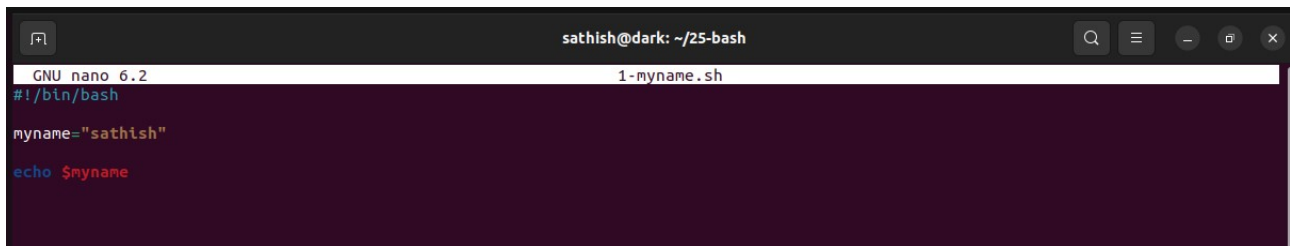# 25 Bash Script Programs

1.Creates a new variable with a value
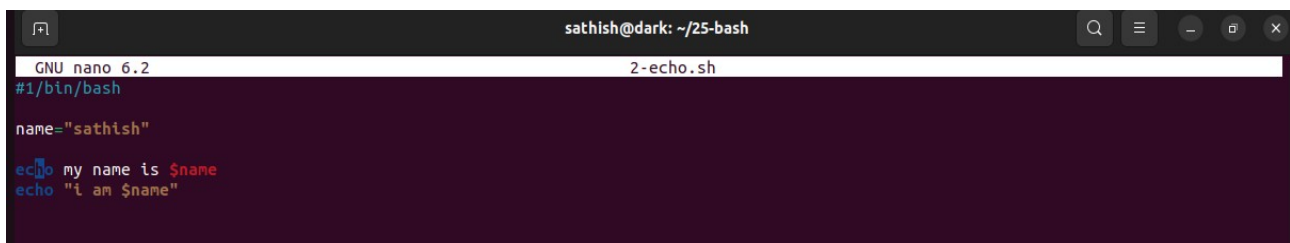
```
 GNU nano 6.2                                    1-myname.sh
#!/bin/bash

myname="sathish"

echo $myname
```
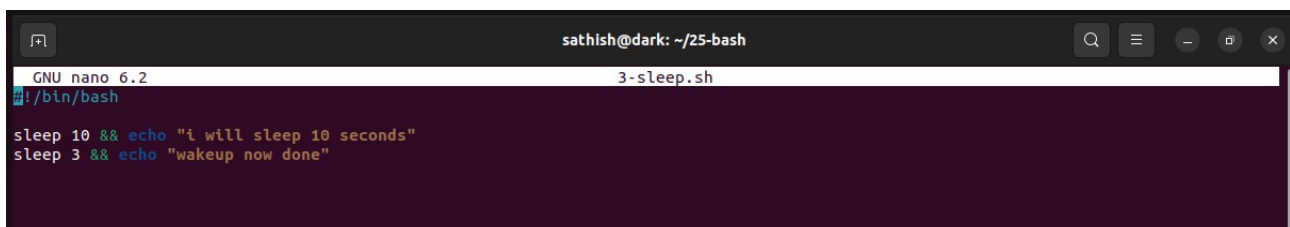
output:

sathish

2. How to use variable in Echo

```
 GNU nano 6.2                                    2-echo.sh
#1/bin/bash

name="sathish"

echo my name is $name
echo "i am $name"
```

output:

my name is $sathish

i am sathish

3. sleep Command

```
 GNU nano 6.2                                    3-sleep.sh
#!/bin/bash

sleep 10 && echo "i will sleep 10 seconds"
sleep 3 && echo "wakeup now done"
```

output:

```
                              sathish@dark: ~/25-bash
sathish@dark:~/25-bash$ bash 3-sleep.sh
```

```
                              sathish@dark: ~/25-bash
sathish@dark:~/25-bash$ bash 3-sleep.sh
i will sleep 10 seconds
```

```
                              sathish@dark: ~/25-bash
sathish@dark:~/25-bash$ bash 3-sleep.sh
i will sleep 10 seconds
wakeup now done
sathish@dark:~/25-bash$
```

5. Comments

```
  GNU nano 6.2                        5-comments.sh
#!/bin/bash

# my name is given
myname="sathish"

# echo to print variable use $
echo "I am $myname"

# Hash symbols of Lines are not Print on Output
```

.

output:

I am sathish

6. Get User Input

```
#!/bin/bash

echo "enter your name :"
read name

echo "Hello $name, thanks for joining our website"
```

output :

enter your name :

sathish

Hello sathish, thanks for joining our website

7. Loop

while loop

```
#!/bin/bash

count=0;
while :
do
echo countdown $count
((count++))
done
```

output:

countdown 18418

countdown 18419

countdown 18420

countdown 18421

countdown 18422

countdown 18423

For Loop

```
#!/bin/bash

for(( count=1; count<=5; count++ ))
do
echo "counting $count"
done
```

output:

counting 1

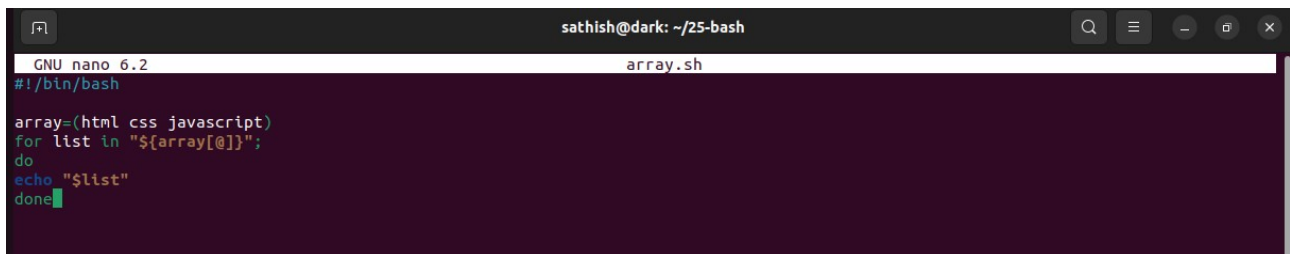counting 2

counting 3

counting 4

counting 5

8. Array

@ - print all

0,1,2 – use position

```
GNU nano 6.2                              array.sh
#!/bin/bash

array=(html css javascript)
for list in "${array[@]}";
do
echo "$list"
done
```
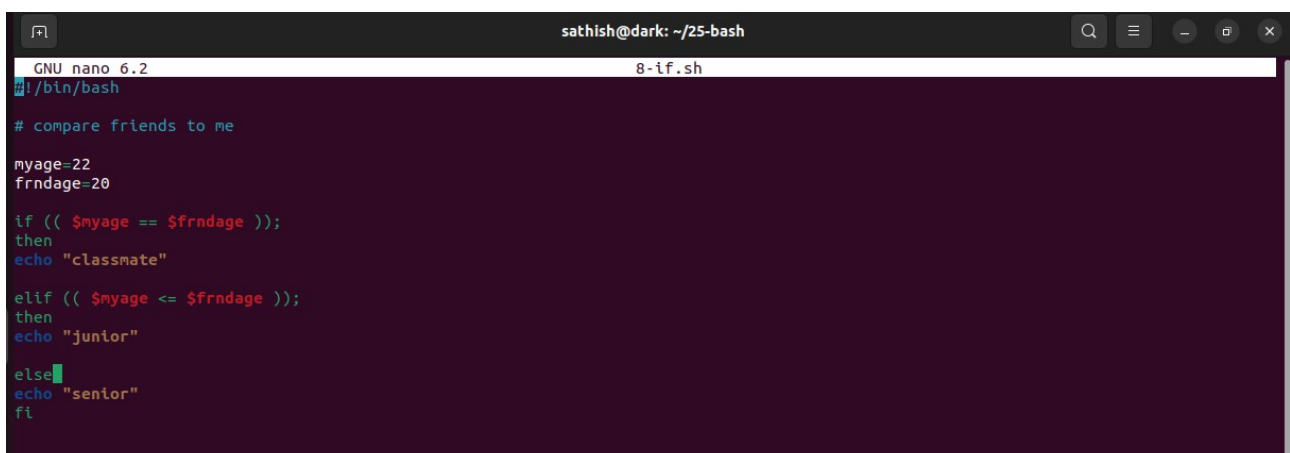
output:

html

css

javascript

9. if else

```
GNU nano 6.2                              8-if.sh
#!/bin/bash

# compare friends to me

myage=22
frndage=20

if (( $myage == $frndage ));
then
echo "classmate"

elif (( $myage <= $frndage ));
then
echo "junior"

else
echo "senior"
fi
```
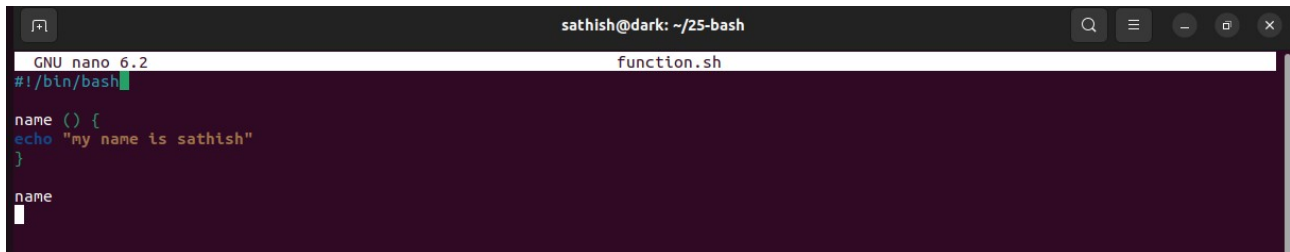
output:

senior

10. Function

output:

my name is sathish

11. Find String Length
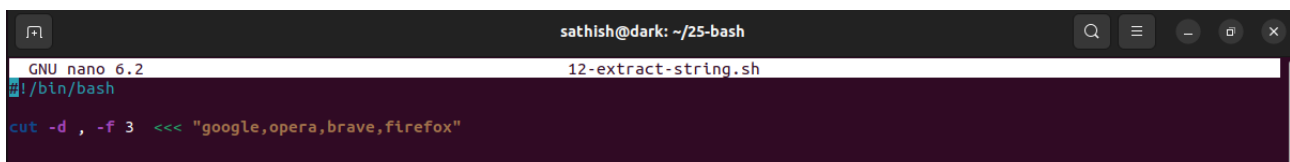
output:

Length of string is : 18

12. Extract string

output:

brave

extract mixed string

output:

sathish

2000

13. Find and replace string

output:

i am using mobile

14. Concatenate string

output:

i am sathish

this is my mobile

15. Odd or Even

```
GNU nano 6.2                          15-oddoreven.sh
#!/bin/bash
read -p "Enter the number : " number
if [ $((number%2)) -eq 0 ]
then
echo "Number is EVEN"
else
echo "Number is ODD"
fi
```

output:

Enter the number : 2

Number is EVEN

16. Generate Factorial Number using For Loop

```
GNU nano 6.2                          16-factorial.sh
#!/bin/bash

echo -n "Enter a Number to Generate Factorial : "
read input
fact=1

for (( i=1; i<=input; i++ ))
do
fact=$(( $fact*$i ))
done
echo "$fact"
```

output:

Enter a Number to Generate Factorial : 5

120

17. Create Directories

```
GNU nano 6.2                          17-mkdir.sh
#!/bin/bash

mkdir -p {sathish,hepzi,raiyan}/{windows,ubuntu}
```

output:

sathish@dark:~/25-bash/create-dir$ bash 17-mkdir.sh

sathish@dark:~/25-bash/create-dir$ ls
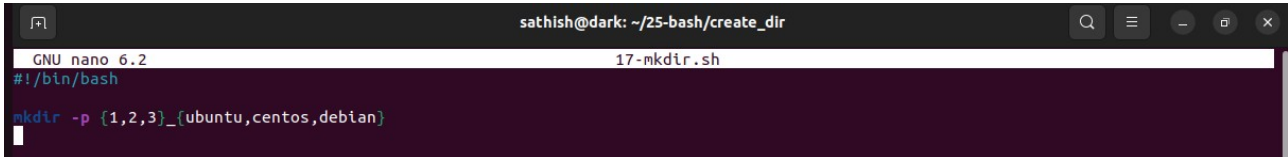
17-mkdir.sh hepzi raiyan sathish

sathish@dark:~/25-bash/create-dir$ cd sathish

```
sathish@dark:~/25-bash/create-dir/sathish$ ls
```

ubuntu   windows

create directoires given group of name

```
┌─┐                           sathish@dark: ~/25-bash/create_dir                    Q  ≡  _  □  ×
  GNU nano 6.2                              17-mkdir.sh
#!/bin/bash

mkdir -p {1,2,3}_{ubuntu,centos,debian}
```

output:

```
sathish@dark:~/25-bash/create_dir$ ls
```

17-mkdir.sh

```
sathish@dark:~/25-bash/create_dir$ bash 17-mkdir.sh
```
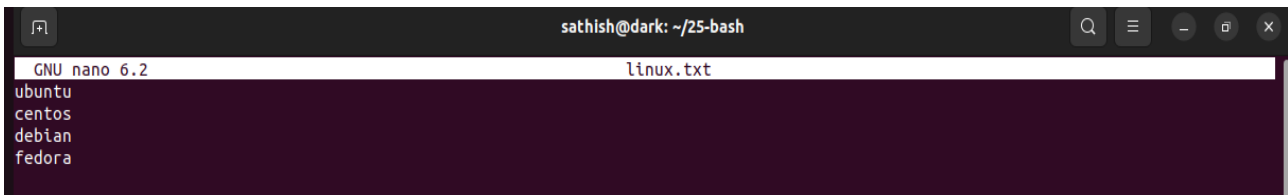
```
sathish@dark:~/25-bash/create_dir$ ls
```

17-mkdir.sh 1_centos 1_debian 1_ubuntu 2_centos 2_debian 2_ubuntu 3_centos

3_debian 3_ubuntu
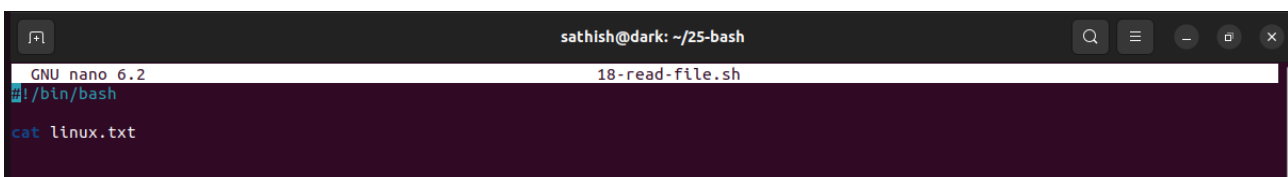
18. Read Files

create txt file

```
┌─┐                              sathish@dark: ~/25-bash                           Q  ≡  _  □  ×
  GNU nano 6.2                                linux.txt
ubuntu
centos
debian
fedora
```

Create read file bash script

```
┌─┐                              sathish@dark: ~/25-bash                           Q  ≡  _  □  ×
  GNU nano 6.2                              18-read-file.sh
#!/bin/bash

cat linux.txt
```

output:

```
sathish@dark:~/25-bash$ bash 18-read-file.sh
```

ubuntu

centos

debian

fedora

19. Print Lines with number

```
GNU nano 6.2                    19-printlines.sh
#!/bin/bash

myfile="linux.txt"
i=1
while read line;
do
echo "$i : $line"
i=$((i+1))
done < $myfile
```

output:

sathish@dark:~/25-bash$ bash 19-printlines.sh

1 : ubuntu

2 : centos

3 : debian

4 : fedora

20. Delete File using If

```
GNU nano 6.2                    20-delete.sh
#!/bin/bash

myfile="sathish.txt"

touch $myfile

if [ -f $myfile ]
then
rm sathish.txt
echo "$myfile was deleted"
fi
```

output:

sathish.txt was deleted

21. File Existing check

```
#!/bin/bash

myfile="linux.txt"

if [ -f $myfile ];
then
echo "$myfile was Found"
else
echo "$myfile was Not Found"
fi
```

output:

sathish@dark:~/25-bash$ bash 21-exists.sh

linux.txt was Found

sathish@dark:~/25-bash$ ls

10-function.sh   15-oddoreven.sh 19-printlines.sh 21-exists.sh   3-

sleep.sh   7-for-loop.sh   9-if.sh   linux.txt

11-string-length.sh   16-factorial.sh 1-myname.sh   2-echo.sh   5-

comments.sh 7-while-loop.sh create-dir

12-extract-string.sh 18-read-file.sh 20-delete.sh   2-echo.sh.save 6-

input.sh   8-array.sh   create_dir

sathish@dark:~/25-bash$

22. check inodes and disk usage

```
#!/bin/bash

find . -printf "%h\n" | cut -d/ -f-2 | sort | uniq -c | sort -rn
du -shc * | sort -rh
```

output:

25 .

      10 ./create_dir

      10 ./create-dir

172K total

44K   create_dir

44K   create-dir

4.0K linux.txt

4.0K 9-if.sh

```
4.0K  8-array.sh

4.0K  7-while-loop.sh

4.0K  7-for-loop.sh

4.0K  6-input.sh

4.0K  5-comments.sh

4.0K  3-sleep.sh

4.0K  2-echo.sh.save

4.0K  2-echo.sh

4.0K  22-inodedisk.sh

4.0K  21-exists.sh

4.0K  20-delete.sh

4.0K  1-myname.sh

4.0K  19-printlines.sh

4.0K  18-read-file.sh

4.0K  16-factorial.sh

4.0K  15-oddoreven.sh

4.0K  12-extract-string.sh

4.0K  11-string-length.sh

4.0K  10-function.sh
```

23. Send email via SMTP

first install mailutils

```
sathish@dark:~$ sudo apt install mailutils

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

Suggested packages:

 mailutils-mh mailutils-doc
```
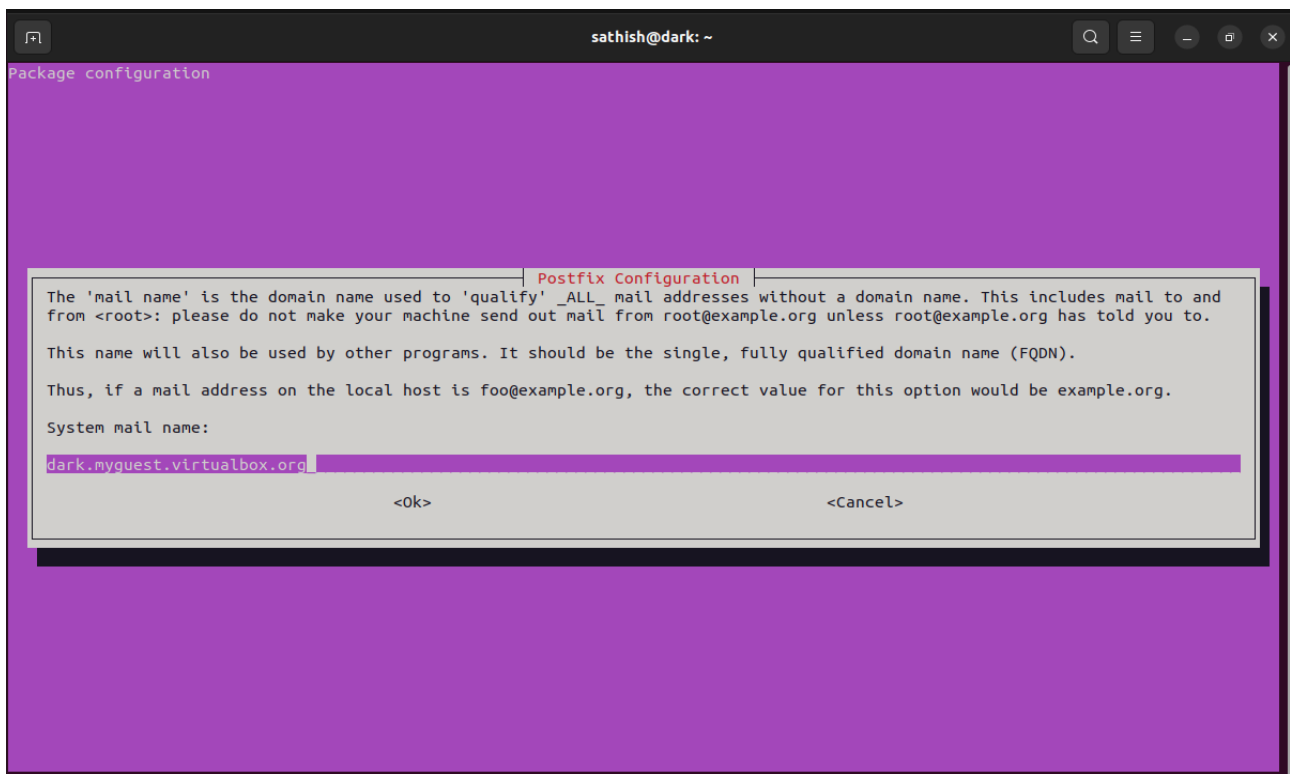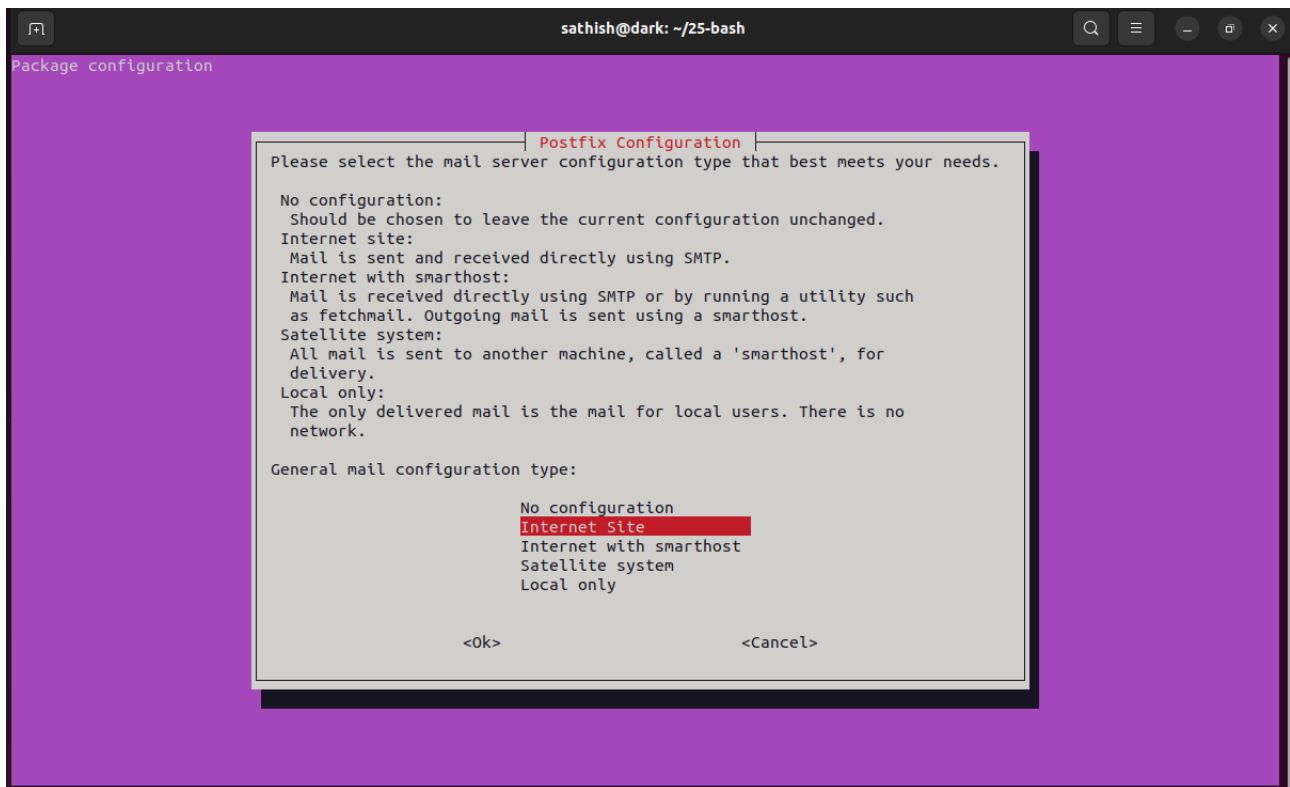
set Configuration

```
┌─────────────────────────── Postfix Configuration ───────────────────────────┐
│ Please select the mail server configuration type that best meets your needs. │
│                                                                              │
│  No configuration:                                                           │
│   Should be chosen to leave the current configuration unchanged.             │
│  Internet site:                                                              │
│   Mail is sent and received directly using SMTP.                             │
│  Internet with smarthost:                                                    │
│   Mail is received directly using SMTP or by running a utility such          │
│   as fetchmail. Outgoing mail is sent using a smarthost.                     │
│  Satellite system:                                                           │
│   All mail is sent to another machine, called a 'smarthost', for             │
│   delivery.                                                                  │
│  Local only:                                                                 │
│   The only delivered mail is the mail for local users. There is no           │
│   network.                                                                   │
│                                                                              │
│ General mail configuration type:                                             │
│                                                                              │
│                            No configuration                                  │
│                            Internet Site                                     │
│                            Internet with smarthost                           │
│                            Satellite system                                  │
│                            Local only                                        │
│                                                                              │
│                                                                              │
│            <Ok>                              <Cancel>                         │
│                                                                              │
└──────────────────────────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────── Postfix Configuration ───────────────────────────┐
│ The 'mail name' is the domain name used to 'qualify' _ALL_ mail addresses without a domain name. This includes mail to and │
│ from <root>: please do not make your machine send out mail from root@example.org unless root@example.org has told you to.   │
│                                                                              │
│ This name will also be used by other programs. It should be the single, fully qualified domain name (FQDN).                 │
│                                                                              │
│ Thus, if a mail address on the local host is foo@example.org, the correct value for this option would be example.org.       │
│                                                                              │
│ System mail name:                                                            │
│                                                                              │
│ dark.myguest.virtualbox.org                                                  │
│                           <Ok>                        <Cancel>               │
│                                                                              │
└──────────────────────────────────────────────────────────────────────────────┘
```

sathish@dark:~$ sudo nano /etc/postfix/main.cf

```
# fresh installs.
compatibility_level = 3.6



# TLS parameters
smtpd_tls_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
smtpd_tls_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
smtpd_use_tls=yes
smtpd_tls_security_level=may

smtp_tls_CApath=/etc/ssl/certs
smtp_tls_session_cache_database = btree:${data_directory}/smtp_scache


smtpd_relay_restrictions = permit_mynetworks permit_sasl_authenticated defer_unauth_destination
myhostname = dark.myguest.virtualbox.org
alias_maps = hash:/etc/aliases
alias_database = hash:/etc/aliases
myorigin = /etc/mailname
mydestination = dark.myguest.virtualbox.org, dark.myguest.virtualbox.org, localhost.myguest.virtualbox.org, , localhost
relayhost =
smtp_sasl_auth_enable= yes
smtp_sasl_password_maps= hash:/etc/postfix/sasl/sasl_passwd
smtp_sasl_security_options = noanonymous
smtp_tls_security_level = encrypt
smtp_tls_CAfile = /etc/ssl/certs/ca-certificates.crt
smtp_use_tls=yes
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
mailbox_size_limit = 0
recipient_delimiter = +
inet_interfaces = all
inet_protocols = all
```

```
^G Help      ^O Write Out   ^W Where Is   ^K Cut       ^T Execute   ^C Location   M-U Undo   M-A Set Mark
^X Exit      ^R Read File   ^\ Replace    ^U Paste     ^J Justify   ^/ Go To Line M-E Redo   M-6 Copy
```

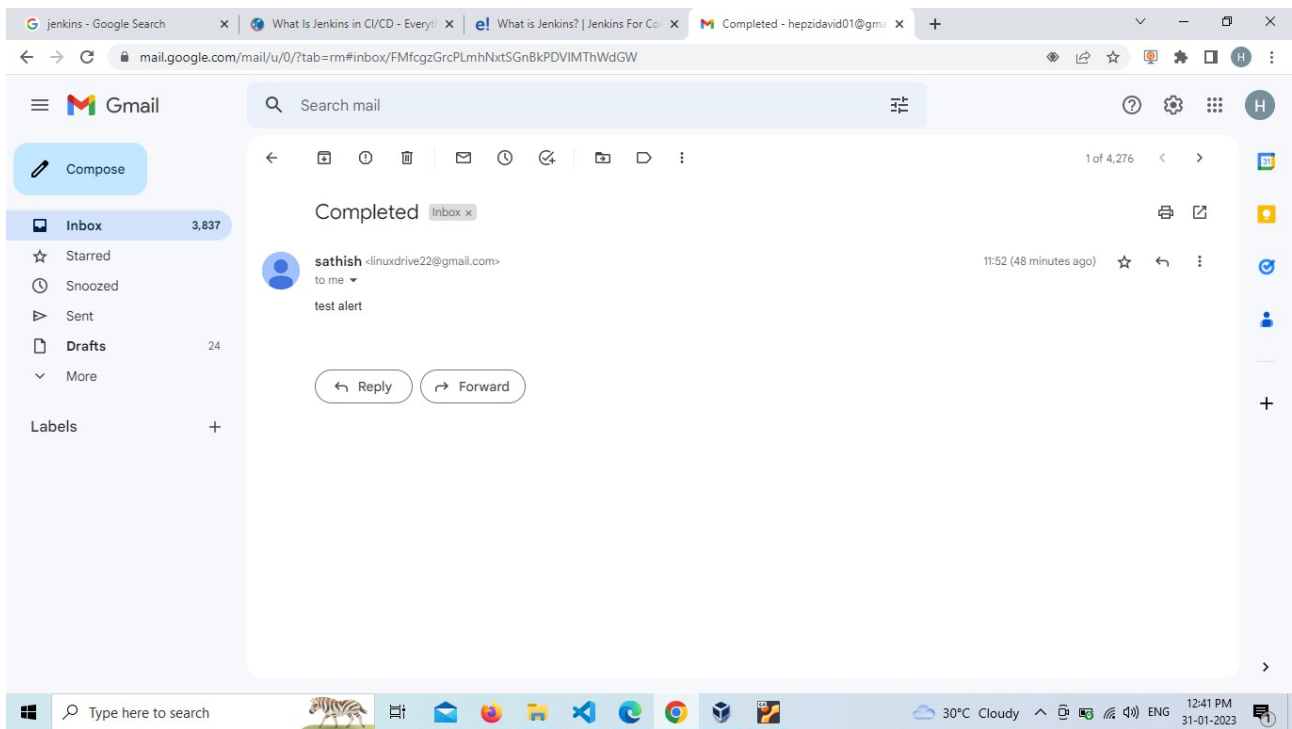sathish@dark:~$ sudo postfix reload

postfix/postfix-script: refreshing the Postfix mail system

sathish@dark:~$ sudo nano /etc/postfix/sasl/sasl_passwd

```
[smtp.gmail.com]:587 linuxdrive22@gmail.com:idjyfjfnxqbudlxn
```

sathish@dark:~$ sudo postmap /etc/postfix/sasl/sasl_passwd

sathish@dark:~$ echo "test alert" | mail -s "Completed" hepzidavid01@gmail.com

```
sathish@dark:~$ echo "test alert" | mail -s "Completed" lstamilan2000@gmail.com


sathish@dark:~$ sudo tail -f /var/log/mail.log

Jan 31 11:52:40 dark postfix/cleanup[8172]: 46A42A1A36: message-

id=<20230131062240.46A42A1A36@dark.myguest.virtualbox.org>

Jan 31 11:52:40 dark postfix/qmgr[8150]: 46A42A1A36:

from=<sathish@dark.myguest.virtualbox.org>, size=389, nrcpt=1 (queue active)

Jan 31 11:52:40 dark postfix/smtp[8174]: connect to

smtp.gmail.com[2404:6800:4003:c03::6d]:587: Network is unreachable

Jan 31 11:52:43 dark postfix/smtp[8174]: 46A42A1A36:

to=<hepzidavid01@gmail.com>, relay=smtp.gmail.com[172.217.194.108]:587, delay=3,

delays=0.04/0.21/1.9/0.86, dsn=2.0.0, status=sent (250 2.0.0 OK  1675146163 b5-

20020aa78ec5000000b0058dc1d54db1sm8456344pfr.206 - gsmtp)

Jan 31 11:52:43 dark postfix/qmgr[8150]: 46A42A1A36: removed

Jan 31 11:53:29 dark postfix/pickup[8149]: 408C8A1A36: uid=1000

from=<sathish@dark.myguest.virtualbox.org>

Jan 31 11:53:29 dark postfix/cleanup[8172]: 408C8A1A36: message-

id=<20230131062329.408C8A1A36@dark.myguest.virtualbox.org>
```
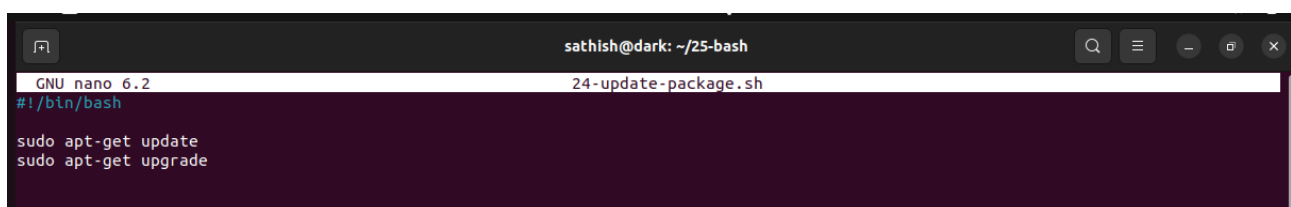
Jan 31 11:53:29 dark postfix/qmgr[8150]: 408C8A1A36:

from=<sathish@dark.myguest.virtualbox.org>, size=390, nrcpt=1 (queue active)

Jan 31 11:53:32 dark postfix/smtp[8174]: 408C8A1A36:

to=<lstamilan2000@gmail.com>, relay=smtp.gmail.com[172.217.194.109]:587,

delay=2.8, delays=0.02/0/1.9/0.92, dsn=2.0.0, status=sent (250 2.0.0 OK

1675146211 e3-20020a17090301c300b001933b4b1a49sm8812698plh.183 - gsmtp)

Jan 31 11:53:32 dark postfix/qmgr[8150]: 408C8A1A36: removed

24. Update and Upgrade

ouput:

[sudo] password for sathish:

Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]

Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease

Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]

Get:4 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [241

kB]

25. system information

Output:

Date

Friday 10 February 2023 03:14:23 PM IST

Uptime

 15:14:23 up 1:40, 1 user, load average: 0.16, 0.41, 0.62

Memory Usage

	total	used	free	shared	buff/cache	available
Mem:	1977	1512	78	55	386	248
Swap:	2679	1436	1243			

Network Usage

1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 08:00:27:32:24:3a brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
       valid_lft 81105sec preferred_lft 81105sec
    inet6 fe80::c9fa:550f:a25d:7a0d/64 scope link noprefixroute
       valid_lft forever preferred_lft forever