Bash script Task 2

1. Create a bash script to check if a directory is available or not.

>> created a file “dir.bash” in cd /gaya3/scripts
>> Pwd
>>We already changed the permission of file using Chmod 755 dir.bash And ./dir.bash to run the script

```
[root@ip-172-31-46-130 scripts]# vi dir.bash
[root@ip-172-31-46-130 scripts]# ./dir.bash
directory does not exist
[root@ip-172-31-46-130 scripts]# ls
a  admin.bash  apple  b  c  commands.bash  dir.bash  helloworld.bash  input.bash  variables.bash
[root@ip-172-31-46-130 scripts]# pwd
/gaya3/scripts
[root@ip-172-31-46-130 scripts]# vi dir.bash
[root@ip-172-31-46-130 scripts]# ./dir.bash
directory exist
[root@ip-172-31-46-130 scripts]# rm -rf apple
[root@ip-172-31-46-130 scripts]# ./dir.bash
directory does not exist
[root@ip-172-31-46-130 scripts]#
```

2. Create a bash script to **create multiple files**.

>> Created a vi file of create.bash
>> command “Touch Niha, gayu, Loke “ to created multiple files
>> gave permissions by “chmod 755 create.bash”
>> cat create.bash to read the script

```
[root@ip-172-31-46-130 scripts]# vi create.bash
[root@ip-172-31-46-130 scripts]# chmod 755 create.bash
[root@ip-172-31-46-130 scripts]# ./create.bash
[root@ip-172-31-46-130 scripts]# cat create.bash
#!/bin/bash

touch niha gayu loke
[root@ip-172-31-46-130 scripts]# ls
a  admin.bash  b  c  commands.bash  create.bash  dir.bash  gayu  helloworld.bash  input.bash  loke  niha  variables.bash
[root@ip-172-31-46-130 scripts]# ll
total 28
-rw-r--r--. 1 root root   0 Dec  3 09:40 a
-rwxr-xr-x. 1 root root 129 Dec  3 09:58 admin.bash
-rw-r--r--. 1 root root   0 Dec  3 09:40 b
-rw-r--r--. 1 root root   0 Dec  3 09:40 c
-rwxr-xr-x. 1 root root 113 Dec  3 09:39 commands.bash
-rwxr-xr-x. 1 root root  34 Dec  4 08:58 create.bash
-rwxr-xr-x. 1 root root 113 Dec  4 08:50 dir.bash
-rw-r--r--. 1 root root   0 Dec  4 08:58 gayu
-rwxr-xr-x. 1 root root 110 Dec  3 09:33 helloworld.bash
-rwxr-xr-x. 1 root root 180 Dec  3 10:21 input.bash
-rw-r--r--. 1 root root   0 Dec  4 08:58 loke
-rw-r--r--. 1 root root   0 Dec  4 08:58 niha
-rwxr-xr-x. 1 root root 175 Dec  3 10:08 variables.bash
[root@ip-172-31-46-130 scripts]#
```

>> files niha,gayu,loke has been created

3. Create a bash script to take a backup of a directory.

>> created vi backup.bash
>> tar cvf script_backup.tar ./* (Will create a compress backup tar file of present directory)
>> gave permissions “chmod 755 backup.bash”
>> ./backup.bash

```
[root@ip-172-31-46-130 scripts]# vi backup.bash
[root@ip-172-31-46-130 scripts]# chmod 755 backup.bash
[root@ip-172-31-46-130 scripts]# ./backup.bash
tar: Cowardly refusing to create an empty archive
Try 'tar --help' or 'tar --usage' for more information.
Backup completed: scripts_backup.tar
[root@ip-172-31-46-130 scripts]# cat backup.bash
#!/bin/bash

tar cvf scripts_backup.tar

echo "Backup completed: scripts_backup.tar"
[root@ip-172-31-46-130 scripts]# vi backup.bash
[root@ip-172-31-46-130 scripts]# ./backup.bash
tar: Cowardly refusing to create an empty archive
Try 'tar --help' or 'tar --usage' for more information.
 Backup completed: scripts_backup.tar
[root@ip-172-31-46-130 scripts]# vi backup.bash
[root@ip-172-31-46-130 scripts]# ./backup.bash
tar: Cowardly refusing to create an empty archive
Try 'tar --help' or 'tar --usage' for more information.
 Backup completed: scripts_backup.tar ./*
[root@ip-172-31-46-130 scripts]# vi backup.bash
[root@ip-172-31-46-130 scripts]# ./backup.bash
./a
./admin.bash
./b
./backup.bash
./c
./commands.bash
./create.bash
./dir.bash
./gayu
./helloworld.bash
./input.bash
./loke
./niha
./variables.bash
 Backup completed: scripts_backup.tar
[root@ip-172-31-46-130 scripts]# cat backup.bash
#!/bin/bash

tar cvf scripts_backup.tar ./*

echo " Backup completed: scripts_backup.tar "
[root@ip-172-31-46-130 scripts]#
```

4. Create a bash script to install Nginx on an EC2 server.

>> created file “vi nginx.bash”
>> yum install nginx -y
systemctl start nginx
systemctl enable nginx
echo " Nginx installed successfully “
>> gave permissions “chmod 755 nginx.bash”
>> “./nginx.bash”

```
[root@ip-172-31-46-130 scripts]# vi nginx.bash
[root@ip-172-31-46-130 scripts]# chmod 755 nginx.bash
[root@ip-172-31-46-130 scripts]# cat nginx.bash
#!/bin/bash

yum install nginx -y
systemctl start nginx
systemctl enable nginx
echo " Nginx installed successfully "
[root@ip-172-31-46-130 scripts]# ./nginx.bash
Last metadata expiration check: 22:10:40 ago on Wed Dec  3 11:28:50 2025.
Dependencies resolved.
================================================================================
 Package                    Architecture          Version                    R
================================================================================
Installing:
 nginx                      x86_64                1:1.28.0-1.amzn2023.0.2    a
Installing dependencies:
 generic-logos-httpd        noarch                18.0.0-12.amzn2023.0.3     a
 gperftools-libs            x86_64                2.9.1-1.amzn2023.0.3       a
 libunwind                  x86_64                1.4.0-5.amzn2023.0.3       a
 nginx-core                 x86_64                1:1.28.0-1.amzn2023.0.2    a
 nginx-filesystem           noarch                1:1.28.0-1.amzn2023.0.2    a
 nginx-mimetypes            noarch                2.1.49-3.amzn2023.0.3      a

Transaction Summary
================================================================================
Install  7 Packages

Total download size: 1.1 M
Installed size: 3.7 M
Downloading Packages:
(1/7): generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm
(2/7): libunwind-1.4.0-5.amzn2023.0.3.x86_64.rpm
(3/7): gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64.rpm
(4/7): nginx-1.28.0-1.amzn2023.0.2.x86_64.rpm
(5/7): nginx-filesystem-1.28.0-1.amzn2023.0.2.noarch.rpm
(6/7): nginx-core-1.28.0-1.amzn2023.0.2.x86_64.rpm
(7/7): nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch.rpm
--------------------------------------------------------------------------------
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
```

```
Installed:
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch      gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64          libunwind-1.4.0-5
  nginx-core-1:1.28.0-1.amzn2023.0.2.x86_64              nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch      nginx-mimetypes-2

Complete!
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
 Nginx installed successfully
[root@ip-172-31-46-130 scripts]#
```

i-0b4e6681c61b7b999 (Bash scripting)

```
[root@ip-172-31-46-130 scripts]# netstat -tulnp | grep nginx
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN      4479/nginx: master
tcp6       0      0 :::80                   :::*                    LISTEN      4479/nginx: master
[root@ip-172-31-46-130 scripts]# systemctl restart nginx
[root@ip-172-31-46-130 scripts]# systemctl start nginx
[root@ip-172-31-46-130 scripts]# systemctl status nginx
● nginx.service - The nginx HTTP and reverse proxy server
     Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: disabled)
     Active: active (running) since Thu 2025-12-04 09:53:38 UTC; 1min 0s ago
    Process: 4641 ExecStartPre=/usr/bin/rm -f /run/nginx.pid (code=exited, status=0/SUCCESS)
    Process: 4642 ExecStartPre=/usr/sbin/nginx -t (code=exited, status=0/SUCCESS)
    Process: 4643 ExecStart=/usr/sbin/nginx (code=exited, status=0/SUCCESS)
```

5. Create a bash script to install Apache Tomcat on an EC2 server.

>> Wget command for installing tar file of tomcat address link
>>Tar -xvf to extract that tar file
>>Mv for moving the application to opt part
>>Chomd +x for permission and running
>>And /opt/tomcat/bin/startup.sh for staring application to run

```
[root@ip-172-31-46-130 ~]# vi tomcat.bash
[root@ip-172-31-46-130 ~]# vi tomcat.bash
[root@ip-172-31-46-130 ~]# ./tomcat.bash
-bash: ./tomcat.bash: Permission denied
[root@ip-172-31-46-130 ~]# chmod 755 tomcat.bash
[root@ip-172-31-46-130 ~]# ./tomcat.bash
./tomcat.bash: line 3: cd: /root/gaya3/scripts: No such file or directory
--2025-12-04 11:48:20--  https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.112/bin/apache-tomcat-9.0.112.tar.gz
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 13043951 (12M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.112.tar.gz'

apache-tomcat-9.0.112.tar.gz                    100%[=============================================================================================================>]  12.44M  --.-KB/s    in 0.05s

2025-12-04 11:48:20 (234 MB/s) - 'apache-tomcat-9.0.112.tar.gz' saved [13043951/13043951]

apache-tomcat-9.0.112/conf/
apache-tomcat-9.0.112/conf/catalina.policy
apache-tomcat-9.0.112/conf/catalina.properties
apache-tomcat-9.0.112/conf/context.xml
apache-tomcat-9.0.112/conf/jaspic-providers.xml
apache-tomcat-9.0.112/conf/jaspic-providers.xsd
apache-tomcat-9.0.112/conf/logging.properties
apache-tomcat-9.0.112/conf/server.xml
apache-tomcat-9.0.112/conf/tomcat-users.xml
apache-tomcat-9.0.112/conf/tomcat-users.xsd
apache-tomcat-9.0.112/conf/web.xml
apache-tomcat-9.0.112/bin/
apache-tomcat-9.0.112/lib/
apache-tomcat-9.0.112/logs/
apache-tomcat-9.0.112/temp/
apache-tomcat-9.0.112/webapps/
apache-tomcat-9.0.112/webapps/ROOT/
apache-tomcat-9.0.112/webapps/ROOT/WEB-INF/
apache-tomcat-9.0.112/webapps/docs/
apache-tomcat-9.0.112/webapps/docs/META-INF/
apache-tomcat-9.0.112/webapps/docs/WEB-INF/
apache-tomcat-9.0.112/webapps/docs/WEB-INF/jsp/
apache-tomcat-9.0.112/webapps/docs/annotationapi/
apache-tomcat-9.0.112/webapps/docs/api/
apache-tomcat-9.0.112/webapps/docs/appdev/
apache-tomcat-9.0.112/webapps/docs/appdev/sample/
apache-tomcat-9.0.112/webapps/docs/appdev/sample/docs/
```

```
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
[root@ip-172-31-46-130 ~]# cat tomcat.bash
#!/bin/bash

cd /root/gaya3/scripts

wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.112/bin/apache-tomcat-9.0.112.tar.gz

tar xvf apache-tomcat-9.0.112.tar.gz

mv apache-tomcat-9.0.112.tar.gz /opt/tomcat

chmod +x /opt/tomcat/bin/*.sh

/opt/tomcat/bin/startup.sh
[root@ip-172-31-46-130 ~]#
```

6. Create a bash script to check if the nginx service is running, if not running then script should start the service.

```
#!/bin/bash

#checking if nginx is running

if systemctl is-active --quiet nginx
then
        echo "nginx is already running"
else
        echo "nginx is not running"
        echo "starting nginx..."
        sudo systemctl start nginx

        # check again after starting

        if systemctl is-active --quiet nginx
then
        echo "nginx started successfully"
else
        echo "failed to start nginx"
        fi
fi
~
```

```
[root@ip-172-31-46-130 scripts]# vi nginxrunning.bash
[root@ip-172-31-46-130 scripts]# systemctl stop nginx
[root@ip-172-31-46-130 scripts]# chmod 755 nginxrunning.bash
[root@ip-172-31-46-130 scripts]# ./nginxrunning.bash
nginx is not running
starting nginx...
nginx started successfully
[root@ip-172-31-46-130 scripts]# cat nginxrunning.bash
#!/bin/bash

#checking if nginx is running

if systemctl is-active --quiet nginx
then
        echo "nginx is already running"
else
        echo "nginx is not running"
        echo "starting nginx..."
        sudo systemctl start nginx

        # check again after starting

        if systemctl is-active --quiet nginx
then
        echo "nginx started successfully"
else
        echo "failed to start nginx"
        fi
fi
[root@ip-172-31-46-130 scripts]#
```

Nginx started again by script successfully

7. Create a bash script to check if a directory exists, if not then create a directory.

```
#!/bin/bash

#script to check directory exists or not

echo "enter directory name:"
read taskdir

if [ -d "$taskdir" ]
then
        echo "directory already exists"
else
        echo "directory does not exist"
        mkdir $taskdir
        echo "directory created successfully"
fi
~
~
~
```

```
[root@ip-172-31-46-130 scripts]# vi directory.bash
[root@ip-172-31-46-130 scripts]# chmod 755 directory.bash
[root@ip-172-31-46-130 scripts]# ./directory.bash
enter directory name:
taskdir
directory does not exist
directory created successfully
[root@ip-172-31-46-130 scripts]# ll
total 64
-rw-r--r--. 1 root root     0 Dec  3 09:40 a
-rwxr-xr-x. 1 root root   129 Dec  3 09:58 admin.bash
-rw-r--r--. 1 root root     0 Dec  3 09:40 b
-rwxr-xr-x. 1 root root    91 Dec  4 09:28 backup.bash
-rw-r--r--. 1 root root     0 Dec  3 09:40 c
-rwxr-xr-x. 1 root root   113 Dec  3 09:39 commands.bash
-rwxr-xr-x. 1 root root    34 Dec  4 08:58 create.bash
-rwxr-xr-x. 1 root root   113 Dec  4 08:50 dir.bash
-rwxr-xr-x. 1 root root   255 Dec  4 12:42 directory.bash
-rw-r--r--. 1 root root     0 Dec  4 08:58 gayu
-rwxr-xr-x. 1 root root   110 Dec  3 09:33 helloworld.bash
-rwxr-xr-x. 1 root root   180 Dec  3 10:21 input.bash
-rw-r--r--. 1 root root     0 Dec  4 08:58 loke
-rwxr-xr-x. 1 root root   117 Dec  4 09:38 nginx.bash
-rwxr-xr-x. 1 root root   370 Dec  4 12:13 nginxrunning.bash
-rw-r--r--. 1 root root     0 Dec  4 08:58 niha
-rw-r--r--. 1 root root 20480 Dec  4 09:28 scripts_backup.tar
drwxr-xr-x. 2 root root     6 Dec  4 12:43 taskdir
-rwxr-xr-x. 1 root root   175 Dec  3 10:08 variables.bash
[root@ip-172-31-46-130 scripts]#
```

8. Create a bash script to delete the last 3 lines of a file.

>> here we have created a file and added content for 4 lines
>> and added the script
>> gave permissions to execute “chmod 755 delete.bash”

```
[root@ip-172-31-46-130 scripts]# vi delete.bash
[root@ip-172-31-46-130 scripts]# cat file1
hi
hello
how are you
how are doing
[root@ip-172-31-46-130 scripts]# chmod 755 delete.bash
[root@ip-172-31-46-130 scripts]# ./delete.bash
enter a file name
file1
last 3 lines deleted successfully.
[root@ip-172-31-46-130 scripts]# cat file1
hi
[root@ip-172-31-46-130 scripts]# cat delete.bash
#!/bin/bash
#script to delete last 3 lines of a file

echo "enter a file name"
read file1

#check if the file exist
if [ -e "$file1" ]
then
        head -n -3 "$file1" > temp.txt

        #move the temp file to original
        mv temp.txt "$file1"

        echo "last 3 lines deleted successfully."
else
        echo "file does not exist."
fi
[root@ip-172-31-46-130 scripts]#
```

>> as we can see lines got removed

```
[root@ip-172-31-46-130 scripts]# cat file1
hi
[root@ip-172-31-46-130 scripts]#
```

10. Bash script to monitor cpu and if it is more than 80% then send email notification.

```
#!/bin/bash

#monitor cpu usage and send an email if greater than 80%

TO="saigayathriprasad305@gmail.com"

# Get CPU Usage
cpu=$(top -bn1 | grep "cpu(s)" | awk '{print 100 - $8}')

cpu=${cpu%.*}  # convert decimal to integer

if [ $cpu -gt 80 ]
then
        echo "warning: high CPU usage = $cpu%" | mail -s "CPU ALERT" $TO
        echo "High CPU detected. Email sent."
else
        echo "CPU is normal = $cpu%"
fi
~
~
```

```
[root@ip-172-31-46-130 scripts]# vi cpu.bash
[root@ip-172-31-46-130 scripts]# chmod 755 cpu.bash
[root@ip-172-31-46-130 scripts]# ./cpu.bash
top: bad iterations argument '1'
./cpu.bash: line 12: [: -gt: unary operator expected
CPU is normal = %
[root@ip-172-31-46-130 scripts]# cat cpu.bash
#!/bin/bash

#monitor cpu usage and send an email if greater than 80%

TO="saigayathriprasad305@gmail.com"

# Get CPU Usage
cpu=$(top -bn1 | grep "cpu(s)" | awk '{print 100 - $8}')

cpu=${cpu%.*}  # convert decimal to integer

if [ $cpu -gt 80 ]
then
        echo "warning: high CPU usage = $cpu%" | mail -s "CPU ALERT" $TO
        echo "High CPU detected. Email sent."
else
        echo "CPU is normal = $cpu%"
fi
[root@ip-172-31-46-130 scripts]# ./cpu.bash
top: bad iterations argument '1'
./cpu.bash: line 12: [: -gt: unary operator expected
CPU is normal = %
[root@ip-172-31-46-130 scripts]#
```