

Assignment 1-Run 40 Linux Commands

```
rm -rf directory
rm -rf directory
pwd
mkdir linuxAssignment
ls
cd linuxAssignment
touch file1.txt
touch file2.txt
cat file1.txt
rm file1.txt
cp file2.txt file3.txt
head file2.txt
tail file3.txt
tac file2.txt
more file2.txt
less file3.txt
id
useradd AprameyaR
passwd AprameyaR
ls file2.txt|uniq
wc file3.txt
od -b file2.txt
sort file2.txt
gzip file2.txt file3.txt
gunzip file2.txt file3.txt
locate file2.txt
date
cal
sleep 5
time
zcat
zcat file2.txt
df
ip
ip addr
ping google.com
host javatpoint.com
who
whoami
com file1.txt file2.txt
comm file1.txt file2.txt
comm file2.txt file3.txt
cat file2.txt|tr 'linux' 'LINUX'
clear
w
nano file2.txt
mv file2.txt ../linuxAssignment
echo 'Hello World'
echo "User: $(whoami), Hostname: $(hostname)" && history | tail -n 50
history 50
echo "User: $(whoami), Hostname: $(hostname)" && history | tail -50\n
echo "User: $(whoami), Hostname: $(hostname)" && history 50\n
aprameyar@Aprameyas-MacBook-Air linuxAssignment %
```

Directory commands

pwd - display the location of the current working directory

mkdir - create new directory

rmdir - delete directory

ls - display list of contents

cd - change directory

File commands

touch - create file

cat > filename - write into file

cat - display contents of file

cp - copy file contents

mv - move file

User commands

su - administrative access to another user

id - display user ID

useradd - add or remove user

passwd - create or change password

groupadd - create a user group

Filter commands

comm - compare 2 files

wc - count words

cut - select specific column

gzip - compress file

gunzip - decompress file

Utility commands

cal - current months calendar

date - display date, time

Assignment 1:Part 2

1) Swap two numbers without using third variable

Code:

```
#!/bin/sh
echo "Enter your first number:"
read a
echo "Enter your second number:"
read b
b=$((a+b))
a=$((b-a))
b=$((b-a))
echo "The swapped numbers are:"
echo $a
echo $b
```

Output:

```
[(base) aprameyar@Aprameyas-MacBook-Air Assignment2 % nano swap.sh
[(base) aprameyar@Aprameyas-MacBook-Air Assignment2 % ./swap.sh
zsh: permission denied: ./swap.sh
[(base) aprameyar@Aprameyas-MacBook-Air Assignment2 % chmod +x swap.sh
[(base) aprameyar@Aprameyas-MacBook-Air Assignment2 % ./swap.sh
Enter your first number:
10
Enter your second number:
77
The swapped numbers are:
77
10
```

2)Accept one integer argument and print its multiplication table

Code:

```
#!/bin/bash
echo "Enter a number:"
read n
echo "The multiplication table of $n is:"
for((i=1;i<=10;i++))
do
    echo -n "$n * $i ="`expr $n \* $i`"
    echo " "
done
```

Output:

```
(base) aprameyar@Aprameyas-MacBook-Air Assignment2 % nano multiplication.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment2 % ./multiplication.sh
Enter a number:
10
The multiplication table of 10 is:
10 * 1 =10
10 * 2 =20
10 * 3 =30
10 * 4 =40
10 * 5 =50
10 * 6 =60
10 * 7 =70
10 * 8 =80
10 * 9 =90
10 * 10 =100
```

Assignment 2-Running a simple C program on linux

We were basically given the steps to be followed in well documented format. Followed the steps for successful completion of project.

Code:

```
#include <stdio.h>
int main()
{
printf("Aprameya R 12345\n");
return 0;
}
```

Output:

```
(base) aprameyar@Aprameyas-MacBook-Air lab0 % nano hello.c
[(base) aprameyar@Aprameyas-MacBook-Air lab0 % gcc hello.c
[(base) aprameyar@Aprameyas-MacBook-Air lab0 % ls
a.out  hello.c
(base) aprameyar@Aprameyas-MacBook-Air lab0 % gcc hello.c -0 hello.o
clang: error: unknown argument: '-0'
clang: error: no such file or directory: 'hello.o'
(base) aprameyar@Aprameyas-MacBook-Air lab0 % gcc hello.c -o hello.o
[(base) aprameyar@Aprameyas-MacBook-Air lab0 % ls
a.out  hello.c hello.o
(base) aprameyar@Aprameyas-MacBook-Air lab0 % rm a.out
[(base) aprameyar@Aprameyas-MacBook-Air lab0 % ./hello.o
Aprameya R 12345
```

Assignment 3

1)Script to Print All .txt and .c Files

Code:


```
#!/bin/bash

txt_files=(*.txt)
c_files=(*.c)

if [[ -e "${txt_files[0]}" || -e "${c_files[0]}" ]]; then
    echo "Existing .txt and .c files in the directory:"
    ls *.txt *.c 2>/dev/null
else
    echo "No .txt or .c files found. Creating dummy files..."

    touch file1.txt file2.txt file1.c file2.c

    echo "Created the following files:"
    ls *.txt *.c
fi
```

Output:

```
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % nano allCtext.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % chmod 100 allCtext.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % ./allCtext.sh
No .txt or .c files found. Creating dummy files...
Created the following files:
file1.c          file1.txt        file2.c          file2.txt
```

2)Script to Add Two Numbers

Code:

```
echo "Enter your first number:"
read a
echo "Enter your second number:"
read b
echo "The sum between 2 numbers is:"
c=$((a+b))
echo $c
```

Output:

```
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % nano addition.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % ./addition.sh
zsh: permission denied: ./addition.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % chmod 400 addition.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % ./addition.sh
zsh: permission denied: ./addition.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % chmod 100 addition.sh
(base) aprameyar@Aprameyas-MacBook-Air Assignment3 % ./addition.sh
Enter your first number:
10
Enter your second number:
9
The sum between 2 numbers is:
19
```

3) Installing Docker Using a Shell Script

Code:

Found the following code on docker official website documentation

```
#!/bin/bash
echo "Checking if Homebrew is installed..."
if ! command -v brew &> /dev/null; then
    echo "Homebrew is not installed. Installing Homebrew..."
    /bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
else
    echo "Homebrew is already installed."
fi
echo "Updating Homebrew..."
brew update
echo "Installing Docker..."
brew install --cask docker
echo "Starting Docker..."
open /Applications/Docker.app
echo "Waiting for Docker to start..."
sleep 10
echo "Checking Docker version..."
docker --version
echo "Running a test container (hello-world)..."
docker run hello-world
```

output:

```
Checking if Homebrew is installed...
Homebrew is already installed.
Updating Homebrew...
==> Updating Homebrew...
Updated 2 taps (homebrew/core and homebrew/cask).
==> New Formulae
redocly-cli          sd13          umka-lang
==> New Casks
dockfix              linearmouse@beta  valhalla-freq-echo
flashspace           muteme           valhalla-space-modulator
Installing Docker...
==> Downloading https://raw.githubusercontent.com/Homebrew/homebrew-cask/20167b42eeae59
##### 100.0%
==> Downloading https://desktop.docker.com/mac/main/arm64/179585/Docker.dmg
##### 100.0%
==> Installing Cask docker
==> Moving App 'Docker.app' to '/Applications/Docker.app'
==> Linking Binary 'docker-compose.zsh-completion' to '/opt/homebrew/share/zsh/site-fun
==> Linking Binary 'docker-compose.fish-completion' to '/opt/homebrew/share/fish/vendor
==> Linking Binary 'docker' to '/usr/local/bin/docker'
Password:
==> Linking Binary 'docker-credential-desktop' to '/usr/local/bin/docker-credential-des
==> Linking Binary 'docker-credential-ecr-login' to '/usr/local/bin/docker-credential-e
==> Linking Binary 'docker-credential-osxkeychain' to '/usr/local/bin/docker-credential
==> Linking Binary 'hub-tool' to '/usr/local/bin/hub-tool'
==> Linking Binary 'docker-compose' to '/usr/local/cli-plugins/docker-compose'
==> Linking Binary 'docker.bash-completion' to '/opt/homebrew/etc/bash_completion.d/doc
==> Linking Binary 'docker.zsh-completion' to '/opt/homebrew/share/zsh/site-functions/_
==> Linking Binary 'docker.fish-completion' to '/opt/homebrew/share/fish/vendor_complet
==> Linking Binary 'kubect1' to '/usr/local/bin/kubect1.docker'
==> Linking Binary 'docker-compose.bash-completion' to '/opt/homebrew/etc/bash_completi
🐳 docker was successfully installed!
Starting Docker...
Waiting for Docker to start...
Checking Docker version...
Docker version 27.4.0, build bde2b89
Running a test container (hello-world)...
docker: Cannot connect to the Docker daemon at unix:///var/run/docker.sock. Is the docker daemon running?.
See 'docker run --help'.
```

4)

Code:

```
#!/bin/bash
echo "Checking if Homebrew is installed..."
if ! command -v brew &> /dev/null; then
    echo "Home brew is not installed. Installing Homebrew..."
    /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
else
    echo "Homebrew is already installed."
fi
echo "Updating Homebrew..."
brew update
echo "Installing MySQL..."
brew install mysql
echo "Starting MySQL service..."
brew services start mysql
echo "Checking MySQL version..."
mysql --version
echo "MySQL installation and setup completed!"
```

Output:


```

=> Pouring mysql--9.2.0.arm64_ventura.bottle.tar.gz
=> /opt/homebrew/Cellar/mysql/9.2.0/bin/mysqld --initialize-insecure --user=kahama --basedir=/opt/homebrew/Cellar/mysql/9.2.0 --datadir=/opt/homebrew/var/mysql --tmpdir/tmp
=> Caveats
Upgrading from MySQL <8.4 to MySQL >9.0 requires running MySQL 8.4 first:
- brew services stop mysql
- brew install mysql@8.4
- brew services start mysql@8.4
- brew services stop mysql@8.4
- brew services start mysql

We've installed your MySQL database without a root password. To secure it run:
mysql_secure_installation

MySQL is configured to only allow connections from localhost by default

To connect run:
mysql -u root

To start mysql now and restart at login:
brew services start mysql
Or, if you don't want/need a background service you can just run:
/opt/homebrew/opt/mysql/bin/mysqld_safe --datadir=/opt/homebrew/var/mysql
=> Summary
D /opt/homebrew/Cellar/mysql/9.2.0: 329 files, 296.1MB
=> Running 'brew cleanup mysql'...
Disable this behaviour by setting HOMEBREW_NO_INSTALL_CLEANUP.
Hide these hints with HOMEBREW_NO_ENV_HINTS (see 'man brew').
=> Caveats
=> mysql
Upgrading from MySQL <8.4 to MySQL >9.0 requires running MySQL 8.4 first:
- brew services stop mysql
- brew install mysql@8.4
- brew services start mysql@8.4
- brew services stop mysql@8.4
- brew services start mysql

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To connect run:
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To start mysql now and restart at login:
brew services start mysql
Or, if you don't want/need a background service you can just run:
/opt/homebrew/opt/mysql/bin/mysqld_safe --datadir=/opt/homebrew/var/mysql
Starting MySQL service...
=> Tapping homebrew/services
Cloning into '/opt/homebrew/Library/Taps/homebrew/homebrew-services'...
remote: Enumerating objects: 3967, done.
remote: Counting objects: 100% (481/481), done.
remote: Compressing objects: 100% (152/152), done.
remote: Total 3967 (delta 389), reused 331 (delta 329), pack-reused 3486 (from 3)
Receiving objects: 100% (3967/3967), 1.19 MiB | 913.00 KiB/s, done.
Resolving deltas: 100% (1917/1917), done.
Tapped 2 commands (54 files, 1.4MB).
=> Successfully started 'mysql' (label: homebrew.mxcl.mysql)
Checking MySQL version...
mysql Ver 9.2.0 for macos13.7 on arm64 (Homebrew)
MySQL installation and setup completed!

```