01;31;*.lzo=01;31;*.xz=01;31;*.zst=01;31;*.test=01;31;*.bz2=01;31;*.bz=01;31;*.tbz=01;31;*.tbz2=01;31;*.t2=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;*.wlm=01;31;*.swm=01;31;*.dwm=01;31;*.esd=01;31;*.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;*.npg=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;*.flv=01;35;*.gl=01;35;*.ql=01;35;*.xcf=01;35;*.xwd=01;35;*.yuv=01;35;*.cgm=01;35;*.enf=01;35;*.ogv=01;35;*.ogx=01;35;*.aac=00;36;*.au=00;36;*.flac=00;36;*.m4a=00;36;*.mtd=00;36;*.nld=00;36;*.nka=00;36;*.mp3=00;36;*.npg=00;36;*.ogg=00;36;*.ra=00;36;*.wav=00;36;*.oga=00;36;*.opus=00;36;*.spx=00;36;*.xspf=00;36;
XDG_CURRENT_DESKTOP=ubuntu:GNOME
VTE_VERSION=6800
WAYLAND_DISPLAY=wayland-0
AGENT_PREFIX_PATH=/home/mohammed/ros2_ws/install/my_robot_controller:/home/mohammed/ros2_example_3/install/my_robot_controller:/home/mohammed/ros2_example_2/install/my_robot_controller:/home/mohammed/ros2_example_1/install/my_robot_controller:/home/mohammed/ros2_ws4/install/robotic_arm:/home/mohammed/ros2_ws_second/install/my_robot_controller:/opt/ros/humble
COLCON_PREFIX_PATH=/home/mohammed/ros2_example_3/install:/home/mohammed/ros2_example_2/install:/home/mohammed/ros2_ws4/install:/home/mohammed/ros2_ws_second/install
/home/mohammed/ros2_ws/install:/home/mohammed/ros5_ws/install
INVOCAATION_ID=0dc28b210e2842278ac8bc6aa0d951e3
TERMINATOR_DBUS_NAME=net.tenshu.Terminator2ser40219e3b005583550f2b0f9f990c3
MANAGERPID=1125
GNOME_SETUP_DISPLAY=net
LESSCLOSE=/usr/bin/lesspipe %s %s
```

3.

```
mohammed@mohammed:~$ $SHELL
mohammed@mohammed:~$ echo $SHELL
/bin/bash
mohammed@mohammed:~$ echo "$SHELL"
/bin/bash
mohammed@mohammed:~$ echo $0
/bin/bash
mohammed@mohammed:~$ ps
PID TTY TIME CMD
12687 pts/0 00:00:00 bash
20633 pts/0 00:00:00 bash
21252 pts/0 00:00:00 ps
mohammed@mohammed:~$
```

4.

```
/
mohammed@mohammed:~$ echo \
>
mohammed@mohammed:~$ echo \
> $PATH
/opt/ros/humble/bin:/opt/gcc-arm-none-eabi-9-2020-q2-update/bin:/home/mohammed/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin:/usr/local/bin/main
mohammed@mohammed:~$ echo $PATH \
> $USER
/opt/ros/humble/bin:/opt/gcc-arm-none-eabi-9-2020-q2-update/bin:/home/mohammed/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin:/usr/local/bin/main mohammed
mohammed@mohammed:~$
```

it can be used as escaping special characters or continuation lines or quotation characters

```
mohammed@mohammed:~$ vi .bashrc
mohammed@mohammed:~$ source .bashrc
mohammed@mohammed:~$ PrintPath
/opt/ros/humble/bin:/opt/gcc-arm-none-eabi-9-2020-q2-update/bin:/home/mohammed/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/snap/bin
mohammed@mohammed:~$
```

5.