FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

Department of Computer Engineering

1. Course , Subject & Experiment Details

Academic Year	2024-25	Estimated Time	03 - Hours
Course & Semester	T.E. (CMPN)- Sem VI	Subject Name & Code	CSS - (CSC602))
Chapter No.	05- CO4	Chapter Title	Network Security and Applications

Practical No:	8
Title:	Explore the GPG tool of Linux to implement email security
Date of Performance:	10/04/2025
Date of Submission:	27/04/2025
Roll No:	9913
Name of the Student:	Mark Lopes

Evaluation:

Sr. No	Rubric	Grade
1	On time submission Or completion (2)	
2	Preparedness(2)	
3	Skill (4)	
4	Output (2)	

Signature of the Teacher:

Date:

```
17 Apr 11:14:58 ntpdate[3637]: Can't adjust the time of day: Operation not permitted
universe@lenovo3:~$ touch doc.txt
universe@lenovo3:~$ vi doc.txt
universe@lenovo3:~$ gpg --output mark.txt.sig --detach-sign mark.txt
File 'mark.txt.sig' exists. Overwrite? (y/N) n
Enter new filename:
gpg: signal 2 caught ... exiting

universe@lenovo3:~$ gpg --output doc.txt.sig --detach-sign doc.txt
universe@lenovo3:~$ gpg --armor --export 6D7C71E4D923219863879FD37A5BBD32A4072877 > your_public_key.asc
universe@lenovo3:~$ gpg --import your_public_key.asc
gpg: key 7A5BBD32A4072877: "ARCEUS <crce.9913.ce@gmail.com>" not changed
gpg: Total number processed: 1
gpg:                unchanged: 1
universe@lenovo3:~$ gpg --verify doc.txt.sig doc.txt
gpg: Signature made Thursday 17 April 2025 11:55:58 AM IST
gpg:                using RSA key 6D7C71E4D923219863879FD37A5BBD32A4072877
gpg: Good signature from "ARCEUS <crce.9913.ce@gmail.com>" [ultimate]
universe@lenovo3:~$ 
```

```
xHmOdv5MPFEjN7GgMZnsM48RqRiI/dn+zK+ro5wKhcCAiawJ75mk2VOatjbzgFmx
rqjPI8iXOUofgxZHgrqQRmTebgWUljwCv0FP+RmRvYAKc40bPl3Xi1E6H+QhynIX
tEnuppAfCaq32fwLs7VYgy8JlfmRkYX/dvWZn1BylvJUqqudBC1p1Mziz6pGWa/u
A6KJUMlDGoFqFD/khtiLnFmnCYyT/LpnugF9nsCbIO3qoxrtRyvzut6FcfVAc/YE
0Zw7pA3pzvIn0KitpkAXonbh0RAaT6FHcPydK7jFEsZoYjSOi0MinQXQRzWVjbOk
MBxpE3NEZhLJfNIJ7i73+Sfzd9cFvA==
=Yjta
-----END PGP PUBLIC KEY BLOCK-----
universe@lenovo3:~$ cat public-key.asc | wc -c
2452
universe@lenovo3:~$ touch secretinfo.txt
universe@lenovo3:~$ vim secretinfo.txt
universe@lenovo3:~$ gpg --encrypt --recipient 'crce.9913.ce@gmail.com' --output confidential.txt.enc secretinfo.txt
File 'confidential.txt.enc' exists. Overwrite? (y/N) y
universe@lenovo3:~$ cat confidential.txt.enc
```

```
> WhyTogether
> ^C
universe@lenovo3:~$ gpg --decrypt --output secret.txt confidential.txt.enc
gpg: encrypted with 3072-bit RSA key, ID 0C0AE907DE5584AB, created 2025-04-17
      "ARCEUS <crce.9913.ce@gmail.com>"
File 'secret.txt' exists. Overwrite? (y/N) y
universe@lenovo3:~$ cat secret.txt
Mark is the best
universe@lenovo3:~$ 
```

```
universe@lenovo3:~$ ls|grep public
public-key.asc
universe@lenovo3:~$ cat public-key.asc
-----BEGIN PGP PUBLIC KEY BLOCK-----
```

```
mQGNBGf2DuEBDADjJZYgEYx+rvf3af1D2QzcWejTONg9Ae0SQc38aHIknaGnxHCM
Ei2z0D46DWc1GG0jp2myELNhQjJGh81gHTPEsiVXgeQB2Julc9awsr9X0KlrW8ec
DTqIeT2pGA4rz7hKG2WHQT08iwZkAS/vy0w2GzlJm1y/l8WV3vy4NzBv9HkozkA7
wpMRoRgZeQG7dXa6bXk0go6z12EdDejSNLxFhghsGsOMzFpEPFd/GrGUVUgZ+Eko
2Mdh7WDIZIvtarxzl9zPOTvj2LK0swXLd3FDJOLr41BySnkCs+4nrXPbnoGy9BtI
K0/L31UqUL7Z+E4sprX0qgI0TdrkLs7sZyTACo7WaAL7xizTDs6bpCNnosWSB9ZN
dmpvW46WXe2o7FrGfzRWr9viYJtDXajOirb9O5JreWJrGha0I1+tAvGjgSFAxxVO
3j/pyBn+VBpqUYAcrPpQ8QneXDNTifRyrNNDBLEUazTDaFOW6uW2eKDS+yc1AuJ5
9rGkfAwWA8z6bsMAEQEAAbQeamVmaW4gPGNyY2UuOTg5NS5jZUBnbWFpbC5jb20+
iQHUBBMBCgA+FiEE65nQ1820BeJonP964372T4gs6kUFAmf2DuECGwMFCQPCZwAF
CwkIBwIGFQoJCAsCBBYCAwECHgECF4AACgkQ4372T4gs6kVtigv8D2xcF+3mAr6L
7L7ljwuLfwiAJ8/cuTWEi6N+SjJJfspHpXBxuB87ud1I3DRk2RTjKPBy/42a3CZO
dpZuN2CAcqDZicwsmotUBmOvEQoB5M+KB71Y5/nf4QnDSybssrI7AgGwT8WGnAp3
TfUmxugQHkWjkKLCxRTzWuTu+0bMQCbwc7i6l9O0bXUb1SI/I1DpoMWoBlwQzE7j
H+XEwrn83xfmNvoOjJKpM+iXSXBIYBfEzGyI5xTEBoCAWccfYFTKz7zIFfPss9yl
G2fo4lXrF1rGbKccP+NyQVr1s1SE/JtB/4yuWlJtggHdGZgaQY/lTluwT1u13UPR
/uQUX9afpq5Bgbru+d1dRhUNS4seoXB0na9VkjnS3WTDc2RUVFcyQ9/hkio1aZEF
RtbAmKc97Yrh2pu1gG33+XO100SpoU7vUxNfMTeosxSsNQ3IxB8GHlQerHBZ9dQX
lh7QXn5QgeVnTLBVyC/Vkd65fqNKvBe6FgSt1MT0jxVEeVS/1dY9uQGNBGf2DuEB
DADn996bKIG85Ri2JOeTcrkLHEwENE5Uz3j1j4qh1FIofKbzz84WqUzHKg2ICF9n
JwTm79ejLITdrLIA7pee3X/JMLDejTu5Zzy1yt+KrvjezX9rsAfoIdBksJagfKKf
jaX0hQmn3jCDRn+7urQ8rNZhLetL2fbNSJem4U8qSWYH1o+OvXSNBVW9miKyE3Oj
HGOiOPGAFnSNrryJEU6JTMjPUWtI0Ew9ncKD4TTdNqgfZuJeHBt0PdxvUzlyP1FF
VUS0DxcfQ1Dp9TEYZ4snng5At59isInsgCuk7epEGn9qQlxvEAgjQuL7B+g5iMIQ
1xaFsa+S+T3NnNdgqp06PL1YvlMT6vci7erd3Jc3jrjFtULqyl4yJ81N0QMpnXrD
qWms4Xh5xvmnMYfRYfVqW1LproGMgTucD82RzHBNeaTipxNzztYbAQrT9Fd27VzK
Ha/JGf0Dmviz+2VRgpyqBaXoAHemWLh0qJISgG+5Mw15j//SaA0Vpl1UxMvom61V
YS0AEQEAAYkBvAQYAQoAJhYhBOuZ0NfNtAXiaJz/euN+9k+ILOpFBQJn9g7hAhsM
BQkDwmcAAAoJEON+9k+ILOpFSnAL/RaU7hh5BlhTjwar0AThW0ysj844NhukBtg4
rHdZ615fwKihYI4bXu2PsomxDfhzC94p/OmMhbFpAXLrIGJUE6eAceJrcnN//x6x
```

dWeBgPsgNCvzGUms23X69Akdd12+40z4CHOnAgXoFT2WWMds3lAcJ7kBjQRoAJdv
AQwAvq3X7Vm7dq55/UQfdeNOxzLftJxqhrpWWBxEFKHMYKc7yipDzfWohDSwImez
sVZeatnFeAHEu95NQvedKPY1/MSmeLWHYGGiLlPJPXG1+CNv2xf1y5M5lqxcKsJQ
zRBZylJsWt2v5kuT8035VyFafCoZQ/lle+Tbk+L4zE7YjVaBBQFbDzIJEHrivTu9
uzjVhkNfpPw/2LvgjuJ/sPKXA8Dl1PY33lTGyltCjD5XtT3R1Nm9nPecbbKu8gbI
s9jIpimimBIYB3q8Voua9J336R0uugPivhAlyTQ5Gfacox5AEE+a7wSYsck12uQy
iBiRs3HQHzmNgC4V66hWDpSBxzWi87sWQyhfLu3mjZm0tv9c92p6jzNYoDi8wHb8
XluA2YcMxLqFNQ5O/rVEDQP0xRZy3F0dJ/rLSZOqAwaGWkVqF1xAZ/b0V7661Fkw
m59xiepXX8Y2zhISxtQXuvAKq0GVnlii+vxDpkiL+z5En+rFINBNCOqtW1uLNz00
JdCrABEBAAGJAbwEGAEKACYWIQRtfHHk2SMhmGOHn9N6W70ypAcodwUCaACXbwIb
DAUJA8JnAAAKCRB6W70ypAcod6JFC/9BqCNMx+SYn4v7Ll0lDEXxqIbZmD46i6uc
KxBx/wI0mNOplE8VlD3vNOhqh84V+9LB6K8ChTUENcYwlNEq86vG3gV5KYI5Y6y4
ey6jaQWWA3aiB0gsSL816rVv4P9LATMA+eFedMmY6swARGSTse1nOHoTrwWsbP3v
kTmL+T5HCDFQ8D/Vq84lx5pLvoYT82YeHyAoY+9GOGjzSgZO6OrqfoMzQyJLufuN
VfbyuVhJNQwsuriIgee3wVSGHmHtzcK8Cxf9r9HzwUftftXmKuvbE+TD6J3YDjGs
cR66OJr0e+s2lPb2Ytyhfr60tUXTDVge0xv3GC1iPYOoOQdPkSw+tPye1TImOG9T
bWMD5rwfr0dg2BXpzBFVN8nqk2YyPOYtuE1arWzNhwo3Y3u3X9ToHsOKBbwgctir
7C9m/asGc95+UNz5paRMTuewaVecmRdiDLsS1rCkpbal7TH2TQApEeAu77F163w1
A8BrjabU7EjC1HJBmZy0VBV/8j3rMkI=
=GEcp
-----END PGP PUBLIC KEY BLOCK-----
universe@lenovo3:~$ gpg --list-keys
/home/universe/.gnupg/pubring.kbx
----
pub   rsa3072 2025-04-09 [SC] [expires: 2027-04-09]
      EB99D0D7CDB405E2689CFF7AE37EF64F882CEA45
uid   [ultimate] jefin <crce.9895.ce@gmail.com>
sub   rsa3072 2025-04-09 [E] [expires: 2027-04-09]

pub   rsa3072 2025-04-17 [SC] [expires: 2027-04-17]
      6D7C71E4D923219863879FD37A5BBD32A4072877
uid   [ultimate] ARCEUS <crce.9913.ce@gmail.com>
sub   rsa3072 2025-04-17 [E] [expires: 2027-04-17]

universe@lenovo3:~$ █

universe@lenovo3:~$ gpg --gen-key
gpg (GnuPG) 2.2.27; Copyright (C) 2021 Free Software Foundation, Inc.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Note: Use "gpg --full-generate-key" for a full featured key generation dialog.

GnuPG needs to construct a user ID to identify your key.

Real name: ARCEUS
Email address: crce.9913.ce@gmail.com
You selected this USER-ID:
    "ARCEUS <crce.9913.ce@gmail.com>"

Change (N)ame, (E)mail, or (O)kay/(Q)uit? O
We need to generate a lot of random bytes. It is a good idea to perform
some other action (type on the keyboard, move the mouse, utilize the
disks) during the prime generation; this gives the random number
generator a better chance to gain enough entropy.
We need to generate a lot of random bytes. It is a good idea to perform
some other action (type on the keyboard, move the mouse, utilize the
disks) during the prime generation; this gives the random number
generator a better chance to gain enough entropy.
gpg: key 7A5BBD32A4072877 marked as ultimately trusted
gpg: revocation certificate stored as '/home/universe/.gnupg/openpgp-revocs.d/6D7C71E4D923219863879FD37A5BBD32A4072877.rev'
public and secret key created and signed.

pub   rsa3072 2025-04-17 [SC] [expires: 2027-04-17]
      6D7C71E4D923219863879FD37A5BBD32A4072877
uid   ARCEUS <crce.9913.ce@gmail.com>
sub   rsa3072 2025-04-17 [E] [expires: 2027-04-17]

```
universe@lenovo3:~$ gpg --armor --export crce.9913.ce@gmail.com public-key.asc
-----BEGIN PGP PUBLIC KEY BLOCK-----
```
```
mQGNBGgAl28BDADFeEhlyNC0BGxshtMY0kUH96LfBSrktM/T9xgsSJ3J7H3MJcon
uMoObsjLAj5LCP5tyP2rDTgjpmqMmI6TGowmFPJJqcRCH9AMGIT+7Lakm9SCZEzW
Hp/AfkeuAzstNV/u9/Dx8wF4kbT8puesyHFSXPqp0Dhjsa0CwJdGzY3LN3IlO0Gx
kXIF14W4Jn/kDM5wKUCcXpnFm8tJhswjvXz6qUZcQ/iyVbmCe4s/9kL8QKIAtkZJ
V3NXQiPTxVGxSCR+UGmc8WWANTtau1Fmrm26Mp42CJoQfdkNs4pDoW2XpPNfqXGy
8ti2ua4eBeIeXzRl3yQWIvqss2ULaExOt4q6OdrLqbLR3kEUwPUXPfP1vSokG/C1
E4KoF7oztFiS7yH76Ex0E8109xSMlf2FQRhalNYWkezocQ4WPFOSIRUilgdwWG+H
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21CPbYphHDwMUfcAEQEAAbQfQVJDRVVTIDxjcmNlLjk5MTMuY2VAZ21haWwuY29t
PokB1AQTAQoAPhYhBG18ceTZIyGYY4ef03pbvTKkByh3BQJoAJdvAhsDBQkDwmcA
BQsJCAcCBhUKCQgLAgQWAgMBAh4BAheAAAoJEHpbvTKkByh3KD0L/iwr8sTbbYAJ
jDmzaZMmfre+BcVo8rPoXGNav4to60sU/myhYrOSBCR+GCGBiHjluJkZraGV3Xbn
Zpa4HZl/DZIMSv2y9QBlkcMZQRMxnv4IkE2Xv9vnCiP8HfPdTz98ydh3jBpVs4Ot
u2miPiFXK0/NKwHWdqJHVsoUE40E/zq4rxdjhBg/B8yF3QPnAoVDO8ypWYvCNHsr
aVu7QNqhK80AvOnkmcjskOddKUZWauqBBBWN6luDLDhDruDn+iZwM7RxSbFUnOBv
7M0u0HHpB5+1A+X2XYArQQoKCoBS7K+sdCfFeI7WkYjSF4D7rIjqxj3NZomhMuug
W07G6Z7elgpCp4ynTG5CSx453K14QzCwBQLLwr6EzYCT/YM4JGNdC9CRqjBhox1jH
NaaThuPRrXONiDmUv4WqwSPjNwFWaxpckm0Drtz2l24P+6r0mLgRbAttr6Q+8EOC
dWeBgPsgNCvzGUms23X69Akdd12+40z4CHOnAgXoFT2WWMds3lAcJ7kBjQRoAJdv
AQwAvq3X7Vm7dq55/UQfdeNOxzLftJxqhrpWWBxEFKHMYKc7yipDzfWohDSwImez
sVZeatnFeAHEu95NQvedKPY1/MSmeLWHYGGiLlPJPXG1+CNv2xf1y5M5lqxcKsJQ
zRBZylJsWt2v5kuT8035VyFafCoZQ/lle+Tbk+L4zE7YjVaBBQFbDzIJEHrivTu9
uzjVhkNfpPw/2LvgjuJ/sPKXA8Dl1PY33lTGyltCjD5XtT3R1Nm9nPecbbKu8gbI
s9jIpimimBIYB3q8Voua9J336R0uugPivhAlyTQ5Gfacox5AEE+a7wSYsck12uQy
iBiRs3HQHzmNgC4V66hWDpSBxzWi87sWQyhfLu3mjZm0tv9c92p6jzNYoDi8wHb8
XluA2YcMxLqFNQ5O/rVEDQP0xRZy3F0dJ/rLSZOqAwaGWkVqF1xAZ/b0V7661Fkw
m59xiepXX8Y2zhISxtQXuvAKq0GVnlii+vxDpkiL+z5En+rFINBNCOqtW1uLNz00
JdCrABEBAAGJAbwEGAEKACYWIQRtfHHk2SMhmGOHn9N6W70ypAcodwUCaACXbwIb
DAUJA8JnAAAKCRB6W70ypAcod6JFC/9BqCNMx+SYn4v7Ll0lDEXxqIbZmD46i6uc
KxBx/wI0mNOplE8VlD3vNOhqh84V+9LB6K8ChTUENCYwlNEq86vG3gV5KYI5Y6y4
ey6jaQWWA3aiB0gsSL816rVv4P9LATMA+eFedMmY6swARGSTse1nOHoTrwWsbP3v
kTmL+T5HCDFQ8D/Vq84lx5pLvoYT82YeHyAoY+9GOGjzSgZO6OrqfoMzQyJLufuN
```