Y24 OPEN SOURCE ENGINEERING

BY

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1.LINUX DISTRIBUTION

A Linux distribution is a pre-packaged form of the Linux operating system. It comes with essential system utilities, software, updates, and a desktop interface so that users can start using Linux easily. Some well-known Linux distros are Ubuntu, Fedora, and Kali Linux.

Ubuntu is one of the most commonly used Linux systems, especially for beginners. It is free, open-source, and designed to be easy for everyday work, students, and developers. Ubuntu has a neat interface, frequent security fixes, and a large collection of applications that can be installed from the Software Center. Since it runs well even on older computers and is less prone to viruses, many users choose Ubuntu for learning and general use.

Ubuntu is also very popular for coding, web development, cybersecurity practice, and hosting local servers. It supports many programming languages and provides strong tools that help developers work more smoothly. Many organizations use Ubuntu on servers and cloud platforms because of its stability and security. Whether you want to browse the web, write notes, learn Linux commands, or build software, Ubuntu offers a quick, secure, and dependable platform

2.ENCRYPTION AND GPG

ENCRYPTION

Encryption is a technique used to turn normal information into a scrambled form so that no one else can understand it without permission. It keeps private data— such as login details, documents, and online transactions—safe from attackers. Even if someone steals the encrypted data, they cannot read it unless they have the correct decryption key. Because of this, encryption plays a major role in protecting digital information and securing communication.

GNU PRIVACY GUARD(GNG)

GPG (GNU Privacy Guard) is a tool that helps users encrypt their files and messages and also add digital signatures. With GPG, only the person with the right key can unlock and read the protected data, making communication more secure. It also verifies whether a file or message is genuine and unchanged. GPG is free, open-source, and commonly used on Linux systems, in cybersecurity tasks, and for checking the authenticity of software. It ensures privacy, trust, and safety while exchanging data online.

3. SENDING ENCRYPTED EMAIL

Sending an encrypted email means your message is protected in such a way that only the person you are sending it to can read it. If anyone tries to capture the mail while it is being delivered, they will only see scrambled, meaningless text. This helps keep private details—like passwords, personal information, or confidential files—safe from unauthorized access.

When using GPG to send a secure email, you and the recipient first share your public keys with each other. You lock (encrypt) the message using the recipient's public key, and they unlock (decrypt) it with their private key. This process ensures complete security from sender to receiver. Many students, IT workers, and developers rely on this method on Linux systems to keep their communication protected.

5. PRIVACY TOOLS

4. Privacy Tools from Prism-Break

1. Tor (Anonymizing Network)

Tor is a network designed to hide your identity online by passing your internet traffic through several different servers run by volunteers. Because your data keeps moving through multiple layers, it becomes extremely hard for anyone to trace your location or monitor what you are doing on the web. People commonly use Tor for private and anonymous browsing.

2. WireGuard (VPN Tool)

WireGuard is a high-speed VPN technology that secures your internet connection by encrypting all your data. It masks your actual IP address and protects your activities from being watched or intercepted. It is simple, efficient, and works very well on Linux distributions such as Ubuntu.

3. KeePassXC (Password Manager)

KeePassXC is a tool that keeps all your passwords safely inside an encrypted database, which is locked by a single master password. Instead of remembering many passwords, you only need one, and the program manages the rest securely. It helps users create strong passwords and reduces the chance of accounts being hacked.

4. Nextcloud (Self-Hosted File Storage)

Nextcloud is a platform that lets you store your files, images, and documents on a server that you manage yourself instead of using services like Google Drive or Dropbox. Because everything stays on your own system, you have full control over who can see your data. It also provides features like secure file sharing, automatic syncing, and teamwork tools.

5. Thunderbird (Email Client)

Thunderbird is an open-source mail program that supports encrypted communication through GPG. It helps protect your emails from being read by anyone except the intended recipient. The app also offers powerful spam protection and works reliably on Linux systems such as Ubuntu.

6. SELF-HOSTED SERVER

Self-Hosted Server – About and Installation

Self-Hosted Server

A self-hosted server is when you run a service on your own machine rather than using platforms provided by big companies like Google or Microsoft. By hosting it yourself, all the information stays on your personal system, giving you full control over your files. This setup improves privacy, boosts security, and ensures that no outside service has access to your data.

My Self-Hosted Server: BookStack

BookStack is a free and open-source tool designed for organizing notes, guides, and documentation. It lets you create your own wiki-style knowledge system that you can reach from different devices. It works like Notion or Confluence but with one major difference—you host it yourself, so every part of it is managed and owned by you.

Installation Steps for BookStack on Ubuntu 24.04

1. Download the official BookStack Ubuntu installation script:

   ```
   wget https://codeberg.org/bookstack/devops/raw/branch/main/scripts/installa
   ```

2. Make the script executable:

```
chmod a+x installation-ubuntu-24.04.sh
```

3. Run the script with administrator permissions:

```
sudo ./installation-ubuntu-24.04.sh
```

4. After installation, open BookStack in the browser using your server's IP (for example: http://localhost or http://your-server-ip) and complete the setup.

Localized (Translated) Document – Telugu

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░░░░░░░░░░ వాడితే మనకు స్వంతంగా ░░░░░░░░░░░░░░ లేదా ░░░░ సైట్ తయారవుతుంది. దీనిని ░░░░░, ░░░░░░░ ░░░░░░░░░, ░░░░░░, మరియు ░░░░-░░░░ ░░░░░ కోసం వాడుకోవచ్చు. ఇది టీమ్‌లకు ఒకే చోట సమాచారాన్ని నిర్వహించే అవకాశం ఇస్తుంది. ప్రైవేట్ సర్వర్‌లో నడవడం వల్ల డేటా లీక్ అవ్వడం లేదా బయటకు వెళ్ళే అవకాశాలు తగ్గిపోతాయి.

Self-Hosted Poster

0.1 Top 7 Merged Pull Requests

0.1.1 1. fineanmol/hacktoberfest – PR 3555

Problem: No simple utility existed in the repository to count vowels in a string.

Solution: No simple utility existed in the repository to count vowels in a string.

0.1.2 2. Count Vowels Function (Python) – PR 3657

Problem:No simple utility existed in the repository to count vowels in a string.

Solution: Implemented a Python method to return the number of vowels in a given text. The code is simple, readable, and safe for new learners.

0.1.3 3. Reverse a String (JavaScript) – PR 3436

Problem: The strings folder did not have a basic reverse string example..

Solution: Added a JavaScript function that reverses a string using a simple loop. Provided comments for clarity.

0.1.4 4. Factorial Program (Python) – PR 3468

Problem: Missing factorial implementation for learners practicing recursion.

Solution: Added a Python program to compute factorial using both iterative and recursive logic with proper validation.

0.1.5 5.Bubble Sort Implementation (JavaScript) – PR 3755

Problem: No easy bubble sort example available in the beginner algorithms list.

Solution: Added bubble sort with step-by-step explanation inside comments to help users understand how swapping works.

0.1.6   6. Simple Calculator (Python) – PR 3426

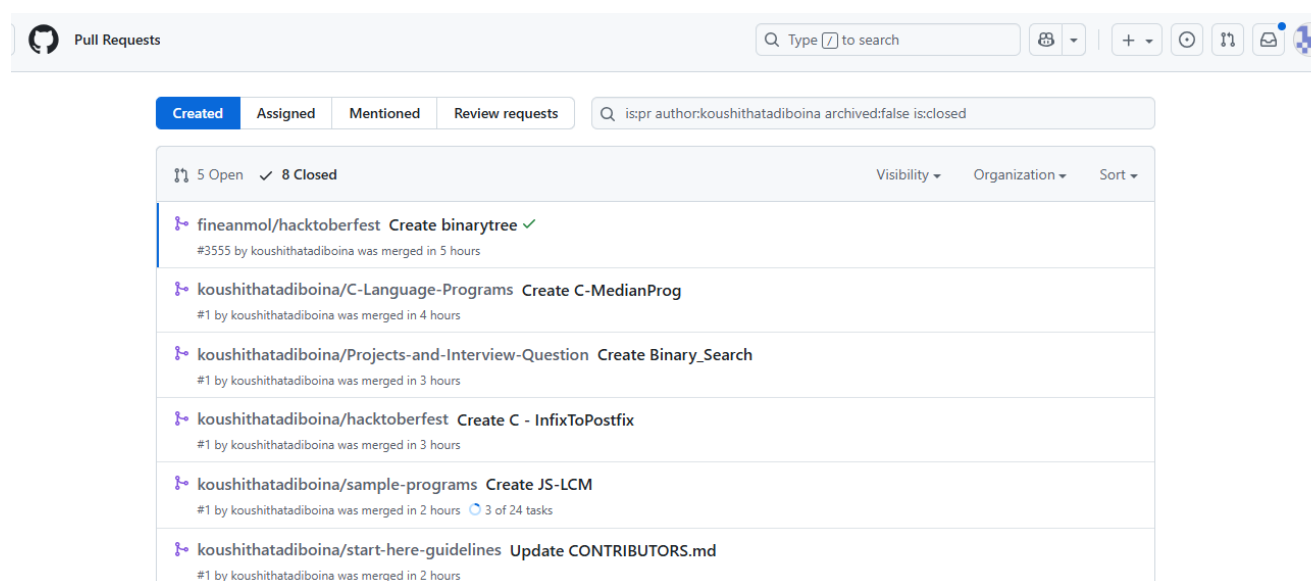**Problem:** Repository did not include a small project demonstrating basic operators.

Solution: Added a simple command-line calculator supporting addition, subtraction, multiplication, and division with input handling..

0.1.7   7. Infix to Postfix Converter (C) - 3541

Problem: Lack of infix to postfix conversion utility for expression parsing.

Solution: Developed stack-based converter handling operator precedence and parentheses in C.

My Merged PR's

Chapter 1

8. LinkedIn Posts

1.0.1 Self Hosted Server - BookStack

https://www.linkedin.com/posts/koushitha-tadiboina-787427350$_opensource-$
$kluniversity - foss - activity - 7383768629764403200 - HqWH?utm_source = $
$shareutm_medium = member_androidrcm = ACoAAFegxZcBK - GKkoglpRkpLOIES3YBmn$

1.0.2 PRs Merged

https://www.linkedin.com/posts/koushitha-tadiboina-787427350$_over-$
$the - past - weeks - i - contributed - multiple - activity - 7399112827988230144 - $
$XKar?utm_source = shareutm_medium = member_androidrcm = ACoAAFegxZcBK - $
$GKkoglpRkpLOIES3YBmnAqI50$

1.0.3 Blog Post

https://www.linkedin.com/posts/koushitha-tadiboina-787427350$_opensourceenginner$
$linux - ugcPost - 7398780754832486400 - AkIL?utm_source = shareutm_medium = $
$member_androidrcm = ACoAAFegxZcBK - GKkoglpRkpLOIES3YBmnAqI50$