DTL – Assignment : Shell Scripting

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Div: 1
Batch: S2

1. Making new file and entering text into it
2. Making the file executable
3. Listing all the files in directory
4. Executing the file
5. Adding multiple lines to a file
6. Changing permission of the file created
7. Listing all the files in directory.
4. Executing the file

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl$ mkdir dtlassign2
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl$ cd /home/vipul/dtl/dtlassign2/
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ echo 'echo Hello World!'>hello_world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ chmod 755 hello_world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ ls
hello_world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ bash hello_world.sh
Hello World!
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ cat <<ALLDONE> hello_world_multiline.sh
> echo Good morning.
> echo I am Vipul Chaudhari
> echo This is assignment of Bash Scripting.
> ALLDONE
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ chmod 755 hello_world_multiline.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ ls
hello_world_multiline.sh   hello_world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ bash hello_world_multiline.sh
Good morning.
I am Vipul Chaudhari
This is assignment of Bash Scripting.
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ 
```

1. Opening Downloads directory
2. Creating a new file with current timestamp
3. Opening the file
4. Changing permissions
5. Listing the files in the directory
6. Executing the file

```
I am Vipul Chaudhari
This is assignment of Bash Scripting.
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ mkdir assign2
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2$ cd assign2
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ touch hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod +x hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./hello-world.sh
I am excited to perform assignment
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ 
```

```
  GNU nano 6.2
# !/bin/bash -xv

# This assignment of bash scripting.

echo "I am excited to perform assignment"
```

Special Parametres

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano file1.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 file1.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls
file1.sh  hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ bash file1.sh{A..Z}
bash: file1.shA: No such file or directory
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ bash file1.sh {A..Z}
A B H I
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano file2.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 file2.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls
file1.sh  file2.sh  hello-world.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ bash file2.sh {A..Z}

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Represents all arguments as single string

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Represents all arguments as an Array rather than a string

26 Total number of positional arguments

hB Current flag position

10640 PID of the shell

PID of the last executed background command

file2.sh Name of the shell or shell script

echo Final argument of the last executed foreground command

0 Represent exit status of the last executed foreground command
```

```
  GNU nano 6.2
#! /bin/bash

echo
echo $* Represents all arguments as single string
echo
echo $@ Represents all arguments as an Array rather than a string
echo
echo $# Total number of positional arguments
echo
echo $- Current flag position
echo
echo $$ PID of the shell
echo
echo $! PID of the last executed background command
echo
echo $0 Name of the shell or shell script
echo
echo $_ Final argument of the last executed foreground command
echo
echo $? Represent exit status of the last executed foreground command
echo
```

fhdvbj

Bracket Expansion:
Using variables:
Arithmetic Expansion:
Command Substitution:

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo a{b,c,d}e
abe ace ade
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo {A..Z}
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ mkdir z{1..10}
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls
file1.sh  file2.sh  hello-world.sh  z1  z10  z2  z3  z4  z5  z6  z7  z8  z9
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $BASH
/usr/bin/bash
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano variable.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 variable.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./variable.sh
My name is Vipul Chaudhari.
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano roommates.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 roommates.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./roommates
bash: ./roommates: No such file or directory
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./roommates.sh
Abhi,Tejas and Viraj are roommates.
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano arthmetic.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 arthmetic.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./arthmetic.sh
a=10 and b=15
a+b= 25
25
25

26

-1

2
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ file arthmetic.sh
arthmetic.sh: Bourne-Again shell script, ASCII text executable
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano greeting.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 greeting.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./greeting.sh
Heyy,Welcome vipul! Today is 2023-02-06
Your bash shell version is:5.1.16(1)-release.!
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ a=20
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ b=34
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $a
20
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $b
34
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $[$a+$b]
54
```

```
  GNU nano 6.2                                                    variable.sh *
#! /bin/bash

name="Vipul Chaudhari"
echo My name is ${name}.
```

```
  GNU nano 6.2                                                    roommates.sh
#! /bin/bash

friend1="Abhi"
friend2="Tejas"
friend3="Viraj"

echo ${friend1},${friend2} and ${friend3} are roommates.
```

```
  GNU nano 6.2                                                              arthmetic.sh *
#! /bin/bash

a=10
b=15

echo a=${a} and b=${b}
echo a+b= $((a+b))
echo $((a=a+b))
echo ${a}
((a++))
echo
echo ${a}
echo
unset b
((b--))
echo ${b}
echo
a=1
let a++
echo ${a}
```

```
  GNU nano 6.2                                                              greeting.sh *
#! /bin/bash

greeting="Heyy,Welcome"
user=$(whoami)
date=$(date +%F)

echo "$greeting $user! Today is $date"
echo "Your bash shell version is:$BASH_VERSION.!"
```

Creating backup:

```
  GNU nano 6.2                                                              file3.sh
#! /bin/bash
# This bash script is used to backup a user's home directory to /test/.

user=$(whoami)
input=/home/${user}
output=/tmp/${user}_home_$(date +%Y-%m-%d_%H%M%S).tar.gz

tar -cvf $output $input

echo"$input backup is complete.Details of backup are:"
ls -l $output
```

```
rw-rw-r-- 1 vipul vipul 2186895280 feb  8 02.19 /tmp/vipul_home_2023-02-08_021904.tar.gz
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano file3.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano file3.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 file3.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./file3.sh
```

```
/home/vipul/Pictures/Screenshots/a3q3a.png
/home/vipul/Pictures/Screenshots/a3q1a.png
/home/vipul/Pictures/Screenshots/search.c.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 02-23-07.png
/home/vipul/Pictures/Screenshots/Screenshot from 2022-11-29 22-14-38.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 19-19-44.png
/home/vipul/Pictures/Screenshots/a45.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 01-37-17.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 18-54-28.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 00-31-27.png
/home/vipul/Pictures/Screenshots/lsa.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 11-50-56.png
/home/vipul/Pictures/Screenshots/Screenshot from 2022-11-29 22-15-11.png
/home/vipul/Pictures/Screenshots/ass4_5.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 01-47-26.png
/home/vipul/Pictures/Screenshots/a3q4a.png
/home/vipul/Pictures/Screenshots/Screenshot from 2022-11-29 22-15-28.png
/home/vipul/Pictures/Screenshots/ass4_5_1.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 18-52-16.png
/home/vipul/Pictures/Screenshots/bsa.png
/home/vipul/Pictures/Screenshots/Screenshot from 2022-11-08 01-18-18.png
/home/vipul/Pictures/Screenshots/a3q3.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 22-54-07.png
/home/vipul/Pictures/Screenshots/busa.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 02-21-35.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 12-07-17.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 00-04-59.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 11-46-28.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 16-48-01.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 17-17-26.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 02-16-47.png
/home/vipul/Pictures/Screenshots/Screenshot from 2022-11-29 22-14-21.png
/home/vipul/Pictures/Screenshots/a451.png
/home/vipul/Pictures/Screenshots/a3q4.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 18-52-58.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 19-35-31.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 20-28-37.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 18-55-19.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-05 12-06-49.png
/home/vipul/Pictures/Screenshots/a3q2.png
/home/vipul/Pictures/Screenshots/sort.c.png
/home/vipul/Pictures/Screenshots/search.h.png
/home/vipul/Pictures/Screenshots/sort.h.png
/home/vipul/Pictures/Screenshots/Screenshot from 2022-11-07 01-10-37.png
/home/vipul/Pictures/Screenshots/ssa.png
/home/vipul/Pictures/Screenshots/Screenshot from 2023-02-06 02-24-19.png
/home/vipul/.ssh/
/home/vipul/.bashrc
/home/vipul/search.c
/home/vipul/.bash_logout
/home/vipul/.lesshst
/home/vipul/sort.o
./file3.sh: line 10: echo/home/vipul backup is complete.Details of backup are:: No such file or directory
-rw-rw-r-- 1 vipul vipul 2182440960 Feb  6 02:24 /tmp/vipul_home_2023-02-06_022421.tar.gz
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$
```

Environment:

```
-rw-rw-r-- 1 vipul vipul 2182440960 Feb  6 02:24 /tmp/vipul_home_2023-02-06_022421.tar.gz
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ env
SHELL=/bin/bash
SESSION_MANAGER=local/vipul-HP-Laptop-15s-du1xxx:@/tmp/.ICE-unix/1144,unix/vipul-HP-Laptop-15s-du1xxx:/tmp/.ICE-unix/1144
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
LANGUAGE=en_IN:en
GNOME_SHELL_SESSION_MODE=ubuntu
SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
XMODIFIERS=@im=ibus
DESKTOP_SESSION=ubuntu
GTK_MODULES=gail:atk-bridge
DBUS_STARTER_BUS_TYPE=session
PWD=/home/vipul/dtl/dtlassign2/assign2
LOGNAME=vipul
XDG_SESSION_DESKTOP=ubuntu
XDG_SESSION_TYPE=wayland
SYSTEMD_EXEC_PID=1144
XAUTHORITY=/run/user/1000/.mutter-Xwaylandauth.P38MZ1
HOME=/home/vipul
USERNAME=vipul
IM_CONFIG_PHASE=1
LANG=en_IN
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=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:*.lz4=01;31:*.lzh=01;31:*.lzma=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:*.lz=01;31:*.lzo=01;31
:*.xz=01;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:*.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:*.jpg=01;35:*.jpeg=01;35:*.mjpg=01;35:*.mjpeg=01;35:*.gif=01;35:*.bmp=01;35:*.pbm=01;35:*.pgm=0
1;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:*.w
ebm=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:
XDG_CURRENT_DESKTOP=ubuntu:GNOME
VTE_VERSION=6800
WAYLAND_DISPLAY=wayland-0
GNOME_TERMINAL_SCREEN=/org/gnome/Terminal/screen/73d5fcb9_92a3_40c7_a876_0914423a538c
GNOME_SETUP_DISPLAY=1
LESSCLOSE=/usr/bin/lesspipe %s %s
XDG_SESSION_CLASS=user
TERM=xterm-256color
LESSOPEN=| /usr/bin/lesspipe %s
USER=vipul
GNOME_TERMINAL_SERVICE=:1.121
DISPLAY=:0
SHLVL=1
QT_IM_MODULE=ibus
DBUS_STARTER_ADDRESS=unix:path=/run/user/1000/bus,guid=db24ee70b66a4c0bf3c9694f63dfb44d
XDG_RUNTIME_DIR=/run/user/1000
XDG_DATA_DIRS=/usr/share/ubuntu:/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:/snap/bin
GDMSESSION=ubuntu
DBUS_SESSION_BUS_ADDRESS=unix:path=/run/user/1000/bus,guid=db24ee70b66a4c0bf3c9694f63dfb44d
_=/usr/bin/env
```

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ cat /etc/environment
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ cat /etc/profile
# /etc/profile: system-wide .profile file for the Bourne shell (sh(1))
# and Bourne compatible shells (bash(1), ksh(1), ash(1), ...).

if [ "${PS1-}" ]; then
  if [ "${BASH-}" ] && [ "$BASH" != "/bin/sh" ]; then
    # The file bash.bashrc already sets the default PS1.
    # PS1='\h:\w\$ '
    if [ -f /etc/bash.bashrc ]; then
      . /etc/bash.bashrc
    fi
  else
    if [ "$(id -u)" -eq 0 ]; then
      PS1='# '
    else
      PS1='$ '
    fi
  fi
fi

if [ -d /etc/profile.d ]; then
  for i in /etc/profile.d/*.sh; do
    if [ -r $i ]; then
      . $i
    fi
  done
  unset i
fi
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ▯
```

Input output redirection

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ~/.bashrc
bash: /home/vipul/.bashrc: Permission denied
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ cmd < x.in
bash: x.in: No such file or directory
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ touch foobar
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls -l foobar
-rw-rw-r-- 1 vipul vipul 0 Feb  6 02:30 foobar
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls foobar barfoo
ls: cannot access 'barfoo': No such file or directory
foobar
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls foobar barfoo > stdout.txt
ls: cannot access 'barfoo': No such file or directory
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls foobar barfoo 2> stdout.txt
foobar
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ls foobar barfoo &> stdoutandstderr.txt
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ cat stdout.txt
ls: cannot access 'barfoo': No such file or directory
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 stdout.txt
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ cat stdout.txt
ls: cannot access 'barfoo': No such file or directory
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ cat stderr.txt
cat: stderr.txt: No such file or directory
```

Functions:

Numeric and String comparison:

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ function status { date; uptime; who | grep $USER; }
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ status
Monday 06 February 2023 02:38:57 AM IST
 02:38:57 up  7:17,  1 user,  load average: 0.41, 0.45, 0.48
vipul    tty2         2023-02-05 19:21 (tty2)
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ my_func() {echo "Hello I am function"; echo "Bye!"; }
bash: syntax error near unexpected token `{echo'
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ my_func() { echo "Hello I am function"; echo "Bye!"; }
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ my_func
Hello I am function
Bye!
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ bash --debugger
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ declare -F my_func
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ declare -f my_func
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ unset my_func
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ my_func
my_func: command not found
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ a=4
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ b=6
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ [ $a -lt $b ]
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $?
0
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ [ $a -gt $b ]
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $?
1
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ [ "appels" = "oranges" ]
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $?
1
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ str1="appels"
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ str2="oranges"
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ [ $str1 = $str2 ]
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $?
1
```

Conditional statements:

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ nano file4.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ chmod 755 file4.sh
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ ./file4.sh
NO
```

```
  GNU nano 6.2                                                          file4.sh *
#! /bin/bash

a=19
if ((a==30))
then echo YES;
else
echo NO;
fi
```

Arithmetic Expression:

```
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $((24+4))
28
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $((24-4))
20
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $((14*4))
56
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $((44*4))
176
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $((44/4))
11
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ m=25; n=4
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $(( $m + $n ))
29
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ expr 8 + 6
14
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ expr 8 - 6
2
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ expr 78 / 6
13
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ let x=6+55
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$ echo $x
61
vipul@vipul-HP-Laptop-15s-du1xxx:~/dtl/dtlassign2/assign2$
```