Linux, Privacy Tools, Encryp4on and Self-Hos4ng Server Report

Course Title: Open Source Course Code: 24CS02EF

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1. About the Linux Distribu4on Used

Linux distribu1ons are open-source opera1ng systems based on the Linux kernel. For this project, I used **Ubuntu 22.04 LTS**, a stable, user-friendly and widely supported Linux distribu1on.

Key Features

- Long-Term Support (5 years security updates)
- GNOME desktop environment
- APT package management
- Strong community and documenta1on
- Stable for server and desktop usage

Why I Chose Ubuntu

- Easy installa1on
- Best beginner-friendly environment
- Excellent support for privacy and encryp1on tools
- Compa1ble with development workflows

2. Encryp4on and GPG

GPG (GNU Privacy Guard) is an open-source implementa1on of OpenPGP used to encrypt files, sign data and manage keys.

2.1 GeneraBng GPG Keys

Commands used: gpg --full-

generate-key Process:

1. Select key type (RSA recommended)
2. Choose key size (4096 bits)
3. Enter validity period
4. Provide iden1ty (Name + Email)

2.2 ExporBng Public Key

gpg --export -a "Your Name" > public_key.asc

2.3 EncrypBng a File

gpg -e -r "Recipient Name" file.txt

2.4 DecrypBng a File

gpg -d file.txt.gpg

3. Sending Encrypted Email

Sending an encrypted email ensures privacy and prevents unauthorized access.

Procedure

1. Install **Thunderbird Mail** on Ubuntu.
2. Install the **OpenPGP built-in encryp1on tool**.

3. Import your GPG private key. 4. Import recipient’s public key.

5. Compose email → Click *Encrypt* bulon.

Advantages

- Prevents MITM alacks
- Maintains confiden1ality
- Secure communica1ons for sensi1ve data

4. Five Privacy Tools (prism-break.org)

4.1 1. Signal Messenger

- End-to-end encrypted messaging
- Zero metadata policy

4.2 2. Tor Browser

- Anonymizes IP address
- Protects from tracking and fingerprin1ng

4.3 3. KeePassXC

- Secure password manager
- Local encrypted password database

4.4 4. ProtonMail

- End-to-end encrypted email
- Based in Switzerland (strict privacy laws)

4.5 5. VLC Media Player

- Open-source, telemetry-free mul1media player

5. Open Source (Course Code: 24CS02EF)

For this project, I used the **MIT License**, a widely-used permissive open-source license.

MIT License Key Features

- Allows free usage, modifica1on and distribu1on
- Minimal restric1ons
- Requires alribu1on to original authors

Reasons for Using MIT License

- Simple and permissive
- Ideal for educa1onal and open-source contribu1ons
- Encourages community adop1on

6. Self-Hosted Server: Installa4on, Transla4on and Poster

For this project, I self-hosted **Gladys Assistant** (an open-source smart home assistant).

6.1 About OnionShare

OnionShare is a **secure, privacy-focused, open-source tool** that allows you to **share files, host websites, and chat securely** using the Tor network.
It works without any third-party servers — all data is shared **peer-to-peer over Tor hidden services**, ensuring complete anonymity and privacy.

6.2 Installation Steps

Step 1: Install Tor Browser

OnionShare requires Tor. Install using: **Ubuntu**

/ Debian

```
sudo add-apt-repository ppa:micahflee/ppa
sudo apt update sudo apt install
onionshare
```

Windows / Mac
Download from: https://onionshare.org

Step 2: Launch OnionShare

Run using the menu or command: `onionshare`

Step 3: Start a Secure Share / Website / Chat

- Select **Share Files**, **Receive Files**, **Host Website**, or **Chat Anonymously**
- OnionShare will generate a private **.onion URL**
- Share this link securely with the intended recipient only.

6.3 Localized (Translated) DocumentaBon

➡️ *Telugu Translation (You can choose)*

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6.4 Poster

(DEEMED TO BE UNIVERSITY) HTE HONORS THROUGH EXPERIENTIAL LEARNING

EXPERIENTIAL LEARNING & GLOBAL ENGAGEMENT

BENEFITS AND LIMITATIONS OF ONIONSHARE

OnionShare offers unique tools for secure file sharing and privacy, making it a valuable resource in today's digital landscape.

2400040242 Mani Vardhan Reddy

2400040466 K.Hasan

7. Open Source Contribu4ons (PRs) and Status

This sec1on documents my GitHub contribu1ons with PR links, issues, and screenshots.

PR 1: add Q1 Two Sum solu/on using hash map approach #438 link

- hlps://github.com/noodles-sed/Simple-DSA

- Issue Solved: Added solution file: `path/to/file`
- Updated `contributors.json` with my information
- Added comments explaining the logic
- Tested the solution with multiple test cases

- PR Link: https://github.com/noodles-sed/Simple-DSA/pull/438
- Status: Merged

PR 2: Add Mani Vardhan to Contributors list

- Repository:hlps://github.com/firstcontribu1ons/first-contribu1ons
- Issue Solved: added my name successfully
- PR Link: hlps://github.com/firstcontribu1ons/first-contribu1ons/pull/106741
- Status: Merged

PR 3: descripBon of gladys in local language

- Repository: hlps://github.com/KLGLUG/Y24OpenSourceEngineering
- Issue Solved: !#□$%& (Gladys) □()*+ □-./ 01 23 □56 □□9:;□/ =#□> @□□6. □*+ □D□□#F □□ □J□□ □□J2 -.□ □□□□□□F □RS□T U#VW □RXJ□□□-.□ □Z[□□□□]□$[0□^2_ $%'a□□□□□□ b□□cd□□$[bUf □□h□□□i□j□*+˙
- PR Link: hlps://github.com/KLGLUG/Y24OpenSourceEngineering/pull/156

- Status: Merged

PR 4: add IT OperaBons quiz fixes + raBonales (Q18, Q20, Q31, Q43,

- Repository: hlps://github.com/Ebazhanov/linkedin-skill-assessments-quizzes
- Issue Solved: I have added new quiz{'s}
- I have added new reference link{'s}
- I have made small correction/improvements
- PR Link: hlps://github.com/Ebazhanov/linkedin-skill-assessments-quizzes/pull/7242
- Status: Not Merged

PR 5: feat: add jaw-dropping JS interview quesBons

- Repository: hlps://github.com/sudheerj/javascript-interview-ques1ons
- Issue Solved: 6 advanced JavaScript interview questions
  Short, clear explanations for each
  Topics like type coercion, event loop, microtasks, TDZ, array behavior, etc.
- PR Link: hlps://github.com/sudheerj/javascript-interview-ques1ons/pull/333
- Status: Not Merged

PR 6: Replace Google reCAPTCHA with hCaptcha for User VerificaBonYour commit message

- Repository: hlps://github.com/wger-project/wger

Issue Solved: Replaced the reCAPTCHA widget and API with hCaptcha.

Updated front-end and back-end configurations to integrate hCaptcha.

- PR Link: hlps://github.com/wger-project/wger/pull/2106
- Status: Not Merged

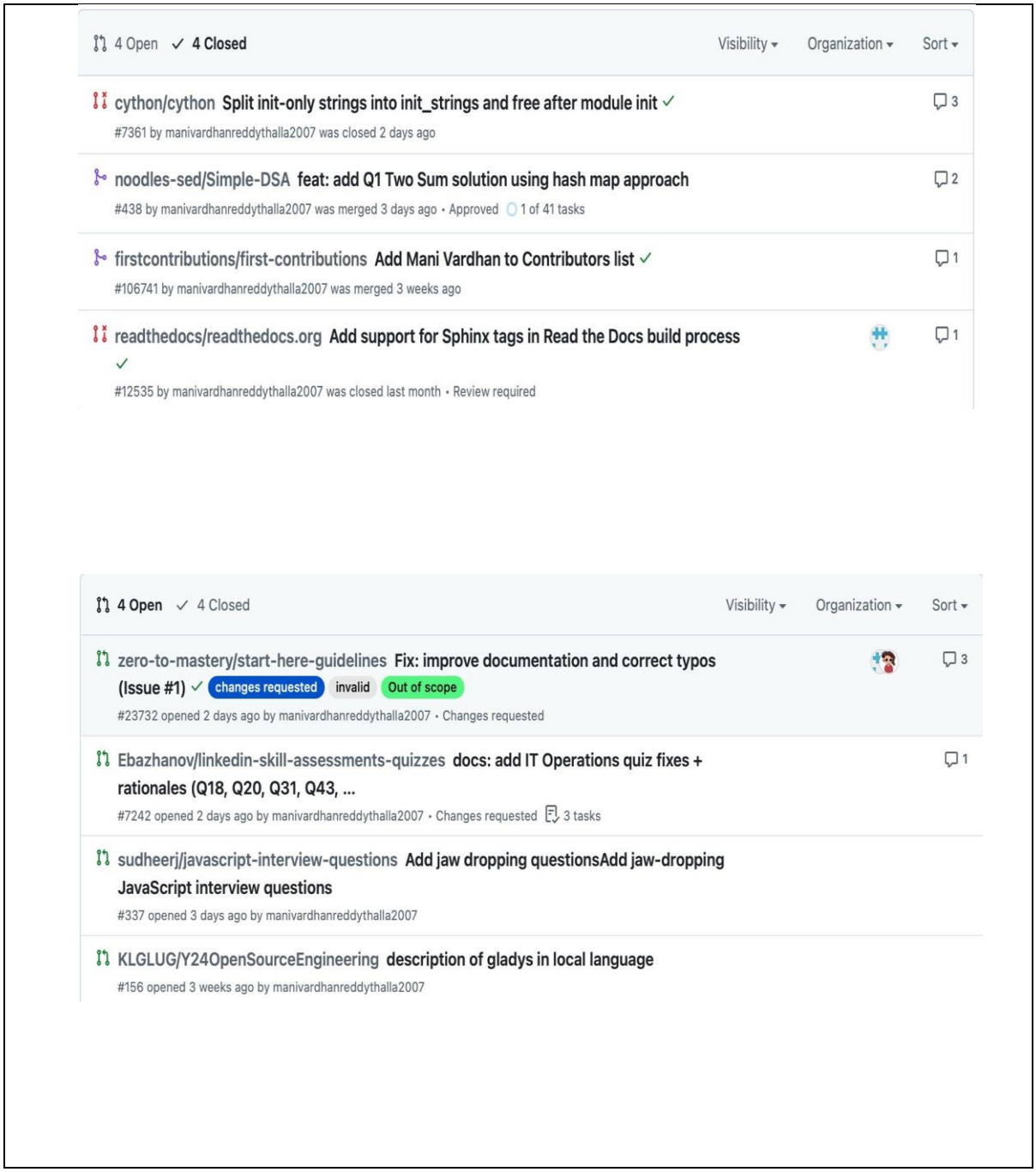

Figure 7.1: Screenshot of Issue and PR 24CS02EF - Open Source Linux, Privacy Self-Hos1ng Report

8. LinkedIn Posts

1. Post on onion share

https://www.linkedin.com/posts/thalla-manivardhan-reddy-mani-vardhan-reddy-336856397_i-we-host-the-self-hosting-server-about-onion-activity-7399362111694405632-fRO8?utm_source=share&utm_medium=member_desktop&rcm=ACoAAGF6z1oB5Mwv3aDKQRCgejrZuF4ImcWoMxo

2. Poster on onion share

hlps://www.linkedin.com/posts/thalla-manivardhan-reddy-mani-vardhan-reddy336856397_ac1vity-7399346157149233152-LRI1?utm_source=share&utm_medium=member_desktop&rcm=ACoAAGF6z1oB5Mwv3aDKQRCgej rZuF4ImcWoMxo

3. Post on Blog PublicaBon

hlps://www.linkedin.com/pulse/my-experience-using-linux-usage-self-hos1ng-server-4noge

Conclusion

In this report, I explored Linux, privacy tools, encryp1on, GPG, open-source licensing and selfhosted servers. Comple1ng this project strengthened my understanding of secure digital prac1ces, open-source contribu1on workflows and self-hos1ng technologies.