

# KL UNIVERSITY

Department of Computer Science & Engineering

## Open Source Report



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## 0) Front Page & Student Details

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- **Project / Report Title:** My Open Source Final Report
- **Course:** Open Source / Open Source Engineering
- **Student:** Vivek Kumar Rathour, Roll: 2400030562
- **Department:** CSE-1(HTE)
- **College:** KL University
- **Faculty:** Dr. Sripath Roy
- **Academic Year:** 2025–2026

## 1 About the Linux Distro You Used

### Distribution Details

- **Distribution:** Ubuntu (LTS)
- **Version:** Ubuntu 24.04.3
- **Why chosen:** Personal preference and widespread community support.
- **Install method:** Dual Boot (or VM as per environment)

### Installation Steps (brief)

1. Downloaded Ubuntu ISO (version: 24.04.3).
2. Created bootable USB and installed alongside existing OS (dual-boot).
3. Post-install: update packages using `sudo apt update && sudo apt upgrade -y`.

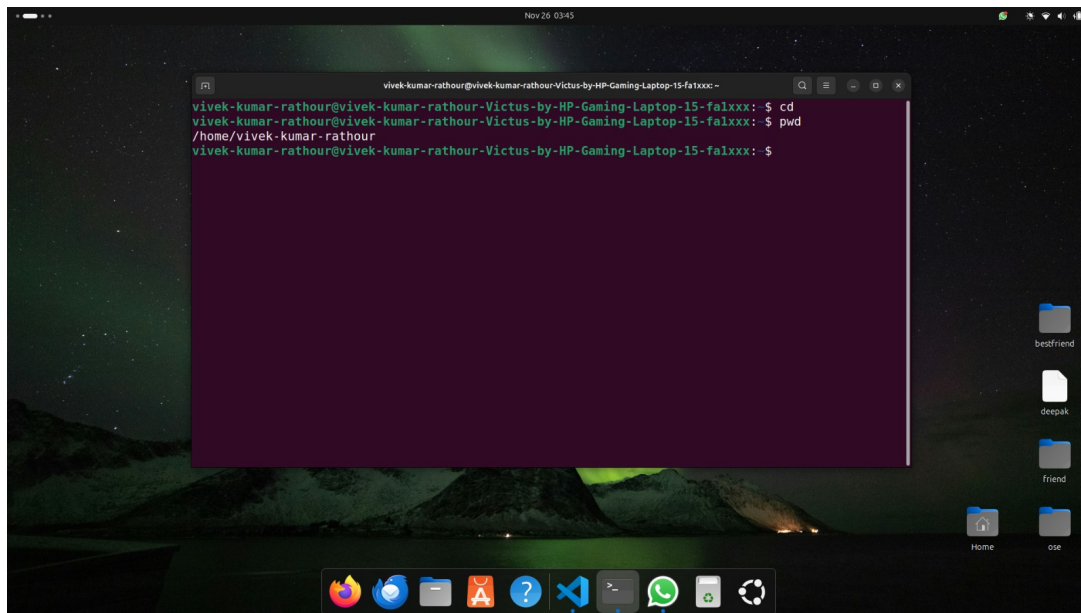


Figure 1: Opening My terminal for first time

## 2 Encryption and GPG

### Overview

GPG (GNU Privacy Guard) provides public-key encryption using an asymmetric key-pair model to ensure confidentiality, integrity, and authenticity.

### Details (filled)

- **Email used for GPG key:** 2400030562@kluniversity.in
- **Generated key successfully:** Yes
- **Key fingerprint / Key ID:** DDF6ADC5B27977A2A06E83582A98787904CDEC77
- **User ID (UID):** Vivek\_Kumar\_Rathour <2400030562@kluniversity.in>
- **Screenshots:** See Figure 2

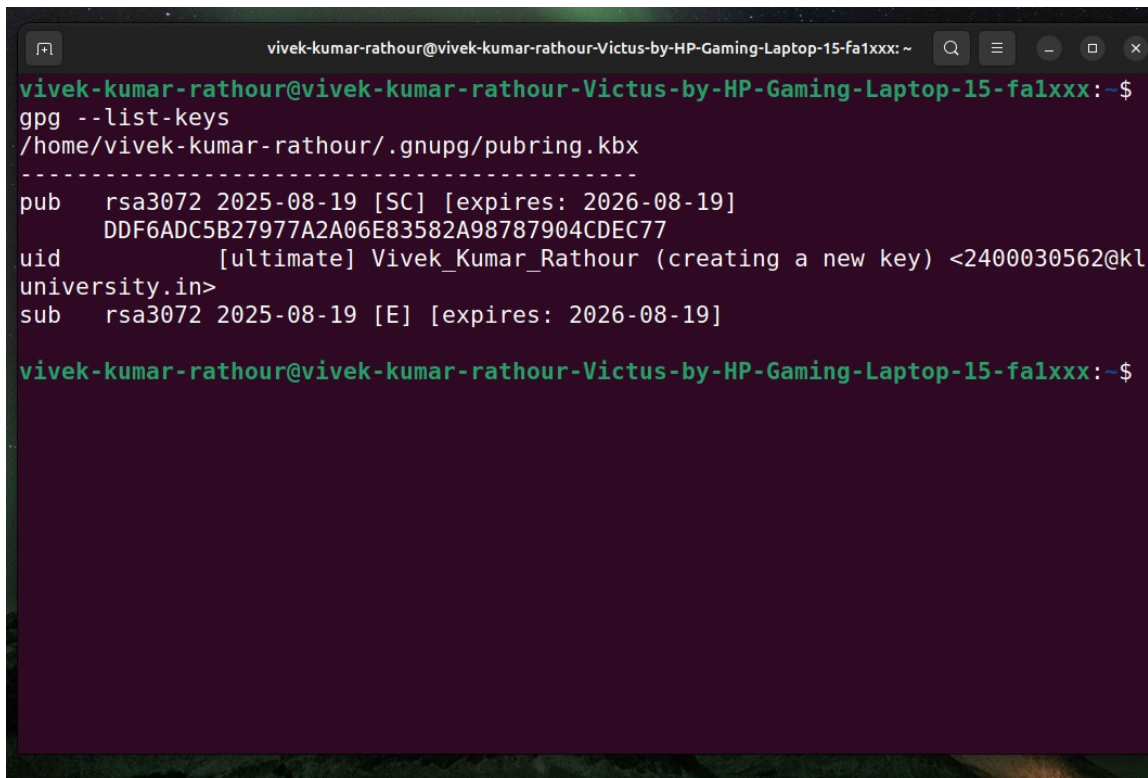
A screenshot of a terminal window on a Linux system. The terminal title bar shows the user 'vivek-kumar-rathour' and the machine name 'vivek-kumar-rathour-Victus-by-HP-Gaming-Laptop-15-fa1xxx'. The prompt is 'vivek-kumar-rathour@vivek-kumar-rathour-Victus-by-HP-Gaming-Laptop-15-fa1xxx:~\$'. The user has entered the command 'gpg --list-keys'. The output shows the path to the public key file, followed by a separator line. The key details are: 'pub rsa3072 2025-08-19 [SC] [expires: 2026-08-19]' followed by the key ID 'DDF6ADC5B27977A2A06E83582A98787904CDEC77'. The user ID is '[ultimate] Vivek\_Kumar\_Rathour (creating a new key) <2400030562@kluniversity.in>'. The subkey details are 'sub rsa3072 2025-08-19 [E] [expires: 2026-08-19]'. The prompt returns to 'vivek-kumar-rathour@vivek-kumar-rathour-Victus-by-HP-Gaming-Laptop-15-fa1xxx:~\$'.

Figure 2: GPG: Listing generated keys on Ubuntu terminal (output from `gpg --list-keys`).

### Suggested Commands (example)

```
1 # generate a key
2 gpg --full-generate-key
3
4 # list your keys
5 gpg --list-keys
6
7 # export public key
8 gpg --armor --export 2400030562@kluniversity.in > publickey.asc
9
10 # encrypt a file
11 gpg --encrypt --recipient 2400030562@kluniversity.in secret.txt
12
13 # decrypt a file
14 gpg --decrypt secret.txt.gpg > secret.txt
```

Listing 1: Example GPG commands — replace with actual used commands

## 3 Sending Encrypted Email

### Tools Used

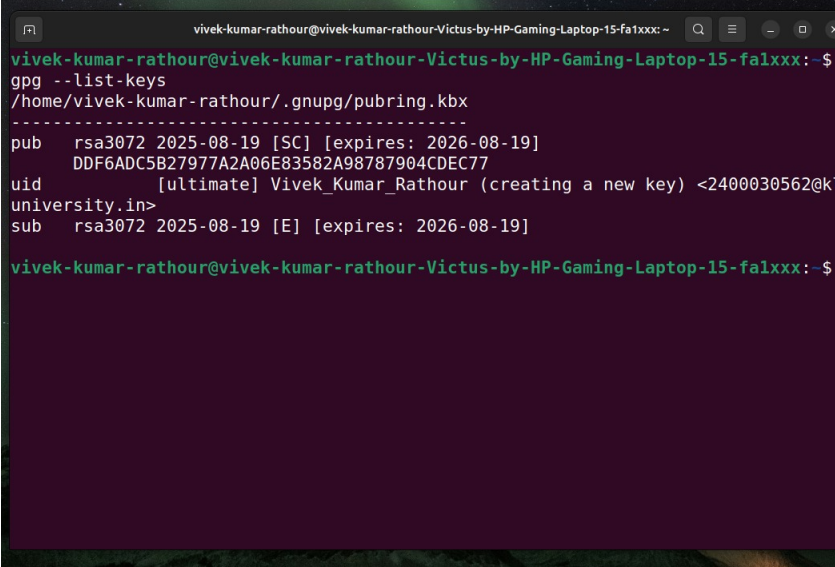
- Mail client: Thunderbird (configured with OpenPGP) — recommended.
- Email provider: 2400030562@kluniversity.in

### Procedure (outline)

1. Import personal GPG private/public keys into Thunderbird (OpenPGP).

2. Verify recipient's public key fingerprint before encryption.
3. Compose message → select *Encrypt* → send.

Send successful? Yes

A screenshot of a terminal window with a dark purple background. The window title is 'vivek-kumar-rathour@vivek-kumar-rathour-Victus-by-HP-Gaming-Laptop-15-fa1xxx: ~'. The terminal shows the command 'gpg --list-keys' and its output. The output lists a public key for 'Vivek\_Kumar\_Rathour' with a fingerprint 'DDF6ADC5B27977A2A06E83582A98787904CDEC77' and a subkey. The key is valid until 2026-08-19. The user's email is 'university.in'.

```
vivek-kumar-rathour@vivek-kumar-rathour-Victus-by-HP-Gaming-Laptop-15-fa1xxx: ~  
gpg --list-keys  
/home/vivek-kumar-rathour/.gnupg/pubring.kbx  
-----  
pub   rsa3072 2025-08-19 [SC] [expires: 2026-08-19]  
       DDF6ADC5B27977A2A06E83582A98787904CDEC77  
uid    [ultimate] Vivek_Kumar_Rathour (creating a new key) <2400030562@kl  
university.in>  
sub   rsa3072 2025-08-19 [E] [expires: 2026-08-19]  
  
vivek-kumar-rathour@vivek-kumar-rathour-Victus-by-HP-Gaming-Laptop-15-fa1xxx: $
```

Figure 3: Screenshot: GPG keys

## 4 Five Privacy Tools (selected)

Below are five recommended privacy-friendly tools (selected by the author based on typical choices). Replace or edit as needed.

1. **Tor Browser** — anonymity and onion routing; avoid plugins and maximize privacy settings.
2. **Signal** — end-to-end encrypted messaging and calls.
3. **ProtonMail** — end-to-end encrypted email service.
4. **Bitwarden** — open-source password manager (self-hostable).
5. **Nextcloud** — self-hosted cloud and collaboration suite.

For each tool you can provide:

- Installation notes / commands: \_\_\_\_\_
- Screenshots (optional): place images in images/ and reference here.

## 5 Open Source License Used

### Selected License

- **License chosen:** MIT
- **Reason:** Permissive, simple attribution requirement, widely used.

## MIT License (inserted)

### MIT License

Copyright (c) YEAR Vivek Kumar Rathour

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## 6 Self-Hosted Server — About & Installation

### Service Hosted

- **Service:** Homer — A daily dashboard (memo-style homepage) used to collect quick links and notes
- **Hosting method:** Docker (self-hosted on local Linux machine)
- **Installation approach:** Docker + Docker Compose used for setting up Homer UI dashboard

### Installation summary (Docker Compose example)

```
1 version: "3"
2 services:
3   homer:
4     image: b4bz/homer
5     container_name: homer
6     ports:
7       - "8080:8080"
8     volumes:
9       - ./assets:/www/assets
10    restart: unless-stopped
```

Listing 2: Docker Compose file used to self-host Homer

### Notes

- Place any custom icons or assets in the `assets/` folder beside the compose file.
- Start with `docker-compose up -d` and verify logs with `docker logs -f homer`.
- Use a reverse proxy (nginx) and optionally enable TLS (Let's Encrypt) for external exposure.



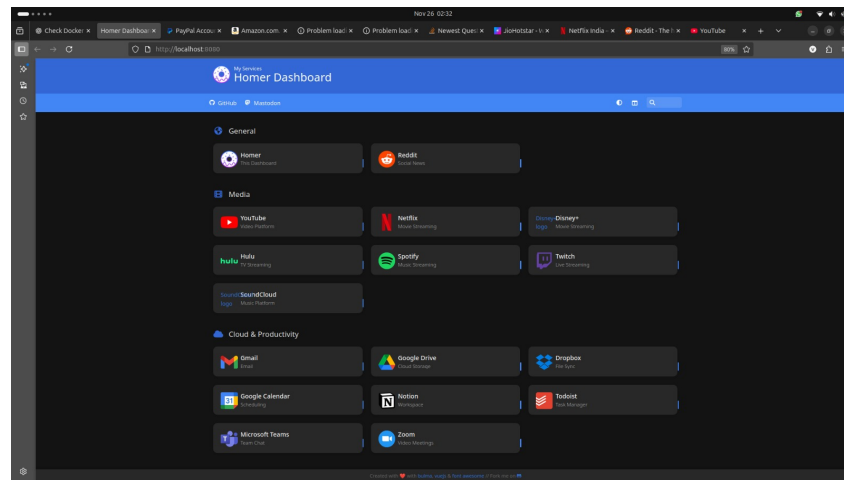


Figure 4: Self-hosted Homer dashboard (placeholder).

## 7 Open Source Contributions (PRs) and Status

## How to list each PR (template)

- **Repository:** \_\_\_\_\_
- **Issue / PR link:** \_\_\_\_\_
- **Issue ID:** \_\_\_\_\_
- **Description:** \_\_\_\_\_
- **Files changed:** \_\_\_\_\_
- **Status:** \_\_\_\_\_ (Merged / Open / Closed)
- **Screenshot:** (add file if available)

## PR 1

- **Repository:** firstcontributions/first-contributions
- **Issue / PR link:** <https://github.com/firstcontributions/first-contributions/pull/107025>
- **Issue ID:** #107025
- **Description:** Added my name "Vivek Kumar Rathour" to the Contributors list as part of the First Contributions onboarding project.
- **Files changed:** Contributors.md (1 line added)
- **Status:** Merged

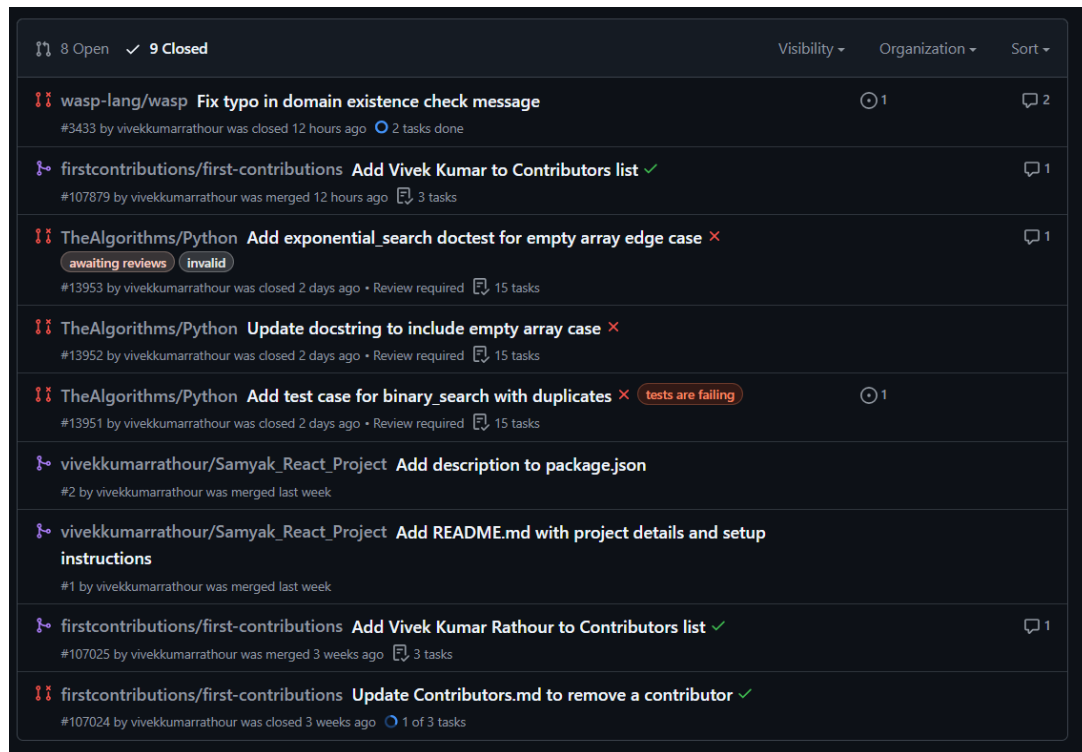


Figure 5: Screenshot of the PR's that I have created .

## PR 2

- **Repository:** refinedev/refine
- **PR link:** <https://github.com/refinedev/refine/pull/7131>
- **Issue / description:** Fixes Supabase Realtime bug where multiple filters caused invalid payloads. Adds warning, uses only the first filter by default, and introduces escape hatch via `meta.realtime.allowMultipleFilters`. (Fixes issue #6360)
- **Files changed:** 1 file changed (36 additions, 99 deletions)
- **Status:** Open

## 8 Links of LinkedIn Posts

Below are two LinkedIn posts reflecting the project work (self-hosting) and the GPG/encryption write-up.

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### 1. Post 1 — Self-hosting implementation

[https://www.linkedin.com/posts/vivek-kumar-rathour-67b155319\\_selfhosting-docker-linux-activity-73](https://www.linkedin.com/posts/vivek-kumar-rathour-67b155319_selfhosting-docker-linux-activity-73)

**Short summary:** This post highlights my experience deploying the Homer dashboard through Docker on my Ubuntu system. It explains how I configured volumes, crafted a minimal compose file, verified logs, and added custom assets to personalise the dashboard. The write-up demonstrates how containerization made hosting a personal homepage simple and strengthened my practical Docker and Linux skills.

## 2. Post 2 — Blog / Write-up (GPG / Encryption)

[https://www.linkedin.com/posts/vivek-kumar-rathour-67b155319\\_my-journey-of-open-source-activity-7](https://www.linkedin.com/posts/vivek-kumar-rathour-67b155319_my-journey-of-open-source-activity-7)

**Short summary:** This article documents my learning journey in cryptography and secure communication: generating GPG key pairs, checking fingerprints, exporting public keys, and sending/receiving encrypted messages. It focuses on practical command-line steps and lessons learned about identity verification and secure workflows.

## A Full Terminal Logs

The following terminal logs capture the key practical steps performed during the course, including system updates, GPG key generation, Docker usage, self-hosting, and Git-based open source contributions.

### System Update & Upgrade

```
sudo apt update
sudo apt upgrade -y
```

### GPG Key Generation

```
gpg --full-generate-key
# Selected RSA 3072-bit, validity 1 year
# UID: Vivek_Kumar_Rathour <2400030562@kluniversity.in>
# Fingerprint: DDF6 ADC5 B279 77A2 A06E 8358 2A98 7879 04CD EC77
```

### GPG Key Listing

```
gpg --list-keys
pub  rsa3072 2025-08-19 [SC] [expires: 2026-08-19]
    DDF6ADC5B27977A2A06E83582A98787904CDEC77
uid  [ultimate] Vivek_Kumar_Rathour <2400030562@kluniversity.in>
sub  rsa3072 2025-08-19 [E]
```

### Exporting Public Key

```
gpg --armor --export 2400030562@kluniversity.in > publickey.asc
ls
```

### Docker Installation

```
sudo apt install docker.io -y
sudo systemctl enable docker
docker --version
```

### Running Homer Dashboard (Docker Compose)

```
docker-compose up -d
docker ps
```

```
# Container: homer
# Ports: 8080 -> 8080
```

### Git Commands for PR Contribution

```
git clone https://github.com/firstcontributions/first-contributions.git
git add Contributors.md
git commit -m "Add Vivek Kumar Rathour to Contributors list"
git push origin main
```

### Git Commands for PR 2 (refine.dev)

```
git clone https://github.com/refinedev/refine.git
git checkout -b patch-2
git add .
git commit -m "fix: handle multiple filters safely"
git push origin patch-2
```

## B Helpful Commands

A compact list of frequently used commands. Use these as a quick reference during installation and debugging.

- `sudo apt update`
- `sudo apt upgrade -y`
- `gpg --full-generate-key`
- `gpg --list-keys`
- `docker-compose up -d`
- `docker logs -f homer`
- `git clone <repo>`
- `git add . && git commit -m "message" && git push`