DTL – Assignment : Bash Scripting

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Batch – S1

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.

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~$ mkdir dtlAssign2
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~$ cd dtlAssign2
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ echo 'echo Hello world!'>hello_world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ chmod 755 hello_world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ ls
hello_world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ bash hello_world.sh
Hello world!
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ cat <<ALLDONE> hello_world_multiline.sh
> echo Good evening.
> echo I am Tejas Mulange.
> echo This is assignment of Shell Scripting.
> ALLDONE
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ chmod 755 hello_world_multiline.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ ls
hello_world_multiline.sh  hello_world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ bash hello_world_multiline.sh
Good evening.
I am Tejas Mulange.
This is assignment of Shell Scripting.
```

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

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ mkdir DTL
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ cd DTL
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/Dtejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ touch hello-world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2$ nano hello-world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/Dtejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod +x hello-world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./hello-world.sh
I am excited to perform assignment
```

```
  GNU nano 6.2                                    hello-world.sh
# !/bin/bash -xv

# This is assignment of shell scripting.

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

special parameters:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano file1.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/Dtejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 file1.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls
file1.sh  hello-world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ bash file1.sh {A..Z}
T E J A S
```

```
  GNU nano 6.2                                    file1.sh
# ! /bin/bash -xv

echo ${20} ${5} ${10} ${1} ${19}
```

Exploring all special parameters:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano file2.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 file2.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls
file1.sh  file2.sh  hello-world.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ 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

11130 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 Represents exit status of the last executed foreground command
```

```
  GNU nano 6.2                                        file2.sh
#! /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 $? Represents exit status of the last executed foreground command
echo
```

Bracket Expansion:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo a{b,c,d}e
abe ace ade
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ 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
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ mkdir z{1..10}
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls
file1.sh  file2.sh  hello-world.sh  z1  z10  z2  z3  z4  z5  z6  z7  z8  z9
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $BASH
/usr/bin/bash
```

Using variables:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano variable.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 variable.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./variable.sh
My name is Tejas Mulange.
```

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

name="Tejas Mulange"
echo My name is ${name}.
```

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano bestfriends.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 bestfriends.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./bestfriends.sh
My best friends are Shubham, Rana and Sanchit.
```

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

friend1=Shubham
friend2=Rana
friend3=Sanchit

echo My best friends are ${friend1}, ${friend2} and ${friend3}.
```

Arithmetic Expansion:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano arithmetic.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 arithmetic.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./arithmetic.sh
x=35 and y=25
x+y = 60
60
60

61

-1

2
```

command Substitution:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ file arithmetic.sh
arithmetic.sh: Bourne-Again shell script, ASCII text executable
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

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

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

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

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano greetings.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 greetings.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./greetings.sh
Hello, Welcome ! Today is 2023-02-07
Your bash shell version is: 5.1.16(1)-release.!
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ x=23
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ y=35
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $x
23
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $y
35
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $[$x + $y]
58
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

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 the backup are:"
ls -l $output
```

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano file3.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 file3.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./file3.sh
tar: Removing leading `/' from member names
/home/tejasmulange64/
/home/tejasmulange64/dsa.py/
/home/tejasmulange64/dsa.py/a1.c
/home/tejasmulange64/dsa.py/a2.py
/home/tejasmulange64/dsa.py/Q1.c
/home/tejasmulange64/index.html
/home/tejasmulange64/Q5.c
/home/tejasmulange64/Tejas_Mulange_112103090_Assignment7.tar.xz
/home/tejasmulange64/.swp
/home/tejasmulange64/Q6.c
/home/tejasmulange64/LINUX_COMMANDS/
/home/tejasmulange64/LINUX_COMMANDS/filemerge.txt
/home/tejasmulange64/LINUX_COMMANDS/file1
/home/tejasmulange64/LINUX_COMMANDS/a.py
/home/tejasmulange64/LINUX_COMMANDS/a1.zip
/home/tejasmulange64/LINUX_COMMANDS/file3.txt
/home/tejasmulange64/LINUX_COMMANDS/file4.txt
/home/tejasmulange64/LINUX_COMMANDS/file2.txt
```

```
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/87/{71a16338-0ab8-494f-962d-88
815a948b57}.final
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/106/
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/106/{b3a9a82c-254b-42ca-b159-1
aaf0825806a}.final
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/157/
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/157/{17312fab-dca4-461d-a421-5
d72d2480f9d}.final
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/153/
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/153/{1e20eb7b-2901-4041-810c-6
c1f68c3c899}.final
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/83/
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/83/{544cc57d-ab38-4ac6-ac3e-91
66d7c50353}.final
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/198/
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/morgue/198/{cdf6fc93-cb2b-455f-8f83-9
1d2d31f80c6}.final
/home/tejasmulange64/snap/firefox/common/.mozilla/firefox/5vs287x2.default/storage/default/https+++www.youtube.com/cache/caches.sqlite
^Z
[1]+  Stopped                 ./file3.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

Environment:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ env
SHELL=/bin/bash
SESSION_MANAGER=local/tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:@/tmp/.ICE-unix/1669,unix/tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:/tmp/.IC
E-unix/1669
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
PWD=/home/tejasmulange64/dtlAssign2/DTL
LOGNAME=tejasmulange64
XDG_SESSION_DESKTOP=ubuntu
XDG_SESSION_TYPE=wayland
SYSTEMD_EXEC_PID=1699
XAUTHORITY=/run/user/1000/.mutter-Xwaylandauth.YKFB01
HOME=/home/tejasmulange64
USERNAME=tejasmulange64
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=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:
XDG_CURRENT_DESKTOP=ubuntu:GNOME
VTE_VERSION=6800
WAYLAND_DISPLAY=wayland-0
```

```
GNOME_TERMINAL_SCREEN=/org/gnome/Terminal/screen/6c4f859d_afed_4590_802a_1346273f08ae
GNOME_SETUP_DISPLAY=:1
LESSCLOSE=/usr/bin/lesspipe %s %s
XDG_SESSION_CLASS=user
TERM=xterm-256color
LESSOPEN=| /usr/bin/lesspipe %s
USER=tejasmulange64
GNOME_TERMINAL_SERVICE=:1.133
DISPLAY=:0
SHLVL=1
QT_IM_MODULE=ibus
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
_=/usr/bin/env
OLDPWD=/home/tejasmulange64/dtlAssign2
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ cat /etc/environment
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin"
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ 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
      . $i
    fi
  done
  unset i
fi
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

Input Output Redirection:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ~/.bashrc
bash: /home/tejasmulange64/.bashrc: Permission denied
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ cmd < x.in
bash: x.in: No such file or directory
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ touch foobar
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls -l foobar
-rw-rw-r-- 1 tejasmulange64 tejasmulange64 0 Feb  7 20:58 foobar
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls foobar barfoo
ls: cannot access 'barfoo': No such file or directory
foobar
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls foobar barfoo > stdout.txt
ls: cannot access 'barfoo': No such file or directory
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls foobar barfoo 2> stdout.txt
foobar
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ls foobar barfoo &> stdoutandstderr.txt
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ cat stdout.txt
ls: cannot access 'barfoo': No such file or directory
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 stdout.txt
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ cat stdout.txt
ls: cannot access 'barfoo': No such file or directory
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ cat stderr.txt
cat: stderr.txt: No such file or directory
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

Functions:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ function status { date; uptime; who | grep $USER; }
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ status
Tuesday 07 February 2023 09:08:33 PM IST
 21:08:33 up  3:57,  1 user,  load average: 0.17, 0.11, 0.12
tejasmulange64 tty2         2023-02-07 22:42 (tty2)
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ my_func() { echo "Hello I am function"; echo "Bye!"; }
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ my_func
Hello I am function
Bye!
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ bash --debugger
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ declare -F my_func
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ declare -f my_func
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ unset my_func
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ my_func
my_func: command not found
```

Numeric and String operation:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ a=6
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ b=8
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ [ $a -lt $b ]
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $?
0
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ [ $a -gt $b ]
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $?
1
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ [ "apples" = "oranges" ]
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $?
1
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ str1="apples"
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ str2="oranges"
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ [ $str1 = $str2 ]
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $?
```

Conditional Statement:

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

a=15
if ((a==25))
then echo YES;
else
echo NO;
fi
```

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ nano file4.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ chmod 755 file4.sh
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ ./file4.sh
NO
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$
```

Arithmetic Expression:

```
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $(( 24+16))
40
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $(( 50-35))
15
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $(( 12*5 ))
60
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $(( 500/20))
25
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ x=25; y=5
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $(( $x * $y ))
125
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ expr 24+6
24+6
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ expr 24 + 6
30
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ expr 24 - 6
18
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ expr 24 / 6
4
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ let a=45+15
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ echo $a
60
tejasmulange64@tejasmulange64-Vivobook-ASUSLaptop-X3400PH-K3400PH:~/dtlAssign2/DTL$ expr
```