

Lab2

Ebrahim Mostafa

G1

1. Create a script that asks for user name then send a greeting to him.

```
benzema@Benzema:~$ #!/bin/bash
echo "Enter your name:"
read name
echo "Hello, $name!"
Enter your name:
Ebrahim
Hello, 'Ebrahim!
benzema@Benzema:~$
```

2. Create a script called s1 that calls another script s2 where:
 - a. In s1 there is a variable called x, it's value 5
 - b. Try to print the value of x in s2 by two different ways.

```
GNU nano 7.2
#!/bin/bash

x=5

echo "In s1: x = $x"

export x
./s2.sh

./s2.sh $x
```

```
GNU nano 7.2
#!/bin/bash

echo "Inside s2"

echo "Using export: x = $x"

echo "Using argument: x = $1"
```

```
benzema@Benzema:~$ chmod +x s1.sh
benzema@Benzema:~$ chmod +x s2.sh
benzema@Benzema:~$ ./s1.sh
In s1: x = 5
Inside s2
Using export: x = 5
Using argument: x =
Inside s2
Using export: x = 5
Using argument: x = 5
benzema@Benzema:~$
```

3. Create a script called mycp where:
- It copies a file to another
 - It copies multiple files to a directory.

```
GNU nano 7.2 mycp.sh
#!/bin/bash

if [ $# -lt 2 ]; then
    echo "Usage:"
    echo "  ./mycp.sh source_file destination_file"
    echo "  ./mycp.sh file1 file2 ... directory"
    exit 1
fi

if [ $# -eq 2 ]; then
    cp "$1" "$2"
    echo "Copied $1 to $2"
else
    dest="${@: -1}"

    if [ ! -d "$dest" ]; then
        echo "Error: Last argument must be a directory."
        exit 1
    fi

    for ((i=1; i<${#}; i++)); do
        cp "${!i}" "$dest"
        echo "Copied ${!i} to $dest"
    done
fi
```

```
benzema@Benzema:~$ touch file1.txt file2.txt
mkdir dir
benzema@Benzema:~$ ./mycp.sh file1.txt file2.txt
Copied file1.txt to file2.txt
benzema@Benzema:~$ ./mycp.sh file1.txt file2.txt dir/
Copied file1.txt to dir/
Copied file2.txt to dir/
benzema@Benzema:~$
```

4. Create a script called mycd where:
- It changed directory to the user home directory, if it is called without arguments.
 - Otherwise, it change directory to the given directory.

```

GNU nano 7.2                                mycd.sh
#!/bin/bash

if [ $# -eq 0 ]; then
    cd "$HOME" || exit
else
    cd "$1" || { echo "Error: Directory does not exist"; exit 1; }
fi

pwd

```

```

benzema@Benzema:~$ nano mycd.sh
benzema@Benzema:~$ chmod +x mycd.sh
benzema@Benzema:~$ ./mycd.sh
/home/benzema
benzema@Benzema:~$ ./mycd.sh /tmp
/tmp
benzema@Benzema:~$ ./mycd.sh /tmpeded
./mycd.sh: line 6: cd: /tmpeded: No such file or directory
Error: Directory does not exist
benzema@Benzema:~$ 

```

5. Create a script called myls where:

- a. It lists the current directory, if it is called without arguments.
- b. Otherwise, it lists the given directory.

```

GNU nano 7.2                                myls.sh *
#!/bin/bash

if [ $# -eq 0 ]; then
    ls
else
    if [ -d "$1" ]; then
        ls "$1"
    else
        echo "Error: Directory does not exist"
        exit 1
    fi
fi

```

```

benzema@Benzema:~$ nano myls.sh
benzema@Benzema:~$ chmod +x myls.sh
benzema@Benzema:~$ ./mysls.sh
Desktop    greet.sh          mycp.sh          package.json      s1.sh
dir        mongodb-compass_1.43.4_amd64.deb myinfo           package-lock.json s2
Documents  Music            myls             Pictures          s2.sh
Downloads  mycd            myls.sh          Postman           snap
file1.txt  mycd.sh         mytest           Public            Templates
file2.txt  mycp            node_modules     s1               Videos

benzema@Benzema:~$ ./mysls.sh /tmp
com.google.Chrome.scoped_dir.1XBdPX
com.google.Chrome.scoped_dir.utqvEN
com.google.Chrome.scoped_dir.VYenU8
com.google.Chrome.S0uoLz
gdm3-config-err-rNqoga
lu12725acd1m.tmp

```

6. Enhance the above script to support the following options individually:

- a. `-l`: list in long format
- b. `-a`: list all entries including the hiding files.
- c. `-d`: if an argument is a directory, list only its name
- d. `-i`: print inode number
- e. `-R`: recursively list subdirectories

```

GNU nano 7.2                               myls.sh
#!/bin/bash

# Default target is current directory
target="."
options=""

while [[ $# -gt 0 ]]; do
    case "$1" in
        -l|-a|-d|-i|-R)
            options="$options $1"
            shift
            ;;
        *)
            target="$1"
            shift
            ;;
    esac
done

if [ ! -e "$target" ]; then
    echo "Error: Directory or file does not exist"
    exit 1
fi

if [[ "$options" == *"-d"* ]]; then
    echo "$target"
else
    ls $options "$target"
fi

```

```
benzema@Benzema:~$ ./mys.sh -l -a /tmp
total 888
drwxrwxrwt 28 root    root    4096 Feb 23 15:55 .
drwxr-xr-x 23 root    root    4096 Nov 16 20:07 ..
drwx----- 2 benzema benzema 4096 Feb 23 14:48 com.google.Chrome
drwx----- 2 benzema benzema 4096 Feb 23 14:54 com.google.Chrome
```

```
benzema@Benzema:~$ ./mys.sh -i
7735524 Desktop          7798705 mycd.sh          7735530 Pictures
8428130 dir              7798615 mycp            9864763 Postman
7735528 Documents        7798668 mycp.sh          7735527 Public
7735525 Downloads        7798664 myinfo          7778557 s1
7795705 file1.txt         7798650 myls              7781201 s1.sh
7798648 file2.txt        7798498 myls.sh          7798695 s2
```

```
7744494 mongodb-compass_1.43.4_amd64.deb 8425164 node_modules          7735291 snap
7735529 Music                          7805979 package.json          7735526 Templates
7798644 mycd                        7812364 package-lock.json     7735531 Videos
```

```
benzema@Benzema:~$ ./mys.sh -d /tmp
/tmp
benzema@Benzema:~$
```

```
benzema@Benzema:~$ ./mys.sh -a
.                .gnupg                package.json
..              .gphoto                package-lock.json
.angular-config.json greet.sh          Pictures
.antigravity    .java                .pki
.bash_history   .lessht             Postman
.bash_logout    .local              .profile
.bashrc         .mongodb            Public
.cache         mongodb-compass_1.43.4_amd64.deb s1
```

```
benzema@Benzema:~$ ./mys.sh -l
total 107320
drwxr-xr-x 3 benzema benzema 4096 Feb 20 13:06 Desktop
drwxrwxr-x 2 benzema benzema 4096 Feb 23 15:48 dir
drwxr-xr-x 2 benzema benzema 4096 Nov 16 15:00 Documents
drwxr-xr-x 8 benzema benzema 4096 Feb 23 13:30 Downloads
-rw-rw-r-- 1 benzema benzema 0 Feb 23 15:48 file1.txt
-rw-rw-r-- 1 benzema benzema 0 Feb 23 15:48 file2.txt
-rwxrwxr-x 1 benzema benzema 67 Feb 23 14:42 greet.sh
-rw-rw-r-- 1 benzema benzema 109766938 May 8 2025 mongodb-compass_1.43.4_amd64.deb
```

```
benzema@Benzema:~$ ./mys.sh /tmp
com.google.Chrome.scoped_dir.1XBdPX
com.google.Chrome.scoped_dir.utqvEN
com.google.Chrome.scoped_dir.VYenU8
com.google.Chrome.S0uoLz
gdm3-config-err-rNqoga
lu12725acdln.tmp
mongodb-27017.sock
node-compile-cache
OSL_PIPE_1000_SingleOfficeIPC_1fc53e45fc5e8929e49a823db4f3741
```



```

benzema@Benzema:~$ ./mysls.sh
Desktop      greet.sh      mycp.sh      package.json  s1.sh
dir          mongodb-compass_1.43.4_amd64.deb  myinfo      package-lock.json  s2
Documents    Music         myls         Pictures      s2.sh
Downloads    mycd          myls.sh     Postman       snap
file1.txt    mycd.sh       mytest      Public        Templates
file2.txt    mycp          node_modules s1            Videos
benzema@Benzema:~$ 

```

Bonus: enhance the above script to support the following Synopsis:

```

mysls -option1 -option2
mysls -option2 -option1
mysls -option1option2
mysls -option2option1

```

```

GNU nano 7.2                               mysls.sh *
#!/bin/bash

target="."
options=""

while [[ $# -gt 0 ]]; do
    arg="$1"
    if [[ "$arg" == --* ]]; then
        # Handle double dash incorrectly formatted like --l etc
        echo "Invalid option: $arg"
        exit 1
    elif [[ "$arg" == -* ]]; then
        # Split combined options like -la into -l -a
        opt="${arg:1}"
        for (( i=0; i<${#opt}; i++ )); do
            ch="${opt:$i:1}"
            case "$ch" in
                l|a|d|i|R)
                    options="$options -$ch"
                    ;;
                *)
                    echo "Invalid option: -$ch"
                    exit 1
                    ;;
            esac
        done
        shift
    else
        target="$arg"
        shift
    fi
done

if [ ! -e "$target" ]; then
    echo "Error: Directory or file does not exist"
    exit 1
fi

if [[ "$options" == *"-d"* ]]; then
    echo "$target"
else
    ls $options "$target"
fi

```

```

benzema@Benzema:~$ nano myls.sh
benzema@Benzema:~$ ./mysls.sh -l -a
./mysls.sh -a -l
total 107484
drwxr-x--- 32 benzema benzema      4096 Feb 23 16:09 .
drwxr-xr-x  3 root    root         4096 Nov 16 14:59 ..
-rw-rw-r--  1 benzema benzema       192 Jan 31 12:13 .angular-config.json
drwxrwxr-x  3 benzema benzema      4096 Jan 17 16:12 .antigravity
-rw-----  1 benzema benzema     59187 Feb 23 14:06 .bash_history

```

```

benzema@Benzema:~$ ./mysls.sh -la
./mysls.sh -al
total 107484
drwxr-x--- 32 benzema benzema      4096 Feb 23 16:09 .
drwxr-xr-x  3 root    root         4096 Nov 16 14:59 ..
-rw-rw-r--  1 benzema benzema       192 Jan 31 12:13 .angular-config.json
drwxrwxr-x  3 benzema benzema      4096 Jan 17 16:12 .antigravity
-rw-----  1 benzema benzema     59187 Feb 23 14:06 .bash_history
-rw-r--r--  1 benzema benzema       220 Mar 31 2024 .bash_logout

```

```

benzema@Benzema:~$ ./mysls.sh -la /tmp
./mysls.sh -Rl /var/log
total 888
drwxrwxrwt 28 root    root         4096 Feb 23 16:11 .
drwxr-xr-x 23 root    root         4096 Nov 16 20:07 ..
drwx----- 2 benzema benzema      4096 Feb 23 14:48 com.google.Chrome.scoped_dir.1XBdPX
drwx----- 2 benzema benzema      4096 Feb 23 14:54 com.google.Chrome.scoped_dir.utqvEN
drwx----- 2 benzema benzema      4096 Feb 23 13:34 com.google.Chrome.scoped_dir.VYenU8
drwx----- 2 benzema benzema      4096 Feb 23 09:04 com.google.Chrome.S0uoLz

```

7. Create a script called mytest where:

- a. It check the type of the given argument (file/directory)
- b. It check the permissions of the given argument (read/write/execute)

```

GNU nano 7.2                                     mytest.sh
#!/bin/bash

if [ $# -ne 1 ]; then
    echo "Usage: ./mytest.sh <file_or_directory>"
    exit 1
fi

target="$1"

if [ -d "$target" ]; then
    echo "$target is a directory"
elif [ -f "$target" ]; then
    echo "$target is a file"
else
    echo "$target does not exist"
    exit 1
fi

[ -r "$target" ] && echo "Readable" || echo "Not readable"
[ -w "$target" ] && echo "Writable" || echo "Not writable"
[ -x "$target" ] && echo "Executable" || echo "Not executable"

```

```

benzema@Benzema:~$ nano mytest.sh
benzema@Benzema:~$ chmod +x mytest.sh
benzema@Benzema:~$ ./mytest.sh file1.txt
file1.txt is a file
Readable
Writable
Not executable
benzema@Benzema:~$ ./mytest.sh /tmp
/tmp is a directory
Readable
Writable
Executable
benzema@Benzema:~$ ./mytest.sh nofile
nofile does not exist
benzema@Benzema:~$

```

8. Create a script called myinfo where:

- a. It asks the user about his/her logname.
- b. It print full info about files and directories in his/her home directory
- c. Copy his/her files and directories as much as you can in /tmp directory.
- d. Gets his current processes status.


```
#!/bin/bash

read -p "Enter your logname: " logname

home_dir=$(eval echo "~$logname")

if [ ! -d "$home_dir" ]; then
    echo "Error: Home directory for $logname does not exist"
    exit 1
fi

echo "Full info about files and directories in $home_dir:"
ls -la "$home_dir"

echo
echo "Copying files and directories from $home_dir to /tmp/$logname..."
mkdir -p "/tmp/$logname"
cp -r "$home_dir"/* "/tmp/$logname" 2>/dev/null

echo
echo "Current process status for $logname:"
ps -u "$logname"
```

benzema@Benzema:~\$./myinfo.sh

Enter your logname: benzema

Full info about files and directories in /home/benzema:

total 107492

drwxr-x---	32	benzema	benzema	4096	Feb 23 16:41	.
drwxr-xr-x	3	root	root	4096	Nov 16 14:59	..
-rw-rw-r--	1	benzema	benzema	192	Jan 31 12:13	.angular-config.json
drwxrwxr-x	3	benzema	benzema	4096	Jan 17 16:12	.antigravity
-rw-----	1	benzema	benzema	59187	Feb 23 14:06	.bash_history
-rw-r--r--	1	benzema	benzema	220	Mar 31 2024	.bash_logout
-rw-r--r--	1	benzema	benzema	4036	Jan 31 12:13	.bashrc
drwx-----	29	benzema	benzema	4096	Feb 20 15:04	.cache
drwxrwxr-x	4	benzema	benzema	4096	Feb 3 02:15	.codex
drwx-----	31	benzema	benzema	4096	Feb 22 12:38	.config
drwxr-xr-x	3	benzema	benzema	4096	Feb 20 13:06	Desktop
drwxrwxr-x	2	benzema	benzema	4096	Feb 23 15:48	dir
drwxr-xr-x	2	benzema	benzema	4096	Nov 16 15:00	Documents
drwxrwxr-x	3	benzema	benzema	4096	Nov 16 19:37	.dotnet
drwxr-xr-x	8	benzema	benzema	4096	Feb 23 13:30	Downloads