

## Bash script part -2

1. Creating bash which says whether the file exist or not.

I have created a bash script as shown below

```
#!/bin/bash
if [ -e /home/arjumand/script/simple_test.bash ]
then
echo "file exist"
else
echo "File does not exist"
fi
~
~
~
~
```

Based on that I got correct output

```
arjumand@Arjumand:~/script$ vi find_directory.bash
arjumand@Arjumand:~/script$ vi find_directory.bash
arjumand@Arjumand:~/script$ ./find_directory.bash
file exist
arjumand@Arjumand:~/script$ vi find_directory.bash
arjumand@Arjumand:~/script$
```

2. Created multiple files using bash scripting

```
#!/bin/bash
touch file1 file2 file3
~
~
```

```
2  Fil_creator.bash  choice.bash  file1  file3  'my seconf file'
3  back.bash        file        file2  find_directory.bash  simple_test.bash
arjumand@Arjumand:~/script$ vi Fil_creator.bash
arjumand@Arjumand:~/script$ |
```

3. Created back for the file by passing input file name.

```
#!/bin/bash
echo "enter the file name which you want to backup"
read file
tar -cvf "tar.${file}.tar" "$file"
echo "back up created successfully"
~
~
~
```

```
enter the file name which you want to backup
file1
file1
back up created successfully
arjumand@Arjumand:~/script$ ls
2  Fil_creator.bash  backup.bash  file  file2  find_directory.bash  simple_test.bash
3  back.bash        choice.bash  file1  file3  'my seconf file'    tar.file1.tar
arjumand@Arjumand:~/script$ vi backup.bash
```

4. Installed successfully nginx and status is active using bash script.

```
#!/bin/bash
sudo yum update -y
sudo yum install -y nginx
sudo systemctl enable nginx
sudo systemctl start nginx
sudo systemctl status nginx
```

Installed tomcat by clicking the following the scripy

```
# Update packages
sudo apt update -y

# Install Java
sudo apt install -y default-jdk

# Create Tomcat Directory
sudo mkdir -p /opt/tomcat

# Download Latest Tomcat 9
cd /tmp
wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.111/bin/apache-tomcat-9.0.111.tar.gz

# Extract to /opt/tomcat
sudo tar -xzf apache-tomcat-9.0.111.tar.gz -C /opt/tomcat --strip-components=1

# Give permission to scripts
sudo chmod +x /opt/tomcat/bin/*.sh

# Start Tomcat
sudo /opt/tomcat/bin/startup.sh

echo "Tomcat Installed Successfully!"
echo "Access your Tomcat server at: http://<your-public-ip>:8080"
```

Then bash script successfully installed tomcat.

```
arjunand@arjunand:~/scripts$ ./install_tomcat.sh
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
default-jdk is already the newest version (2:1.21-75~exp1).
The following package was automatically installed and is no longer required:
  liblvm219
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
--2025-11-07 13:17:23-- https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.111/bin/apache-tomcat-9.0.111.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: 13037002 (12M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.111.tar.gz'

apache-tomcat-9.0.111.tar.gz      100%[=====] 12.43M  12.0MB/s   in 1.0s

2025-11-07 13:17:24 (12.0 MB/s) - 'apache-tomcat-9.0.111.tar.gz' saved [13037002/13037002]

chmod: cannot access '/opt/tomcat/bin/*.sh': No such file or directory
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
Tomcat started.
Tomcat Installed Successfully!
Access your Tomcat server at: http://<your-public-ip>:8080
```

## 5. Checking nginx is working or not

```
#!/bin/bash

# to checking whether nginx is working or not

if systemctl is-active --quiet nginx; then
    echo "nginx is already in running"
else
    echo "nginx is not running, Starting nginx..."
    sudo systemctl start nginx
    echo "nginx start attempt is completed"
fi
```

Output shows its active

```

arjumand@Arjumand:~/script$ ls
2   Fil_creator.bash  backup.bash      choice.bash      file1    file3    install_nginx.sh  'my second'
3   back.bash         check_nginx_simple.sh  file          file2    find_directory.bash  install_tomcat.sh  simple_test

arjumand@Arjumand:~/script$ cd ..
arjumand@Arjumand:~$ ls
AArr        AM.docx      Testing.pem     data.txt       file3.txt      marks.txt      myline.txt      [redacted]
AArr.tar.xz Profile.docx   daata.link     file2.txt      file5.txt      merged.txt     pizza_sales_excel_file.xlsx
arjumand@Arjumand:~$ ssh -i "Testing.pem" ec2-user@ec2-3-89-119-124.compute-1.amazonaws.com

A newer release of "Amazon Linux" is available.
Version 2023.9.20251105:
Run "/usr/bin/dnf check-release-update" for full release and version update info

      #_
     _#_
    /  \ ##### Amazon Linux 2023
   /    \#####\
  /      \###|
 /        \|___/
V          ^---> https://aws.amazon.com/linux/amazon-linux-2023

Last login: Tue Nov  4 09:28:56 2025 from 14.192.14.58
[ec2-user@ip-172-31-19-106 ~]$ pwd
/home/ec2-user
[ec2-user@ip-172-31-19-106 ~]$ vi Install_nginx
[ec2-user@ip-172-31-19-106 ~]$ chmod 755 nstall_nginx
chmod: cannot access 'nstall_nginx': No such file or directory
[ec2-user@ip-172-31-19-106 ~]$ chmod 755 Install_nginx
[ec2-user@ip-172-31-19-106 ~]$ ./Install_nginx
Last metadata expiration check: 0:07:12 ago on Fri Nov  7 13:41:01 2025.
```

EC2 > Instances > i-0c8b6edfdbe656b65 > Connect to instance

Connect

Info

Connect to an instance using the browser-based client.

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

i-0c8b6edfdbe656b65

1. Open an SSH client.

2. Locate your private key file. The key used to launch this instance is Testing.pem

3. Run this command, if necessary, to ensure your key is not publicly viewable.

chmod 400 "Testing.pem"

4. Connect to your instance using its Public DNS:

ec2-3-89-119-124.compute-1.amazonaws.com

✔ Command copied

ssh -i "Testing.pem" ec2-user@ec2-3-89-119-124.compute-1.amazonaws.com

Note:

In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

```

0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
--2025-11-07 13:17:23-- https://dldcn.apache.org/tomcat/tomcat-9/v9.0.111/bin/apache-tomcat-9.0.111.tar.gz
Resolving dldcn.apache.org (dldcn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dldcn.apache.org (dldcn.apache.org)[151.101.2.132]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 13037002 (12M) [application/x-gzip]
Saving to: 'apache-tomcat-9.0.111.tar.gz'

apache-tomcat-9.0.111.tar.gz      100%[=====]

2025-11-07 13:17:24 (12.0 MB/s) - 'apache-tomcat-9.0.111.tar.gz' saved [13037002/13037002]

chmod: cannot access '/opt/tomcat/bin/*.sh': No such file or directory
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.
Tomcat Installed Successfully!
Access your Tomcat server at: http://<your-public-ip>:8080
arjumand@Arjumand:~/script$ vi install_tomcat.sh
arjumand@Arjumand:~/script$ vi check_nginx_simple.sh
arjumand@Arjumand:~/script$ ./check_nginx_simple.sh
-bash: ./check_nginx_simple.sh: Permission denied
arjumand@Arjumand:~/script$ chmod +x check_nginx_simple.sh
arjumand@Arjumand:~/script$ ./check_nginx_simple.sh
./check_nginx_simple.sh: line 10: unexpected EOF while looking for matching `''
arjumand@Arjumand:~/script$ vi check_nginx_simple.sh
arjumand@Arjumand:~/script$ ./check_nginx_simple.sh
Unknown command verb 'is', did you mean 'isolate'?
nginx is not running, Startinhg nginx...
nginx start attempt is completed
arjumand@Arjumand:~/script$ vi check_nginx_simple.sh
arjumand@Arjumand:~/script$ ./check_nginx_simple.sh
inactive
active
nginx is arleady in running
arjumand@Arjumand:~/script$ vi check_nginx_simple.sh
arjumand@Arjumand:~/script$ |

```

## 7. Created bash script for a calculator

I have created a sum calculator where are allowed to give 2 number in return it will give additional.

```

#!/bin/bash

# simple calculation sum fuction
echo "please enter the number"
read number
echo "please enter second number"
read number2
echo "choose operator"

echo "1) Additional:"
echo "2) subtraction:"
echo "3) Multiplication:"
echo "4) divide:"
read choice
case $choice in
1) result=$(expr $number + $number2)
echo "Result=$result"
;;
2) result=$(expr $number - $number2)
echo "Result=$result"
;;
3) result=$(expr $number \* $number2)
echo "Result=$result"
;;
4) result=$(expr $number / $number2)
echo "Result=$result"
;;
*) echo "invalid choice"
;;
esac

```

```

arjumand@Arjumand:~/script$ ./calculator.bash
please enter the number
5
please enter second number
9
choose operator
1) Addition:
2) subtraction:
3) Multiplication:
4) divide:
3
Result=45
arjumand@Arjumand:~/script$ ./calculator.bash6
-bash: ./calculator.bash6: No such file or directory
arjumand@Arjumand:~/script$ ./calculator.bash
please enter the number
7
please enter second number
3
choose operator
1) Addition:
2) subtraction:
3) Multiplication:
4) divide:
1
Result=10
arjumand@Arjumand:~/script$ ./calculator.bash
please enter the number
5
please enter second number
4
choose operator
1) Addition:
2) subtraction:
3) Multiplication:
4) divide:
4
1
Result=
arjumand@Arjumand:~/script$ vi calculator.bash

```

Activate Windows  
Go to Settings to activate Windows.

8. Created a bash script which is checking directory is [present or not if directory is not present it will create a directory if present it will say directory is already exist.

```

#!/bin/bash
#This script will check the directory is present or not
#In case of not present it will automatically insert thr directory

echo "please write your directory name"
read dir_name
# It will allow you to write directory name which you want to check

if [ ! -d "$dir_name" ]; then
    echo "directory '$dir_name' not found creating a new '$dir_name'"
    mkdir "$dir_name"
    echo "directory is created"
else
    echo "$dir_name is already exist"
fi

```

It has created a directory called Arjumand

```

arjumand@Arjumand:~/script$ vi dchecker.bash
arjumand@Arjumand:~/script$ ls
 2  Fil_creator.bash  calculator.bash  dchecker.bash  file2  install_nginx.sh  simple_test.bash
 3  back.bash        check_nginx_simple.sh  file1  file3  install_tomcat.sh  tar.file1.tar
Arjumand backup.bash choice.bash find_directory.bash 'my seconf file' tar.mm.tar
arjumand@Arjumand:~/script$ rmdir Arjumand
arjumand@Arjumand:~/script$ ls
 2  back.bash  check_nginx_simple.sh  file  file3  install_tomcat.sh  tar.file1.tar
 3  backup.bash choice.bash file1 find_directory.bash 'my seconf file' tar.mm.tar
Fil_creator.bash calculator.bash dchecker.bash file2 install_nginx.sh simple_test.bash
arjumand@Arjumand:~/script$ chmod +x dchecker.bash
arjumand@Arjumand:~/script$ ./dchecker.bash
please write your directory name
Arjumand
directory 'Arjumand' not found creating a new 'Arjumand'
directory is created
arjumand@Arjumand:~/script$ ls
 2  Fil_creator.bash  calculator.bash  dchecker.bash  file2  install_nginx.sh  simple_test.bash
 3  back.bash        check_nginx_simple.sh  file  file3  install_tomcat.sh  tar.file1.tar
Arjumand backup.bash choice.bash file1 find_directory.bash 'my seconf file' tar.mm.tar
arjumand@Arjumand:~/script$ vi dchecker.bash

```

Activate Windows  
Go to Settings to activate Windows.

9. Last three lines will be deleted using this bash script

```
#!/bin/bash

# Ask for file name
echo "Enter the file name:"
read file

# Check if file exists
if [ ! -f "$file" ]; then
    echo "File not found!"
    exit 1
fi

# Count lines
lines=$(wc -l < "$file")

# Check if file has at least 3 lines
if [ "$lines" -lt 3 ]; then
    echo "File contains less than 3 lines. No deletion performed."
    exit 0
fi

# Remove last 3 lines
sed -i '$d' "$file"
sed -i '$d' "$file"
sed -i '$d' "$file"

echo "last 3 lines deleted successfully."
~
```

In output this bash script is successfully deleted last three lines of the file

```
arjumand@Arjumand:~/script$ vi list.file
arjumand@Arjumand:~/script$ vi Detele_tail3.bash
arjumand@Arjumand:~/script$ chmod +x Detele_tail3.bash
arjumand@Arjumand:~/script$ ./Detele_tail3.bash
Enter the file name:
list.file
last 3 lines deleted successfully.
arjumand@Arjumand:~/script$ vi Detele_tail3.bash
```

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

```
#!/bin/bash

# Set CPU Threshold
threshold=80

# Get current CPU usage (as integer without decimals)
cpu_usage=$( top -bn1 | grep "Cpu(s)" | awk '{print int($2)}' )

# Check if CPU usage is greater than threshold
if [ "$cpu_usage" -gt "$threshold" ]; then
    echo "High CPU Alert! Current CPU Usage is ${cpu_usage}%" | mail -s "CPU Usage Alert" arjumand9794@gmail.com
fi
~
~
~
```

```
arjumand@Arjumand:~/script$ vi CPU_alert.bash
arjumand@Arjumand:~/script$ chmod +x CPU_alert.bash
arjumand@Arjumand:~/script$ ./CPU_alert.bash
arjumand@Arjumand:~/script$ vi CPU_alert.bash
arjumand@Arjumand:~/script$ |
```

11. Bash script to monitor disk space and if it is more than 80% then send email notification.

```
#!/bin/bash
# Disk usage threshold (in percentage)
threshold=80

# Get current disk usage of root (/) filesystem
usage=$(df / | grep / | awk '{print $5}' | sed 's/%//')

# Check if usage is greater than threshold
if [ "$usage" -gt "$threshold" ]; then
    echo "Warning: Disk usage on / is ${usage}% (Threshold: ${threshold}%)" | mail -s "Disk Space Alert" arjumand9794@gmail.com
fi
~
~
```

```
arjumand@Arjumand:~/script$ vi diskfree_alert.bash
arjumand@Arjumand:~/script$ chmod +x diskfree_alert.bash
arjumand@Arjumand:~/script$ ./diskfree_alert.bash
arjumand@Arjumand:~/script$ vi diskfree_alert.bash
```

## 12. Bash script to monitor memory and if it is more than 80% then send email notification.

```
#!/bin/bash
# Memory usage threshold
threshold=80

# Get current memory usage in percentage (without decimals)
usage=$(free | grep Mem | awk '{print int($3/$2 * 100)}')

# Check if usage is greater than threshold
if [ "$usage" -gt "$threshold" ]; then
    echo "Warning: Memory usage is ${usage}% (Threshold: ${threshold}%)" | mail -s "Memory Usage Alert" arjumand9794@gmail.com
fi
~
~
```

```
arjumand@Arjumand:~/script$ vi freememory_alert.bash
arjumand@Arjumand:~/script$ chmod +x freememory_alert.bash
arjumand@Arjumand:~/script$ ./freememory_alert.bash
arjumand@Arjumand:~/script$ |
```

## • Crontab Entries

First of all, I have created a bash in which I simply wrote hello world, then I have added in crontab using command 'crontab -e'

```
#!/bin/bash
#
echo "hello world"
~
~
```

Added following crontab entries

1. April 5th Midnight
2. 5th of Every November, January, June **if it is a Thursday**
3. At **05 and 27th minutes** of **9, 10, 11** hours every day
4. **34 minutes** of **9th hour** on **15th August**
5. Every midnight
6. Every Weekend (**Saturday night 11:59 PM**)
7. After every reboot

```

# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
#####Crontab_new_entries#####
# 1. April 5th at midnight
0 0 5 4 * /home/arjumand/script/crontab.sh/job1.bash

# 2. 5th of January, June, November ONLY if it's Thursday
# (Uses wrapper script to enforce Thursday)
0 0 5 1,6,11 * /home/arjumand/script/crontab.sh/run-if-thursday.sh /home/arjumand/script/crontab.sh/job1.bash

# 3. At 05 and 27 minutes of 9, 10, 11 hours every day
5,27 9-11 * * * /home/arjumand/script/crontab.sh/job1.bash

# 4. At 09:34 AM on 15th August
34 9 15 8 * /home/arjumand/script/crontab.sh/job1.bash

# 5. Every midnight
0 0 * * * /home/arjumand/script/crontab.sh/job1.bash

```

I have confirmed the crontab entries by using command 'crontab -l'

```

#####Crontab_new_entries#####
# 1. April 5th at midnight
0 0 5 4 * /home/arjumand/script/crontab.sh/job1.bash

# 2. 5th of January, June, November ONLY if it's Thursday
# (Uses wrapper script to enforce Thursday)
0 0 5 1,6,11 * /home/arjumand/script/crontab.sh/run-if-thursday.sh /home/arjumand/script/crontab.sh/job1.bash

# 3. At 05 and 27 minutes of 9, 10, 11 hours every day
5,27 9-11 * * * /home/arjumand/script/crontab.sh/job1.bash

# 4. At 09:34 AM on 15th August
34 9 15 8 * /home/arjumand/script/crontab.sh/job1.bash

# 5. Every midnight
0 0 * * * /home/arjumand/script/crontab.sh/job1.bash

# 6. Every weekend: Saturday at 11:59 PM
59 23 * * 6 /home/arjumand/script/crontab.sh/job1.bash

# 7. After every reboot
@reboot /home/arjumand/script/crontab.sh/job1.bash

```