

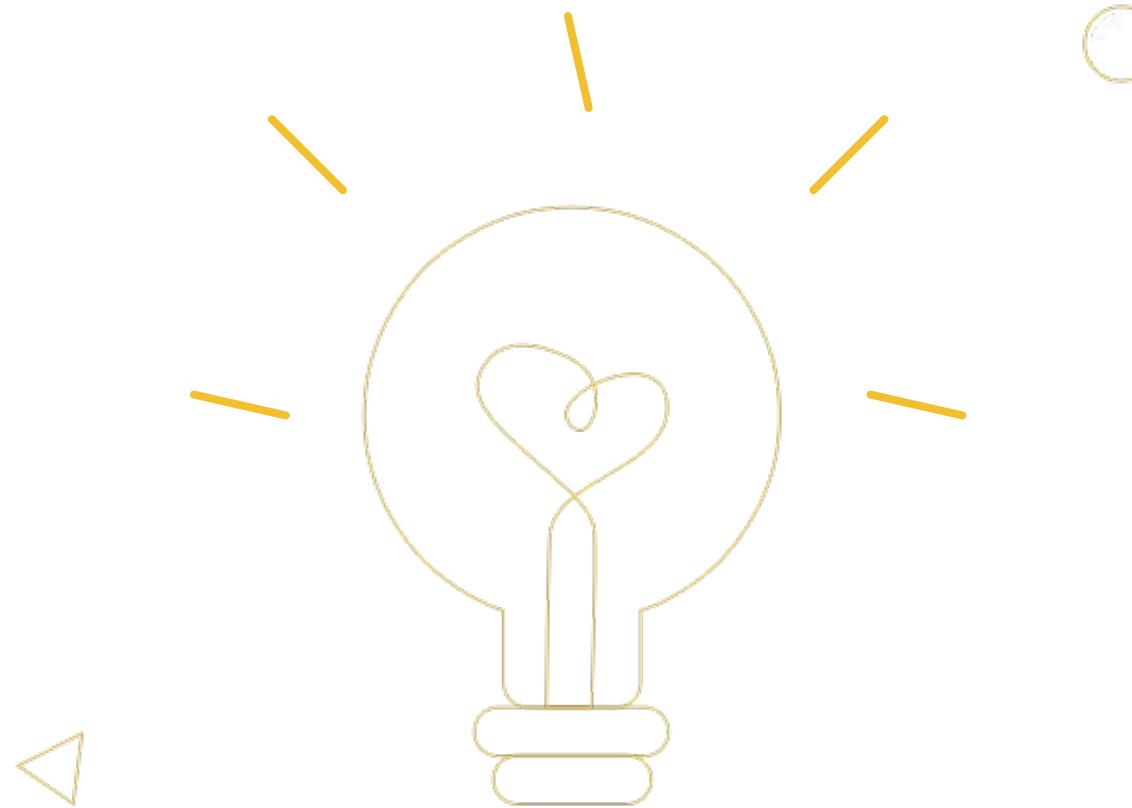
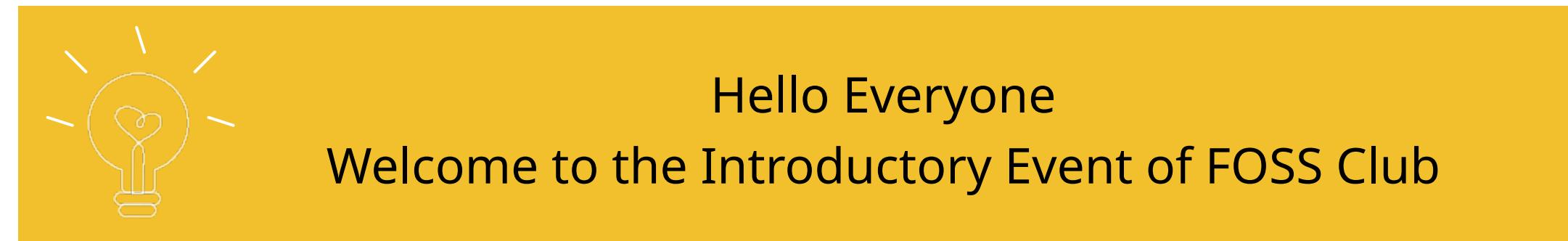
**Venue:** Online Event  
**Date:** 24/12/23    **Time:** 11:00AM

# FOSS Introduction

**The FOSS Club**

Vaibhav Pratap Singh

**President**



# 01

## Introduction

In this Event we will be teaching you the aspect of our newly formed club and taking you on a journey of Free Software

01

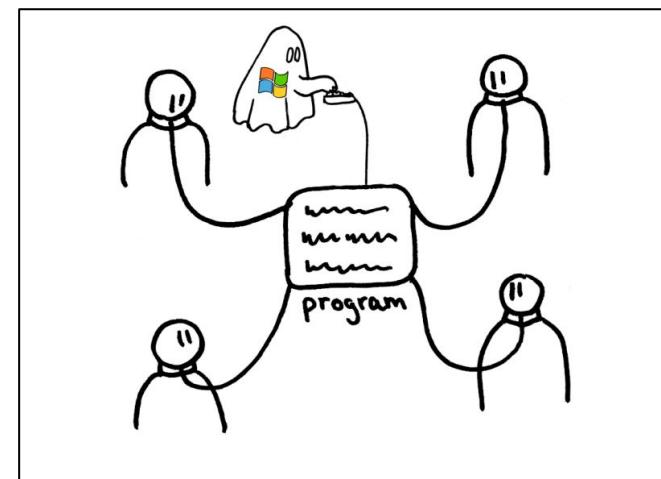
# Free Software extremists

We believe in **Unix** philosophy, prioritizing **free software, right to privacy, and the freedom to tinker**. While we acknowledge proprietary software might exist, we actively *promote and educate on the benefits of free alternatives* within our community.

02

# Tech Blenders

We blend the wisdom of 80s self-hosted internet with the innovation of **Web3 and blockchain**. This unique fusion allows us to tap into the strengths of both worlds, preserving the open spirit of the past while exploring the possibilities of the future.



The image shows a terminal window with a dark background. It displays several lines of system log output from a Linux kernel. The logs include entries for file system operations like 'statfs', inode details, and permission errors ('EBFONT', 'EKEYREVOKED'). There are also floating point exception reports and a speedometer-like performance metric. Overlaid on the top right of the terminal is a large, bold, white text box containing the words 'LINUX USERS'. At the bottom of the image, there is a large, bold, white text box containing the words 'INSTALLING A WEB BROWSER'.

03

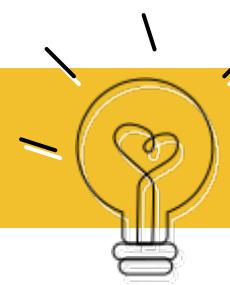
# Security First

Our understanding of **POSIX systems** makes us trusted defenders in the digital realm. We leverage this expertise to build robust and secure environments, safeguarding our community from potential threats.

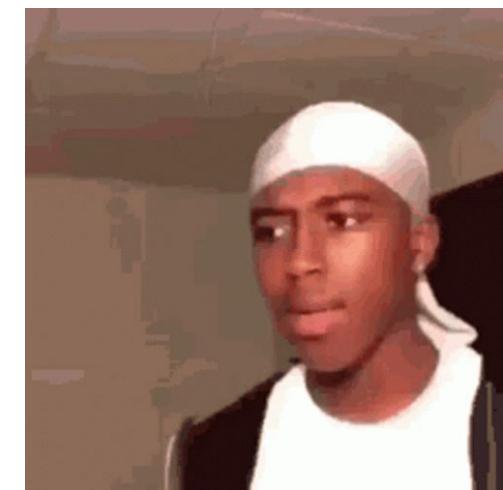
04

# Terminal Centric

We believe in the power and efficiency of the **terminal**. While many navigate through GUIs, we wield the command line with skill, maximizing our speed and productivity, always striving for smoother workflows.



# What is FOSS anyway?



## Is it Free?

Yes but no! FOSS stands for Free Open Source Software. Here Free means Free as in "Free Speech," not as in "Free Beer"



## Lawyeruped

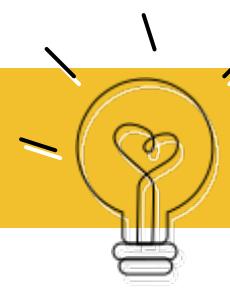
Users are allowed to Redistribute and Share the softwares because of copyleft licences like GPL/LGPL and other Free Licenses.



## Privacy matters

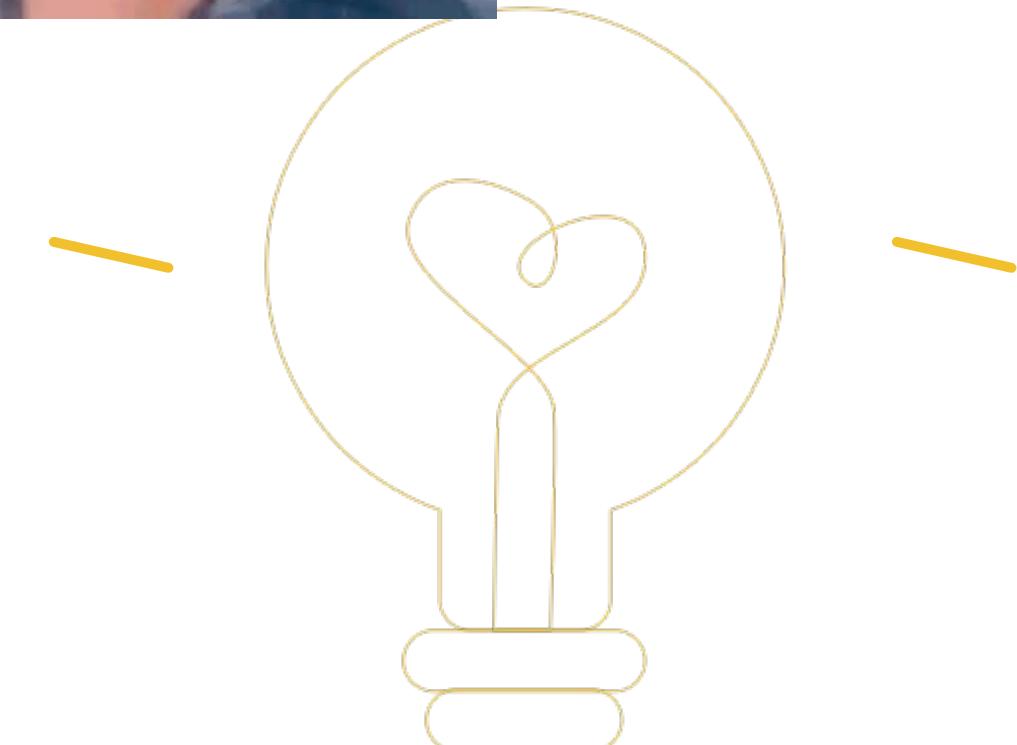
Free software is about protecting user's freedom and Privacy by letting them check by themselves of their privacy promised to them.





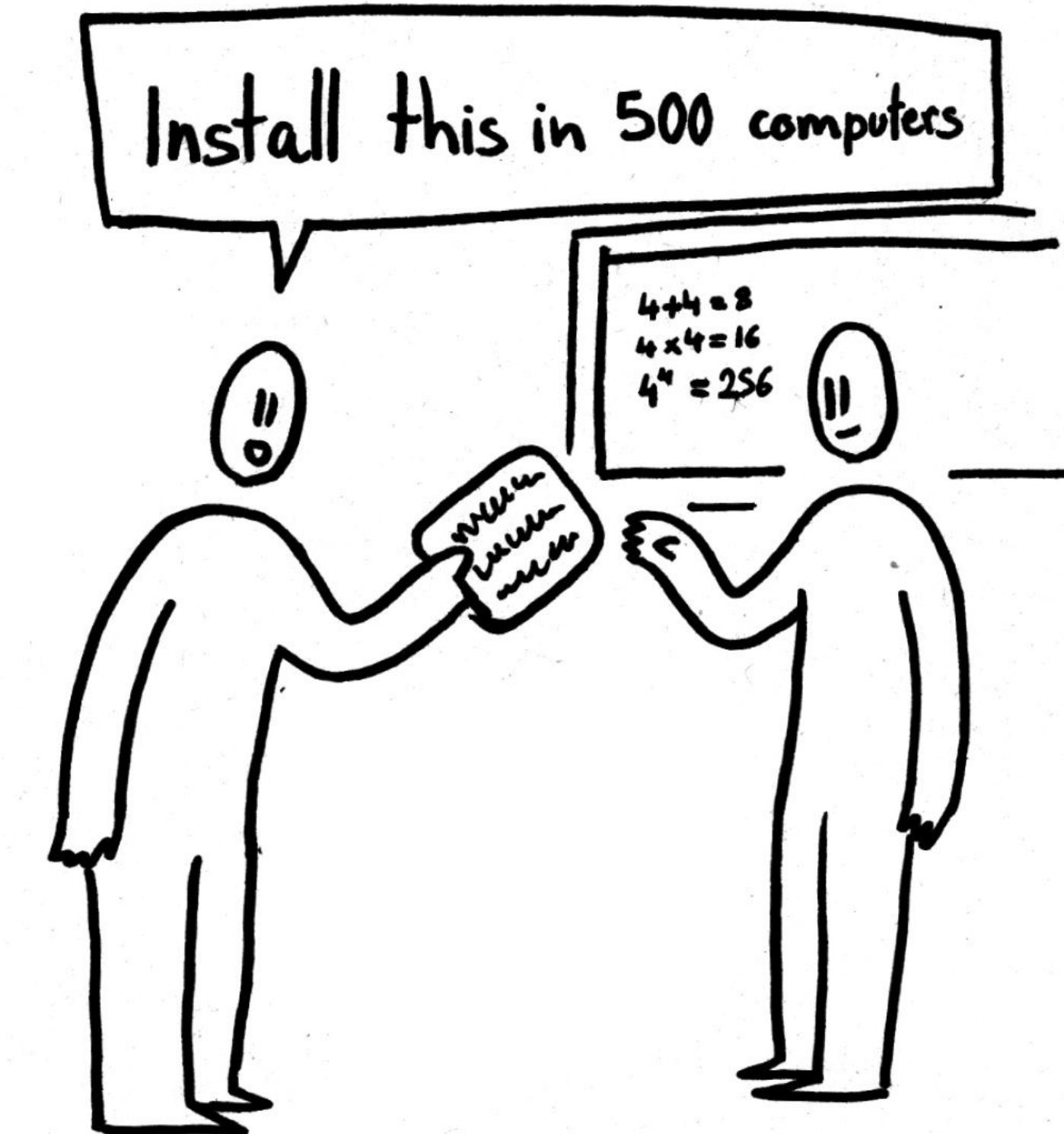
# Freedom?

4 aspects of Freedom are:



# Freedom to Use

Freedom 0  
Run it



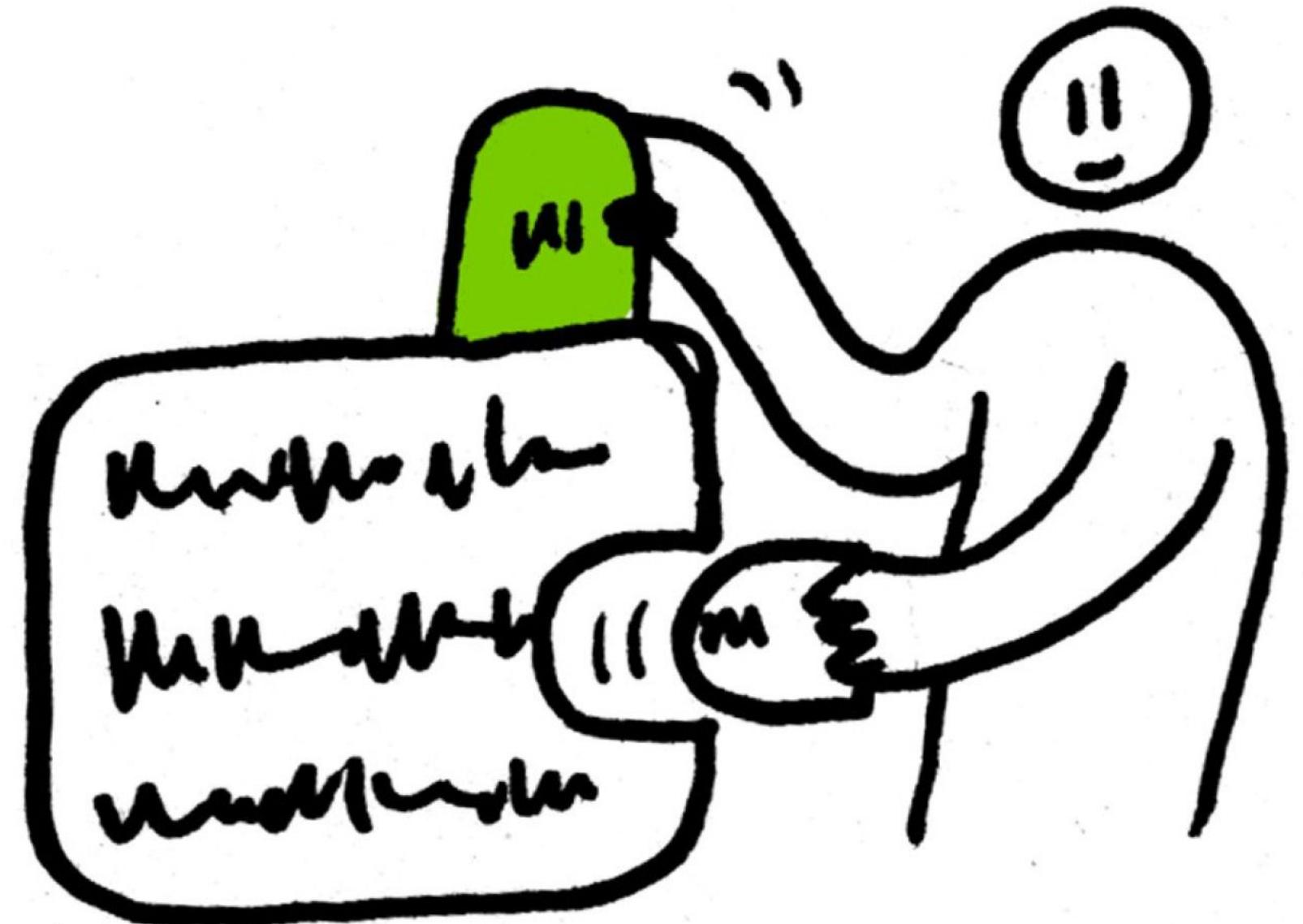
- Freedom to **Redistribute**



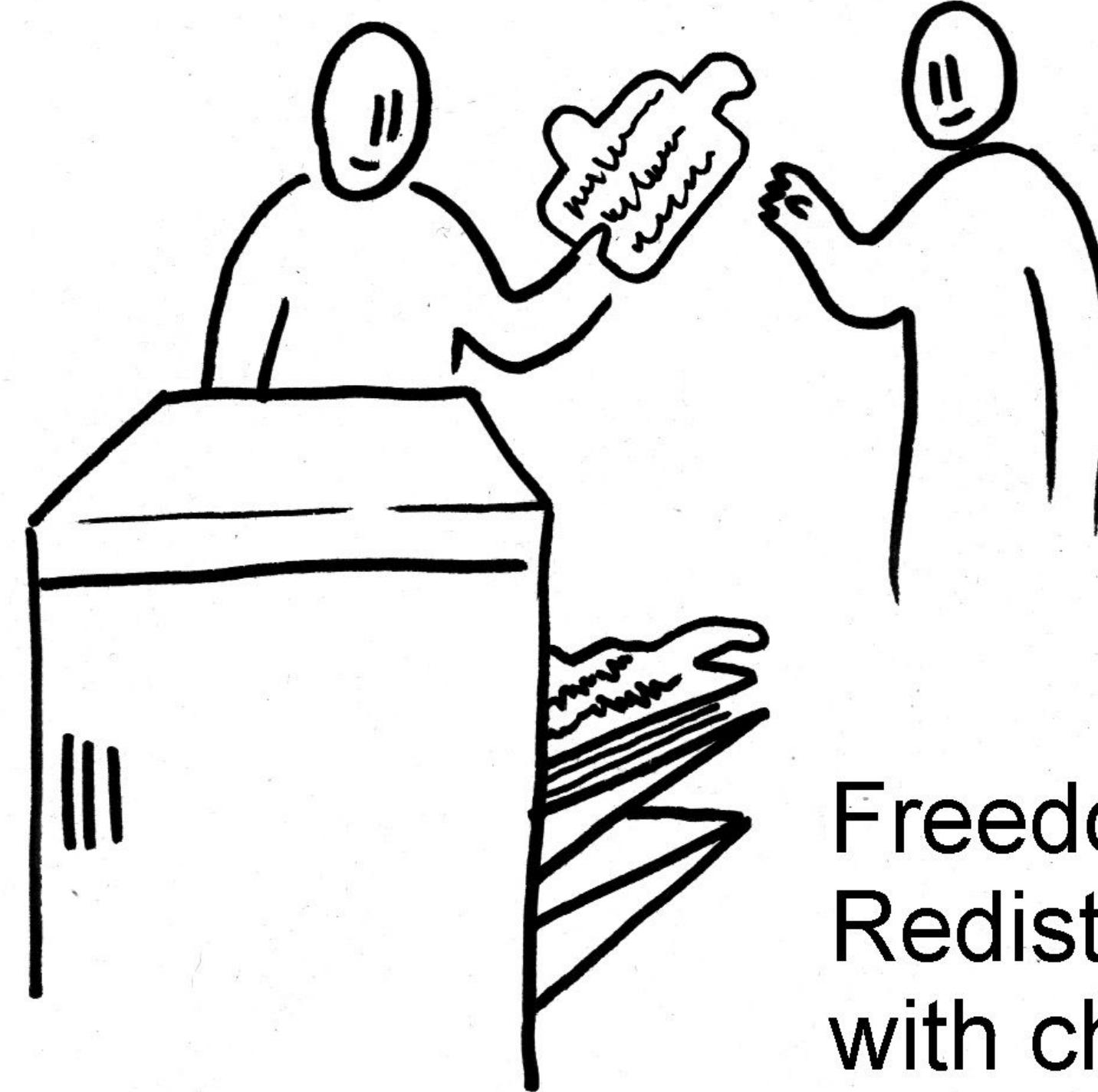
**Freedom 2  
Redistribute it**

# Freedom to Modify

Freedom 1 – change it



# Freedom to Redistribute with change



Freedom 3  
Redistribute  
with changes

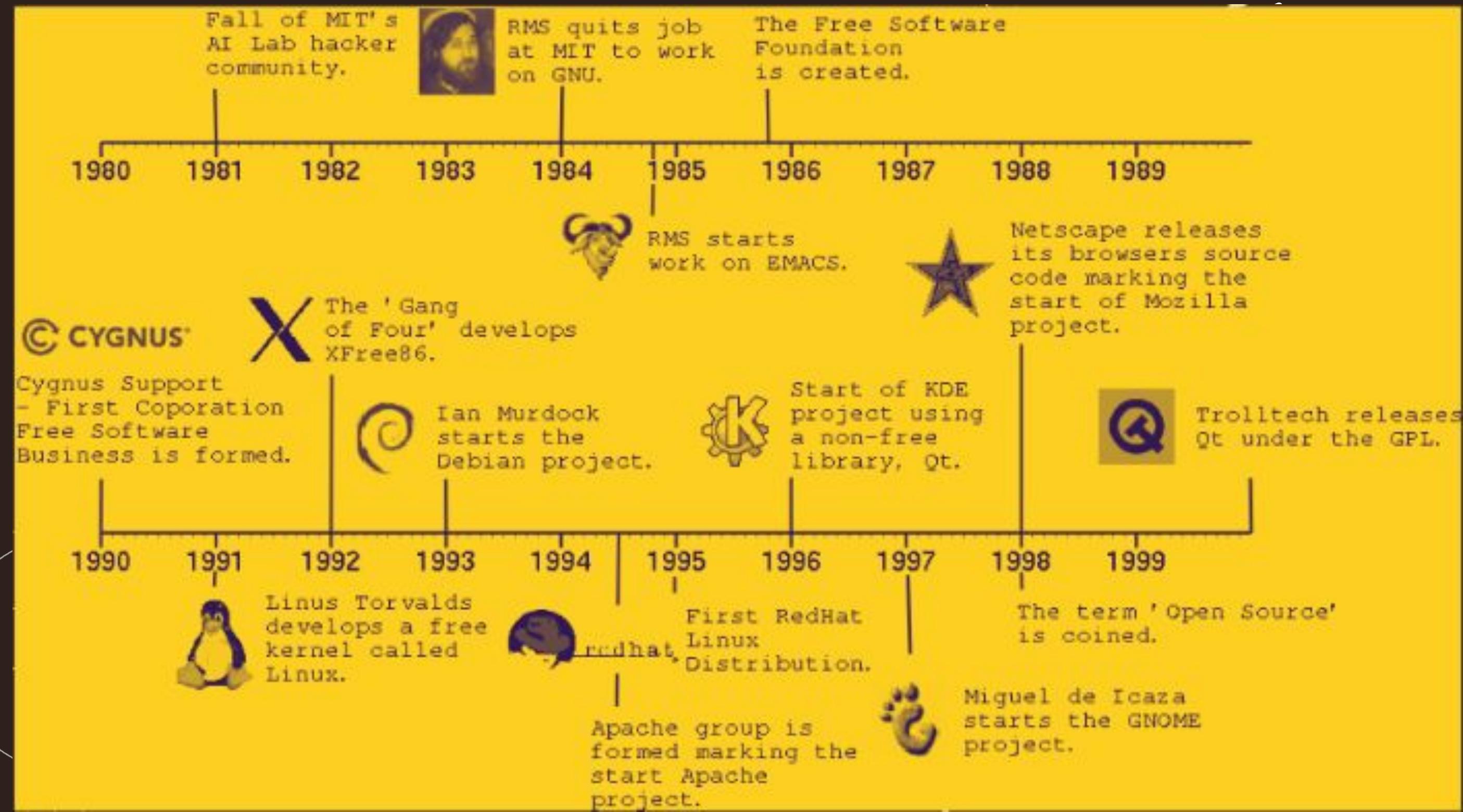
# 02 History

Naah bro chill out we aren't going to bore you out XD



A wild RMS just appeared...

# Timeline of Major FOSS Events



# Timeline of Open Source Software



At first all the software were  
open source!



1970's Software  
industries began  
closing their  
software source.



1985: Richard Stallman  
created GNU project and  
Free Software Foundation.



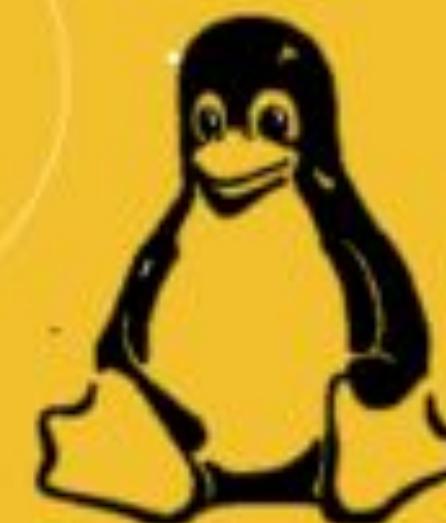
1990's Open source software  
began developing in isolated  
groups.



1990 past as  
open source  
software  
development  
slowly acceler-  
ated.



Late 1990's Linux  
and Open Source  
Software gained  
public acceptance.

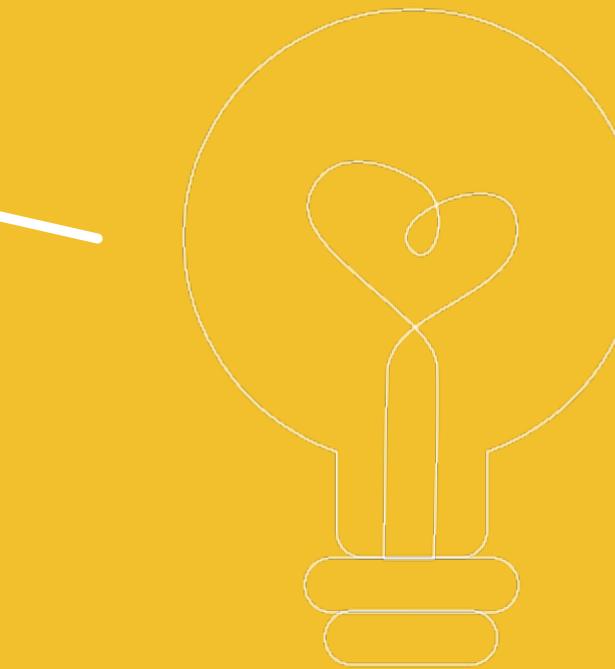


Today Lmux, Mozilla and Android are most popular open  
source

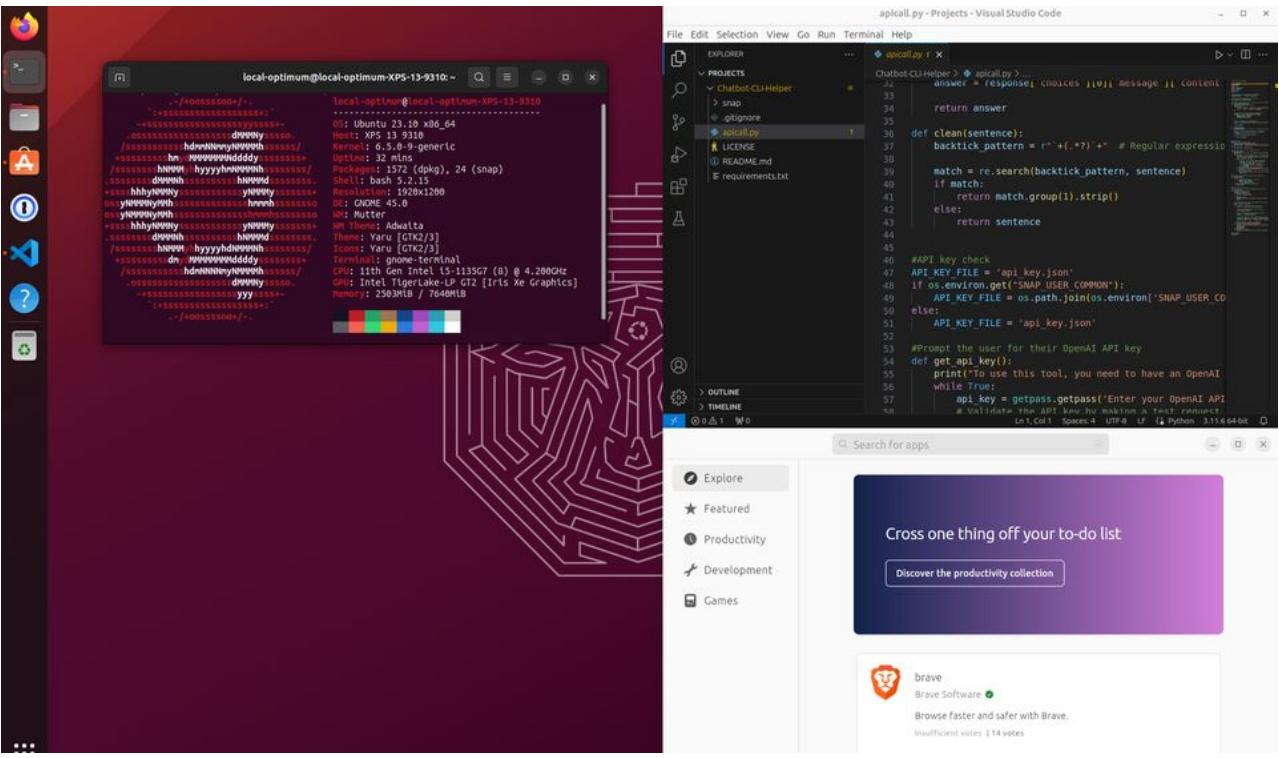


# 03 FOSS Projects

Here is the list of Some Major FOSS/ Open Source Projects exists in our world right now



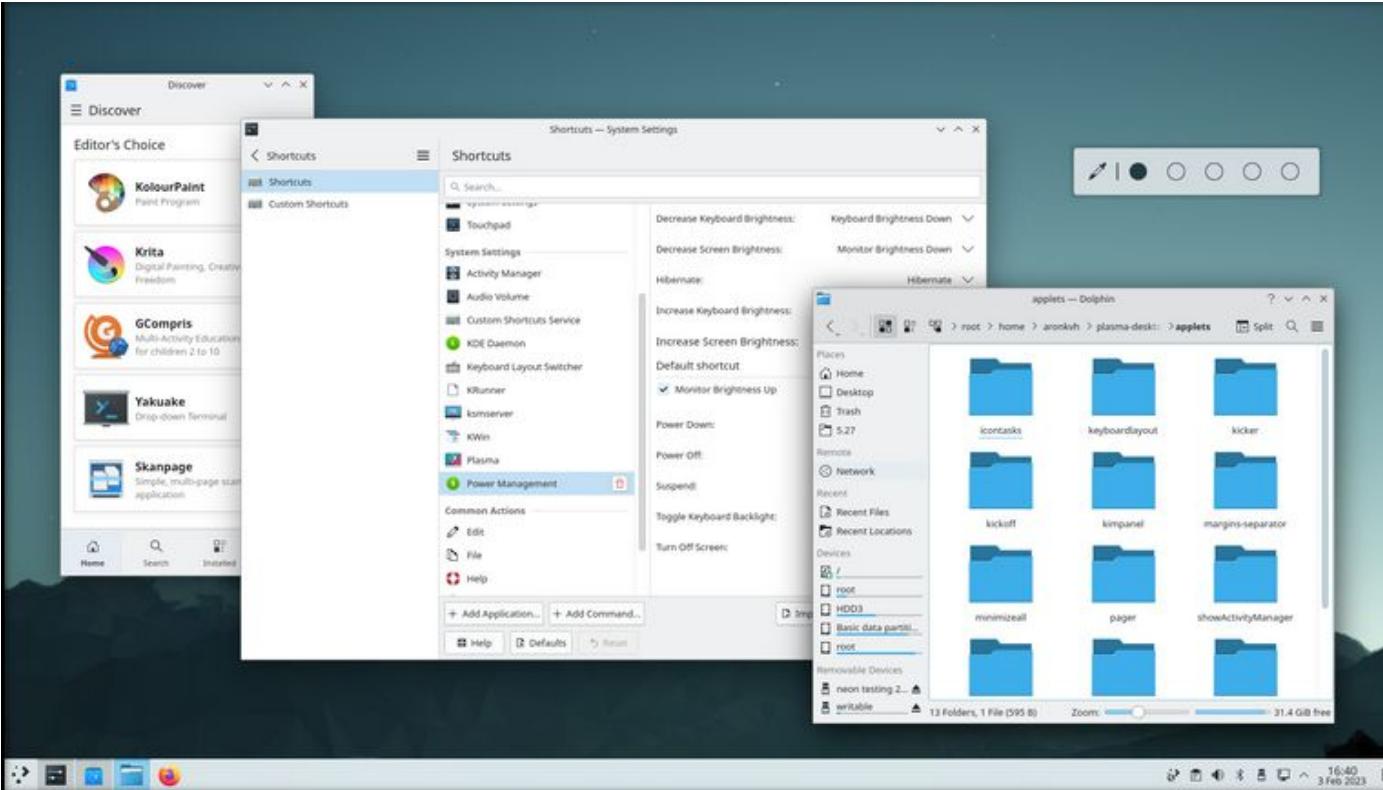
# 1. Linux



Ubuntu 23.10 running GNOME 45



Arch linux on DWM Window Manager



KDE Plasma on Fedora 39

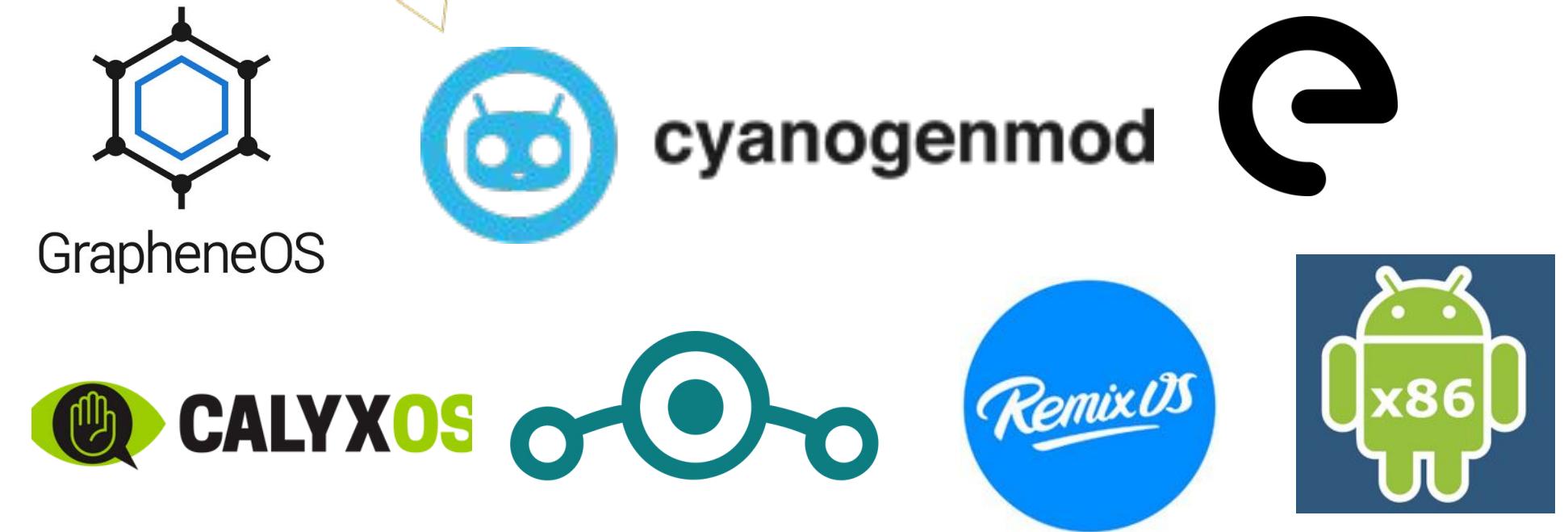
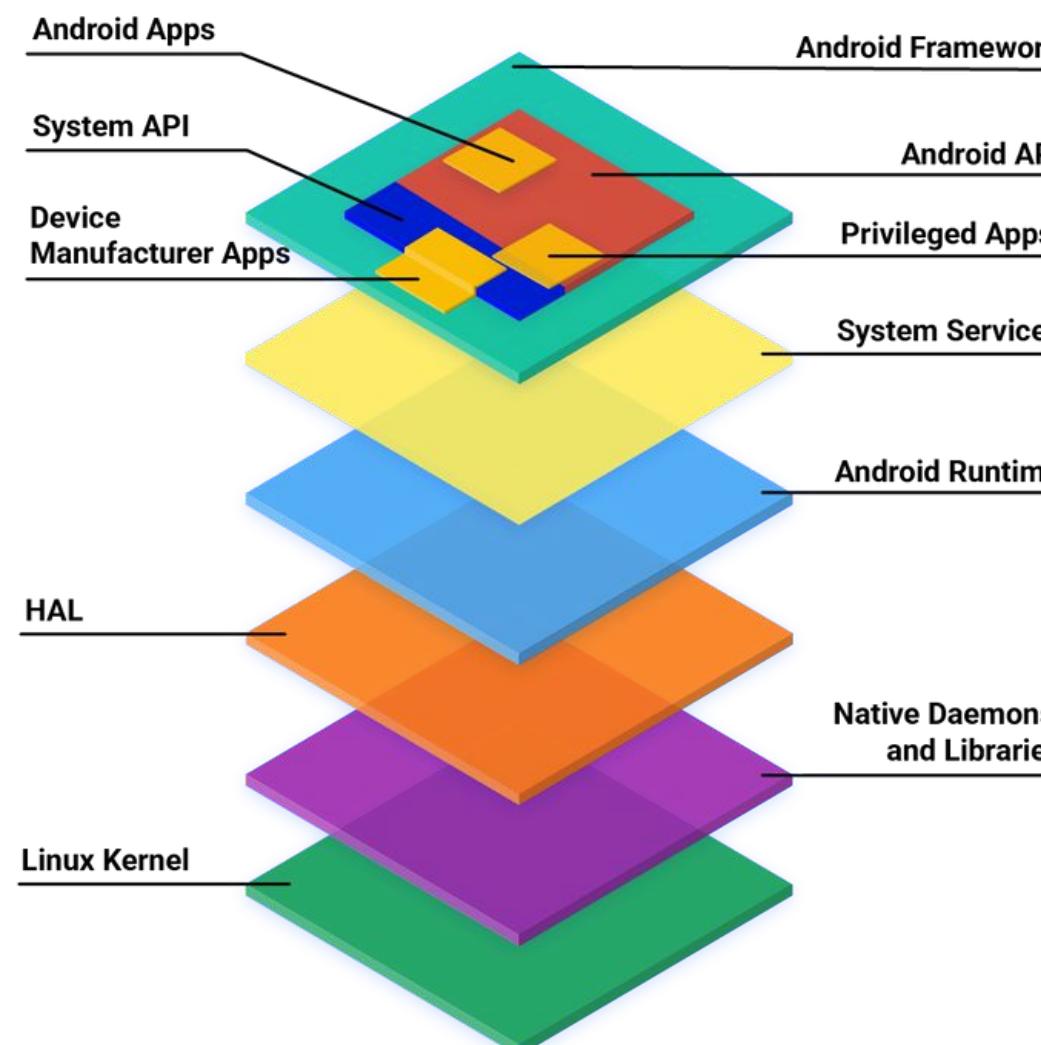


Highly Customised Awesome WM



## 2. Android

# source



<https://source.android.com/docs/>

[https://en.wikipedia.org/wiki/List\\_of\\_custom\\_Android\\_distributions](https://en.wikipedia.org/wiki/List_of_custom_Android_distributions)





### 3. Mozilla



- Mozilla Foundation: Mozilla is a nonprofit organization dedicated to an open and accessible internet, known for its range of products and advocacy for online freedom.
- Firefox Web Browser: The most famous product is Firefox, a widely used web browser known for its privacy features, customization options, and adherence to web standards.
- Thunderbird Email Client: Another prominent project is Thunderbird, an open-source email client offering customizable features and robust security.
- Mozilla Developer Network (MDN): MDN provides extensive documentation and resources for web developers, offering guides, tutorials, and reference materials.
- Rust Programming Language: Mozilla is behind the development of Rust, a system programming language focused on safety, performance, and concurrency.
- Advocacy for Open Web Standards: Mozilla actively promotes open web standards and technologies, advocating for an internet that remains open and accessible to all.
- Privacy and Security Focus: Known for prioritizing user privacy and security, Mozilla often implements features that enhance user control and protection online.
- Community-Driven Initiatives: Mozilla engages a global community of contributors and volunteers, encouraging collaborative development and participation.
- Policy and Advocacy Work: Apart from software development, Mozilla engages in policy and advocacy work to promote a healthy, open internet.

## 4. GNU



- **Free Software Foundation (FSF):** GNU, developed by the Free Software Foundation, is a collection of free software tools aiming for a complete free operating system.
- **Not Unix:** GNU stands for "GNU's Not Unix," indicating its inspiration from Unix but being distinct in design and philosophy.
- **Philosophy of Freedom:** Its core philosophy emphasizes user freedom, allowing users to use, modify, and distribute software.
- **Components:** GNU includes a variety of components, such as the renowned **GNU Compiler Collection (GCC)**, a suite of compilers supporting various programming languages.
- **Other Notable Projects:** Alongside GCC, GNU boasts several significant projects like **Emacs**, a highly customizable text editor, and **GNU Core Utilities**, a set of fundamental Unix-like tools.
- **Copyleft License:** GNU software often uses the GPL (GNU General Public License) or similar licenses, ensuring software remains free and open-source.
- **Hurd Kernel:** GNU's original plan was to use the **Hurd kernel**, designed to replace Unix-like kernels, but it's not widely used today.
- **Foundation of GNU/Linux:** Combined with the Linux kernel, GNU forms the basis of many Linux distributions.
- **Community-Driven Development:** It encourages community participation in software development, fostering collaborative growth and innovation.



open source



# Why do we need an Open Source Club at DTC?

Sachin Singh Adhikari  
**Nice Secretory**

- There is no pre-existing club that talks about Open Source.
- The Club will promote Free and Open Source software, creating an independent environment.
- This Club will support Hacker culture in college campus encouraging everyone to learn about their systems.



- Provide a platform for students to collaborate on projects , learn from one another and develop valuable skills.
- Help foster a sense of community and teamwork.



- Resources and Mentorship will be provided.
- Participation in different Open Source Programs such as GSoC(Google Summer of Code) , MLH Fellowship(Major League Hacking) , Hacktoberfest , etc....





# VISION

## THE FOSS CLUB

Our club has a simple yet powerful vision:  
making coding cooler on campus!

Yashika Pratap Shukla  
**Content Writer**

# **BOW?**

By diving into the world of open-source tech and tools that everyone's buzzing about. We're all about fostering a culture where coding becomes an exciting journey for everyone



# THE FOSS CLUB



**Tu Samjha, Nahi Tu Samjha Nahi**



## Opening Up To Open Source: Why AI Needs To Become A Community Affair

India embraces open-source software to boost tech industry amid layoffs

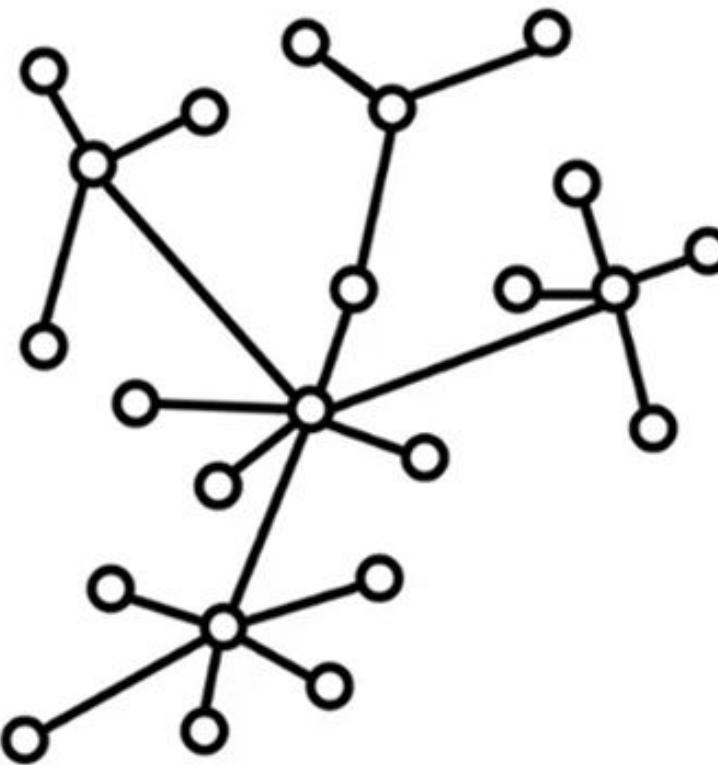
# what's on our radar?

तुम मुझे खून दो  
मैं तुम्हें आजादी दूँगा



KNOWLEDGE





# DECENTRALIZATION & BLOCKCHAIN

Gulshan Prasad  
**Vice President**

# What are we discussing today?

- **What is Decentralization?**
- **Why is this important?**
- **Benefits**
- **How to achieve it?**
- **Real life projects**

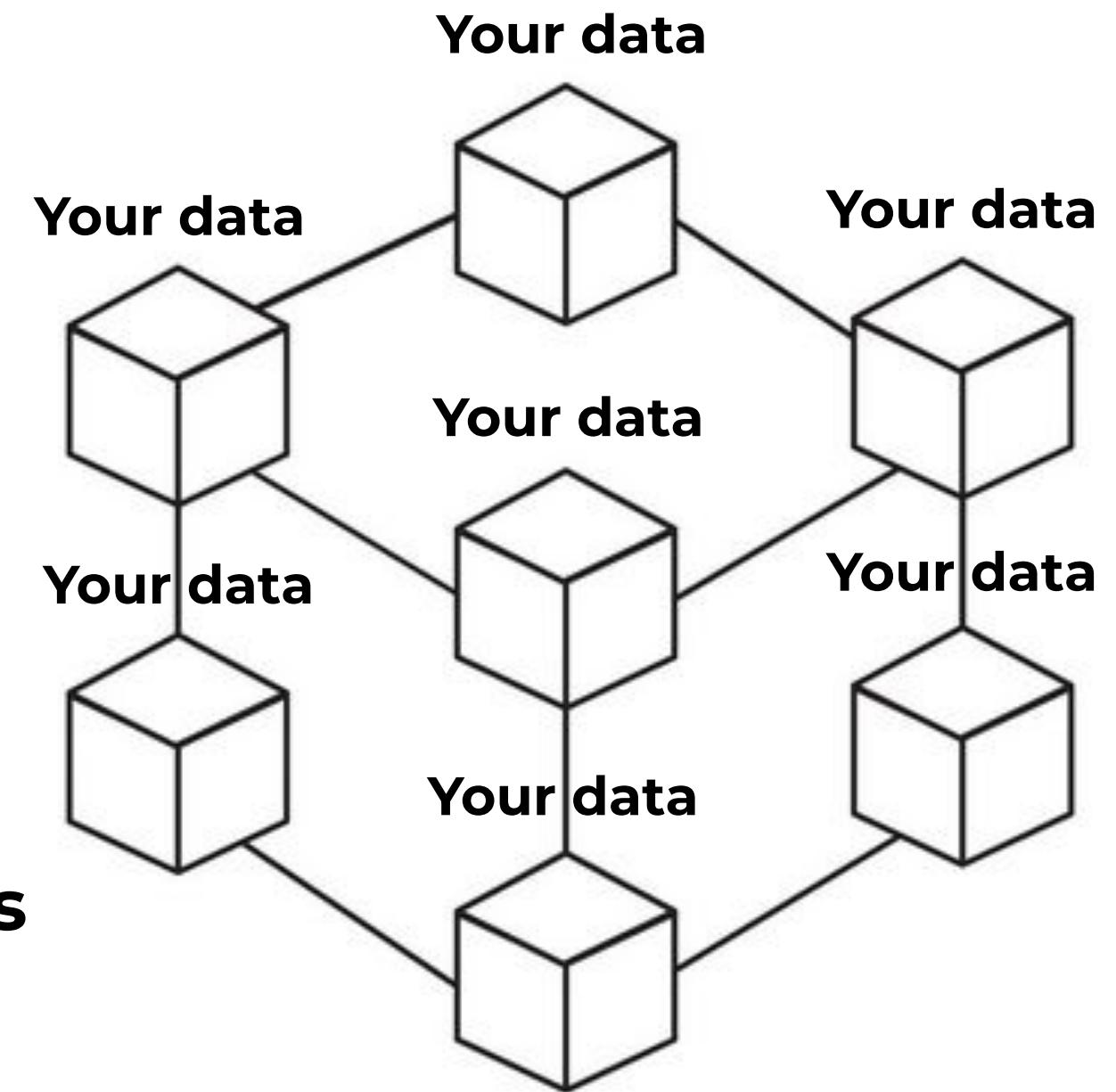


# What is Decentralization?

**What's google opinion:**

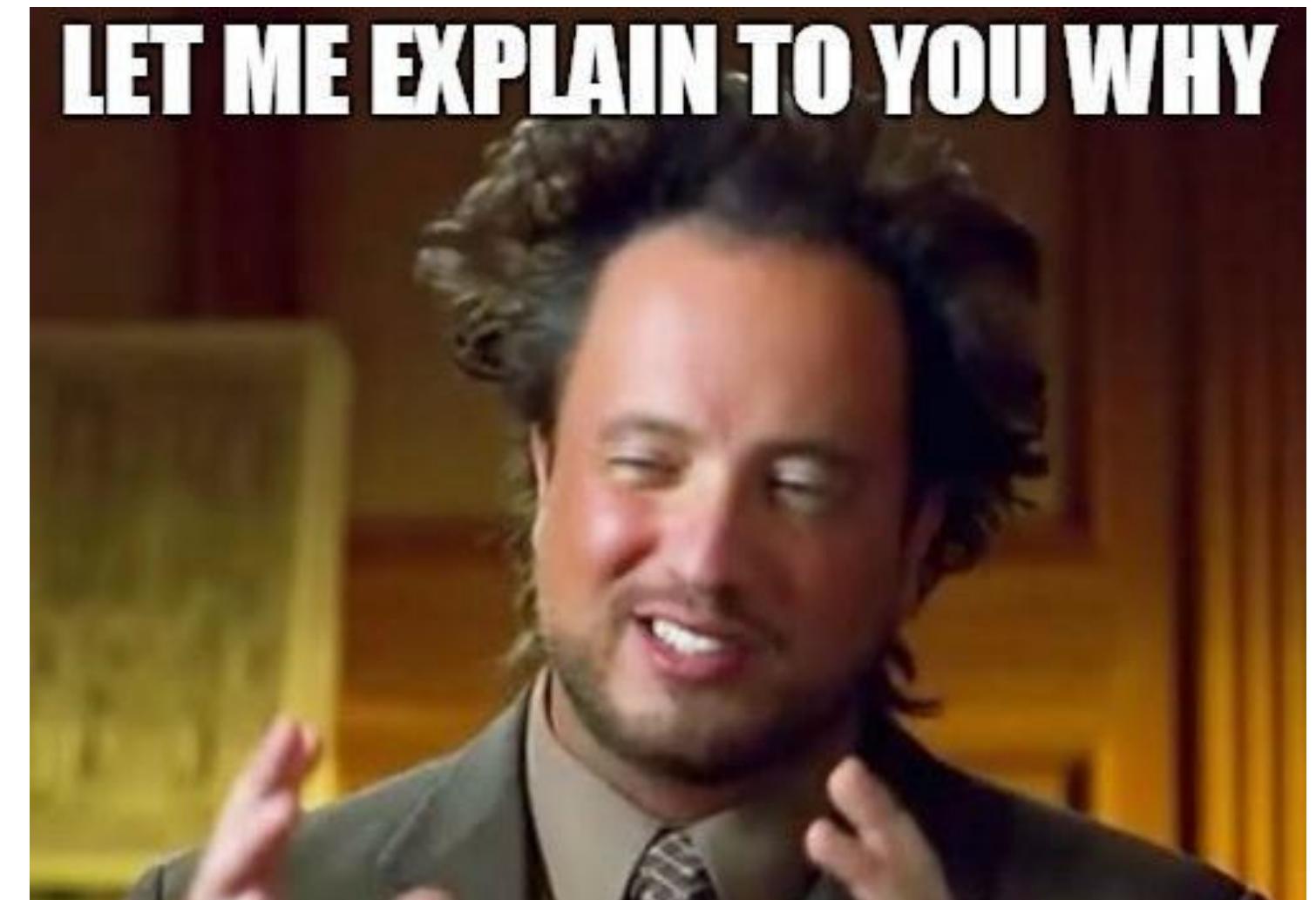
**decentralization refers to the transfer of control and decision-making from a centralized entity (individual, organization, or group thereof) to a distributed network**

**Your data is on multiple independent server/nodes that is run by individuals.**



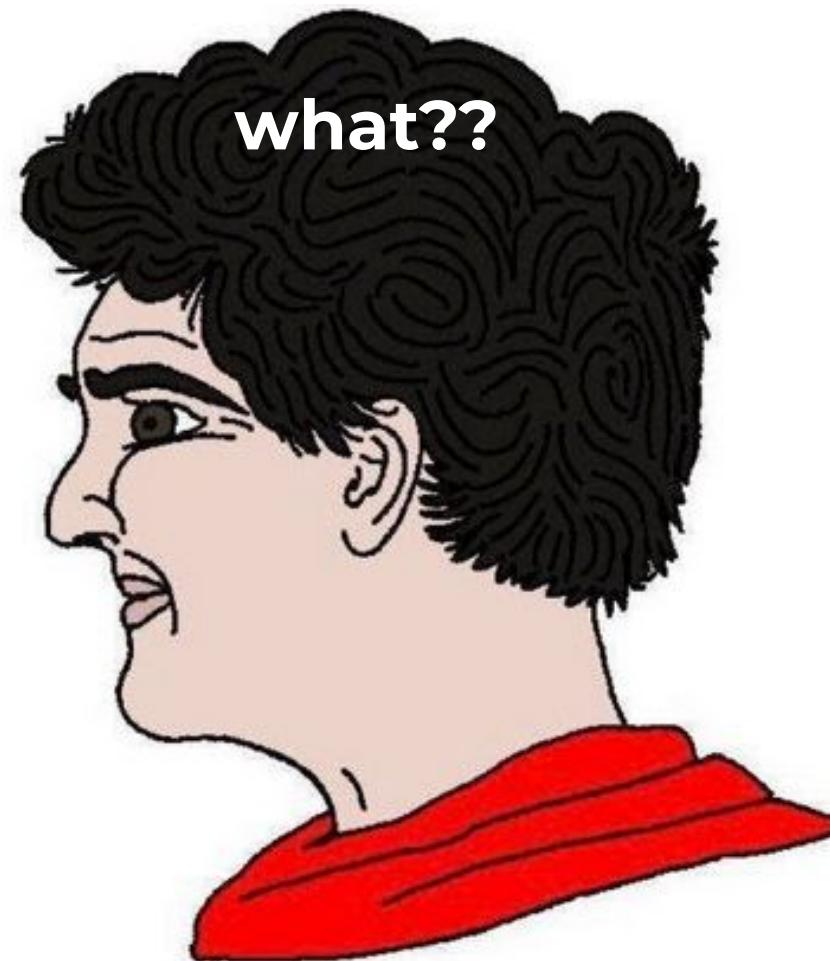
# Why is this important?

- So, we don't need to worry about our data in other's hands
- So, we don't need to trust, when we can just verify anytime
- So, we don't get targeted ads obviously
- Trustlessness
- Security, immutability and more control



# Benefits

- **Censorship Resistance**
- **Trust lessness**
- **Ownership and Control**
- **Immutable History**
- **Resilience and Robustness**



# How to achieve it?

- By running your blockchain node
- Storing data on IPFS (Gdrive)
- Using ETH/BTC/SOL/MATIC coins for transactions



# Real life Projects

- Pinata for storing you data forever  
(<https://www.pinata.cloud/>)
- Brave Browser (<https://brave.com/en-in/>)
- Status for messaging (<https://status.app/>)
- Metamask Wallet (<https://metamask.io/>)



# Key Learnings from this session

- Decentralization, when we distribute the data among multiple independent computers/nodes
- Important to solve existing web2 problem (data leak, trust issue, facebook 
- Benefit, to take control of your own data in your own hands and be confidence on your online presence
- How to achieve, use DApps, smart contract, different web3 solution

```
if (yourLearningFromThisSession == "aayein?") {  
  
    print("koe nai, we'll ask in FOSS");  
  
}
```



**I DON'T KNOW  
WTF THIS WEB 123 THING IS**

**AND AT THIS POINT I'M TOO AFRAID  
TO ASK**

# Cybersecurity: Protecting Your Digital World

A majority of our lives are spent online, and with that comes the need for enhanced security to protect our information.

MD NAFISH  
Cybersecurity Pioneer



# Understanding Cybersecurity & Ethical Hacking



## What is Cybersecurity?

Cybersecurity is the practice of protecting your personal and confidential data online from being stolen or compromised.



## What is Ethical Hacking?

Ethical hacking is the act of testing the cybersecurity measures of an organization or individual to discover vulnerabilities in order to fix them before a malicious party does.

# Understanding Cybersecurity & Ethical Hacking



## Types of Cyber Attacks

- **Malware:** Nasty software that can harm your computer, like viruses, worms, or programs that lock your files until you pay money.
- **Phishing:** Tricks to get your personal information, often through fake emails, calls, or texts that look real.
- **Denial of Service (DoS) and Distributed Denial of Service (DDoS):** Overloading a website or online service so it can't work properly, like a traffic jam on the internet.
- **Man-in-the-Middle (MitM):** Sneaky attacks where someone secretly listens to or alters your communication, like a spy in the middle of your conversation.
- **SQL Injection:** Tricking a website into revealing or changing information in its database.
- **Cross-Site Scripting (XSS):** Adding harmful code to a website, like graffiti, that can affect others who visit the site.

- **Cross-Site Request Forgery (CSRF)**: Making someone unknowingly do something on a website without them realizing it.
- **Zero-Day Exploits**: Attacking computer flaws before anyone has a chance to fix them, like a thief finding a hidden way into a building.
- **Social Engineering**: Tricking people into giving away secrets, like pretending to be a friend to get access to their information.
- **Insider Threats**: When someone on the inside, like an employee, does something bad, either on purpose or by mistake.
- **IoT-Based Attacks**: Hacking into smart devices like cameras or thermostats to cause trouble.
- **Supply Chain Attacks**: Going after weak points in the process of making or delivering technology to mess things up.

# Proactive Measures for Preventing Cyber Attacks

## Secure Your Passwords

Use complex passwords and two-factor authentication to make your accounts more secure and harder for hackers to access.

## Keep Your Software Up-to-Date

Never ignore software updates as they often fix security issues within the software.

## Backup Your Data

Regularly backup important data to an external hard drive or cloud storage in case of an attack or hardware failure.

## Be Mindful of Public Wi-Fi

Avoid doing sensitive online tasks, like banking or shopping, when connected to public Wifi networks.

# Ethical Hacking Techniques and Their Benefits

Simulate a cyber attack on an organization's systems in order to discover vulnerabilities.

Test web applications for security flaws that could allow an attacker to access sensitive data.

Identify weak spots in wireless networks that could be easily exploited by attackers.

Penetration Testing

Web Application Testing

Wireless Network Testing

# Examples of How Ethical Hacking Can Prevent Cyber Attacks



## Identify Weaknesses in Systems

Ethical hackers can test systems to find security vulnerabilities and inform businesses or individuals on how to fix them.



## Improve Security Measures

Upon identifying security weaknesses, ethical hackers can offer suggestions for security development and implementation of improved cybersecurity measures.



## Build Better Defenses

By identifying and fixing vulnerabilities, ethical hackers help make it harder for attackers to access systems and data.

# Why Ethical Hacking is Important for All Businesses and Individuals

## **Protect Your Reputation**

A data breach can have a lasting and negative impact on an individual or business's reputation. Ethical hacking can prevent this from happening.

## **Avoid Legal Issues**

Serious repercussions can occur if an individual or business falls victim to a cyber-attack. Ethical hacking can help prevent these responses.

## **Stay Ahead of Threats**

By proactively identifying their own vulnerabilities, businesses and individuals can stay ahead of cyber attackers.



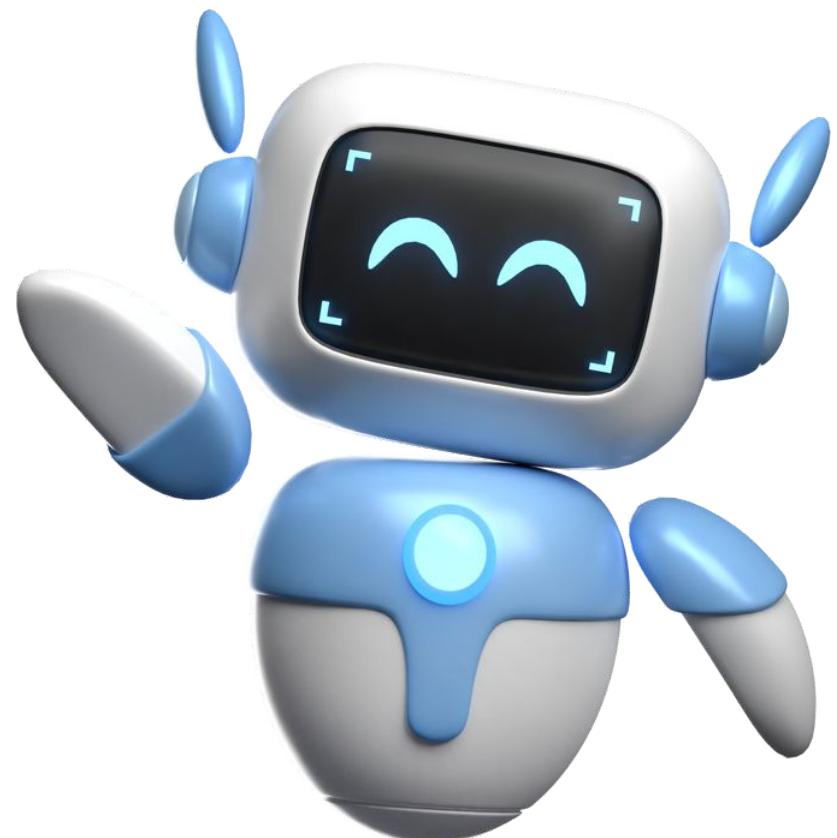


**The FOSS Club**  
Delhi Technical Campus

# Open Source in Artificial Intelligence



By - Shivam Gupta  
AI Speaker



# What are we going to cover today?

- What is Open Source AI?
- Advantages of Open Source AI / Why Prefer Open Source AI over Proprietary AIs?
- Building an Open Source AI
- Popular Open Source AI Frameworks
- Popular Open Source AI Models
- Special Case
- AI Approaches
- Licensing in Open Source AI
- Mixtral 8x7B

# Open Source AI

Open source AI refers to AI software whose source code is freely available for modification and enhancement by anyone.



The open nature of open source AI fosters a collaborative environment, enabling developers worldwide to contribute. This results in the acceleration of innovation and development.

# Advantages of Open Source AI

Ps: Our Open Source AI is really  
similar to Rancho from 3 idiots



# Why Prefer Open Source AI over Proprietary AIs?

Scalability

Diverse applications

Innovation

Rapid development.

Security

Enhanced scrutiny & reliability

Flexibility

Customization & adaptability

Independence

Freedom of use

Cost

Reduced expenses.

Learning

Knowledge sharing.

Community

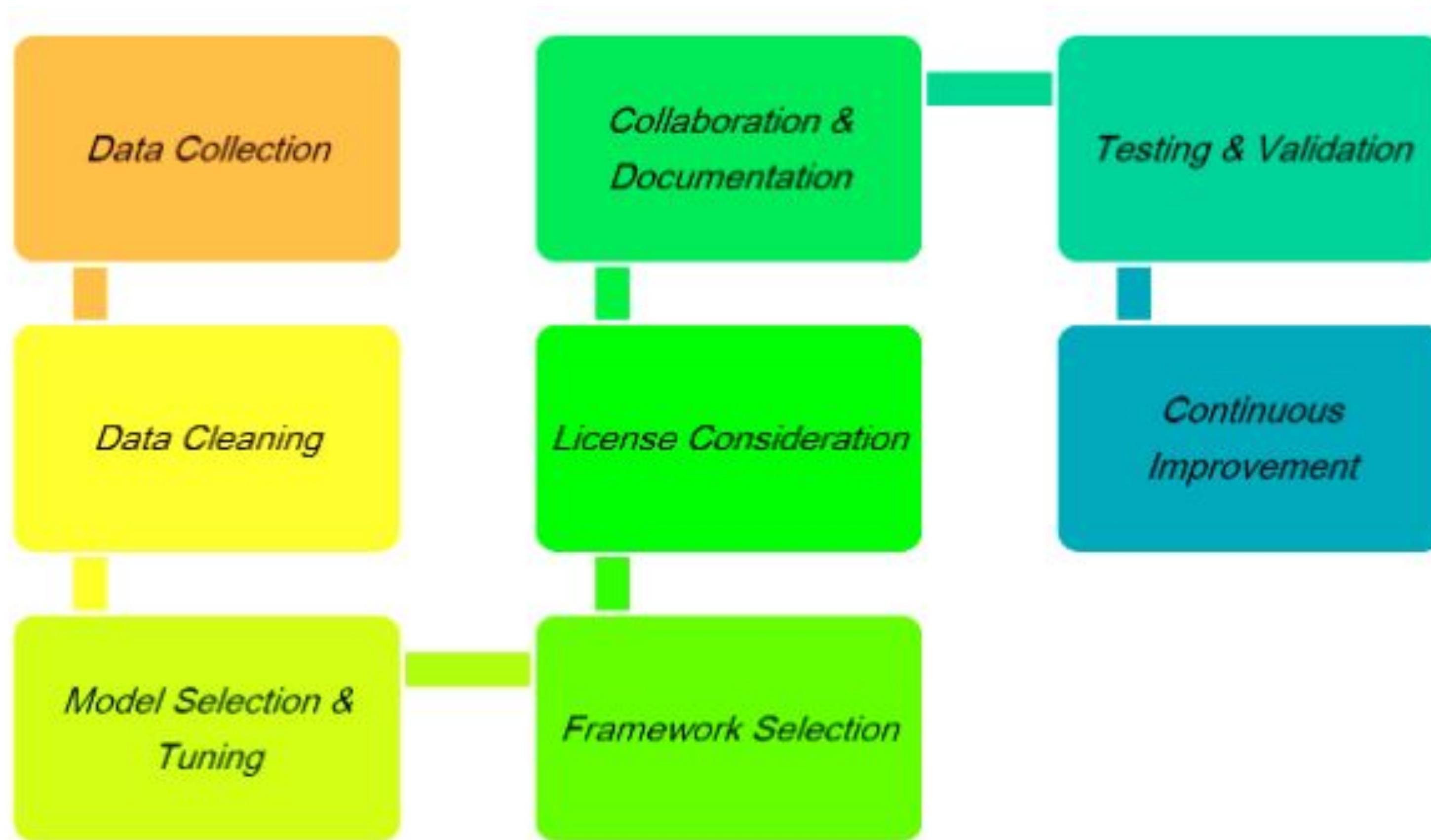
Collaborative innovation.

Transparency

Code visibility & trust.



# Building an Open Source AI



# Building an Open Source AI

## Frameworks vs Models



# Popular Open Source AI Frameworks



theano

- TensorFlow
- PyTorch
- Scikit-learn
- CNTK
- Theano
- Keras
- Rasa
- OpenCV
- OpenAI's Codex
- H2O.ai
- Amazon Web Services (AWS)



PYTORCH

# Popular Open Source AI Models

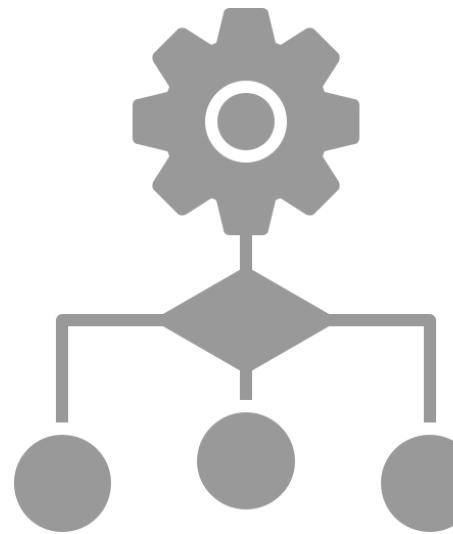
Large Language Models (LLMs):

ChatGPT (OpenAI)

GPT-NeoX-20B (OpenAI)

WuDao 2.0 (Baidu)

GPT-3 (OpenAI)



Small Models (SLMs):

T5 (Google)

Jurassic-1 Tiny (OpenAI)

DialoGPT (OpenAI)

ALBERT (Google)

DistilBERT (Hugging Face)

MobileBERT (Google)

Phi 2 (OpenAI)



# Special Case

## LLAMA 2



 Meta

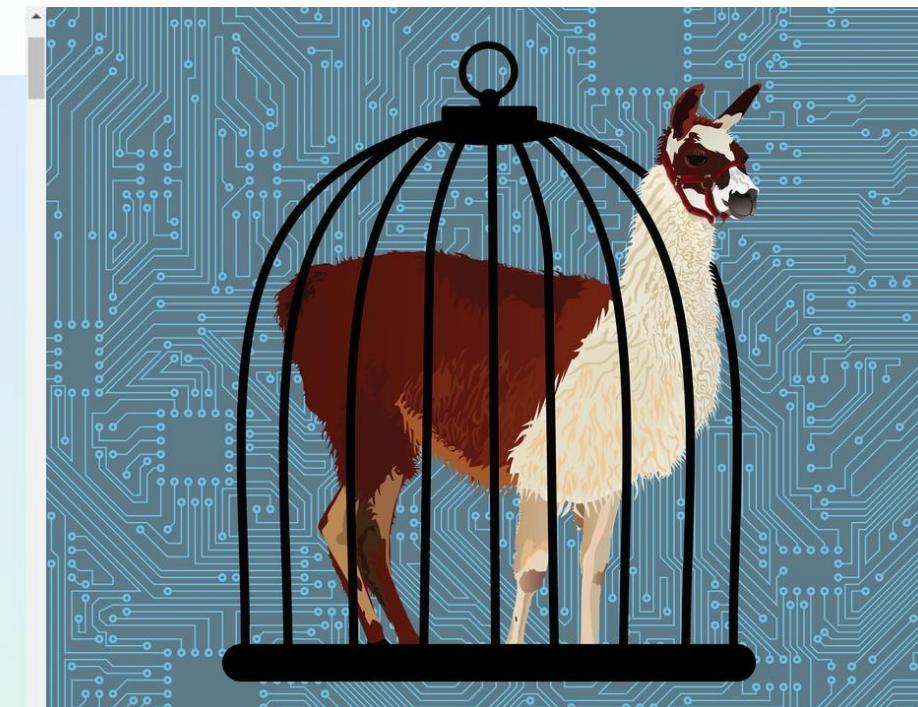
Research Blog Resources About 

# Introducing Llama 2

The next generation of our open source large language model

Llama 2 is available for free for research and commercial use.

[Download the Model](#)



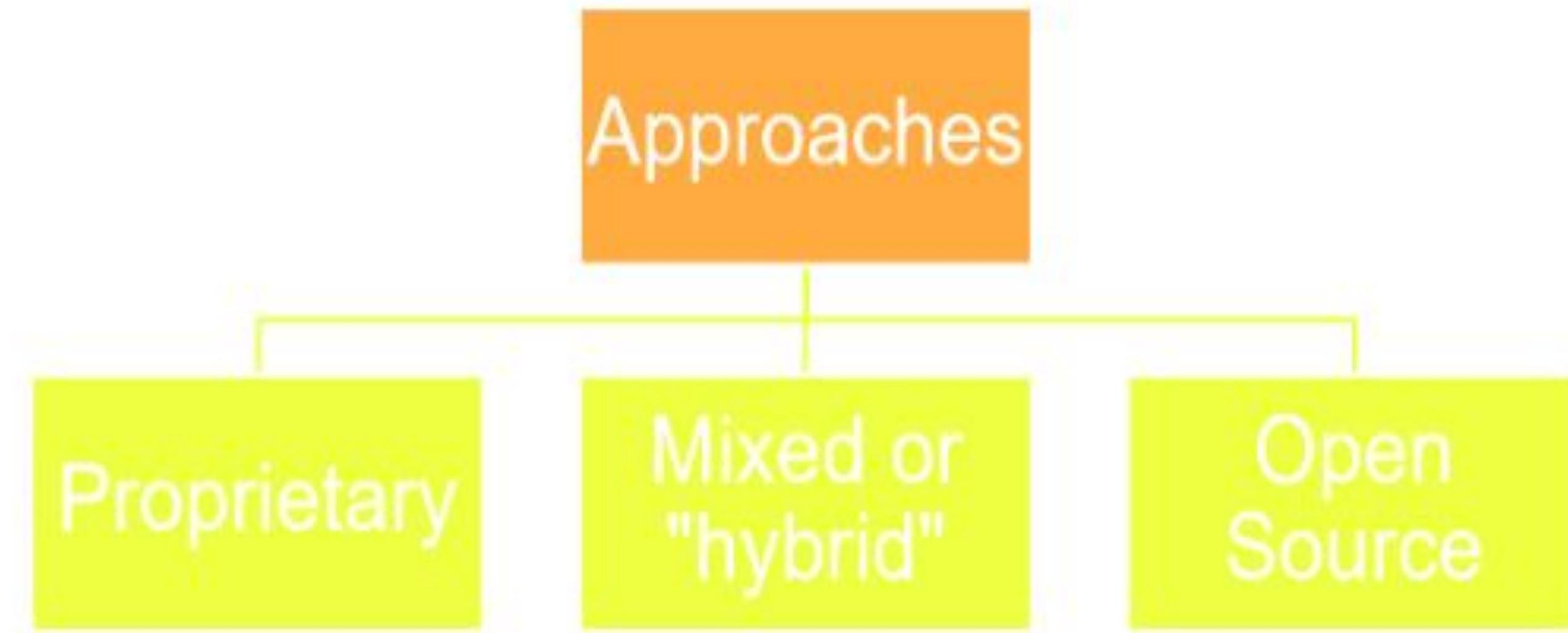
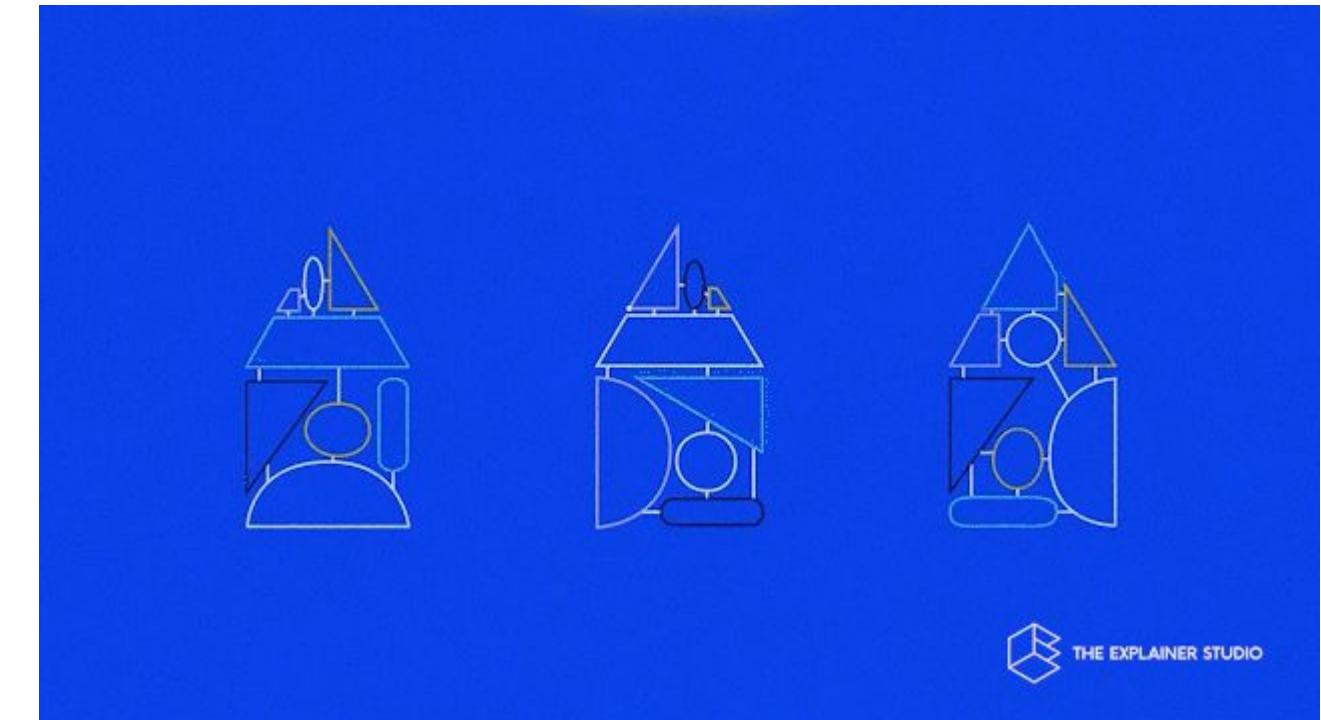
# Licensing in Open Source AI

- GNU General Public License (GPL)
- MIT License
- Apache License
- BSD Licenses (Berkeley Software Distribution)
- Mozilla Public License (MPL)
- GNU Lesser General Public License (LGPL)
- Eclipse Public License (EPL)



Each license has its own specific terms and conditions that dictate how the software can be used, modified, distributed, and whether any modifications need to be made available to the public.

# AI Approaches



# Mixtral 8x7B



Mixtral of experts

# Open Source Projects

Shamiullah Khan  
**Secretory**



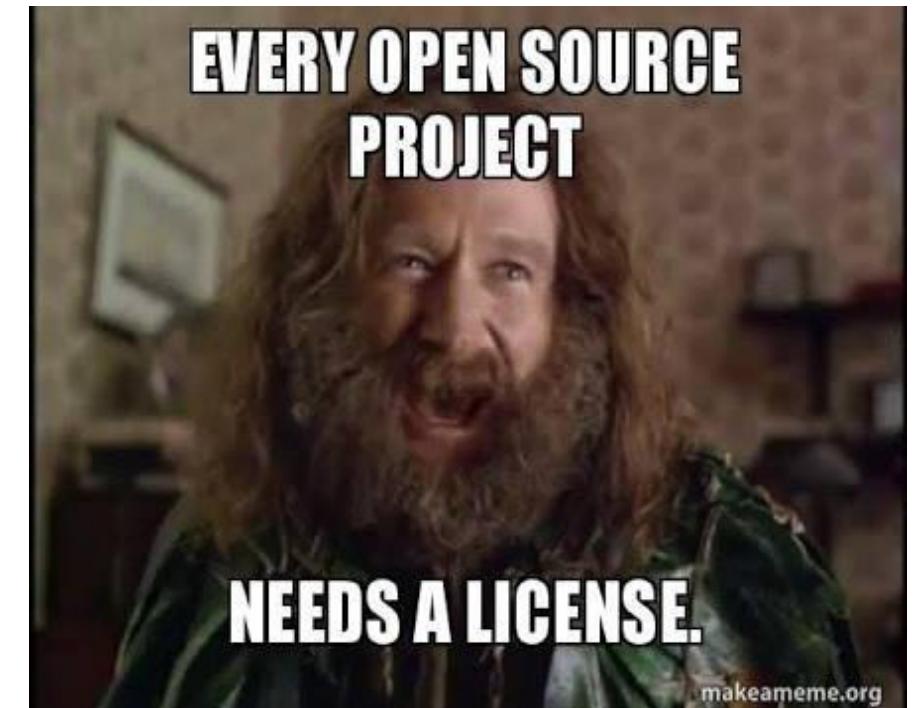
# **What are open source projects?**

Open source projects are collaborative initiatives where the source code is made available to the public, allowing anyone to view, use, modify, and distribute the software.



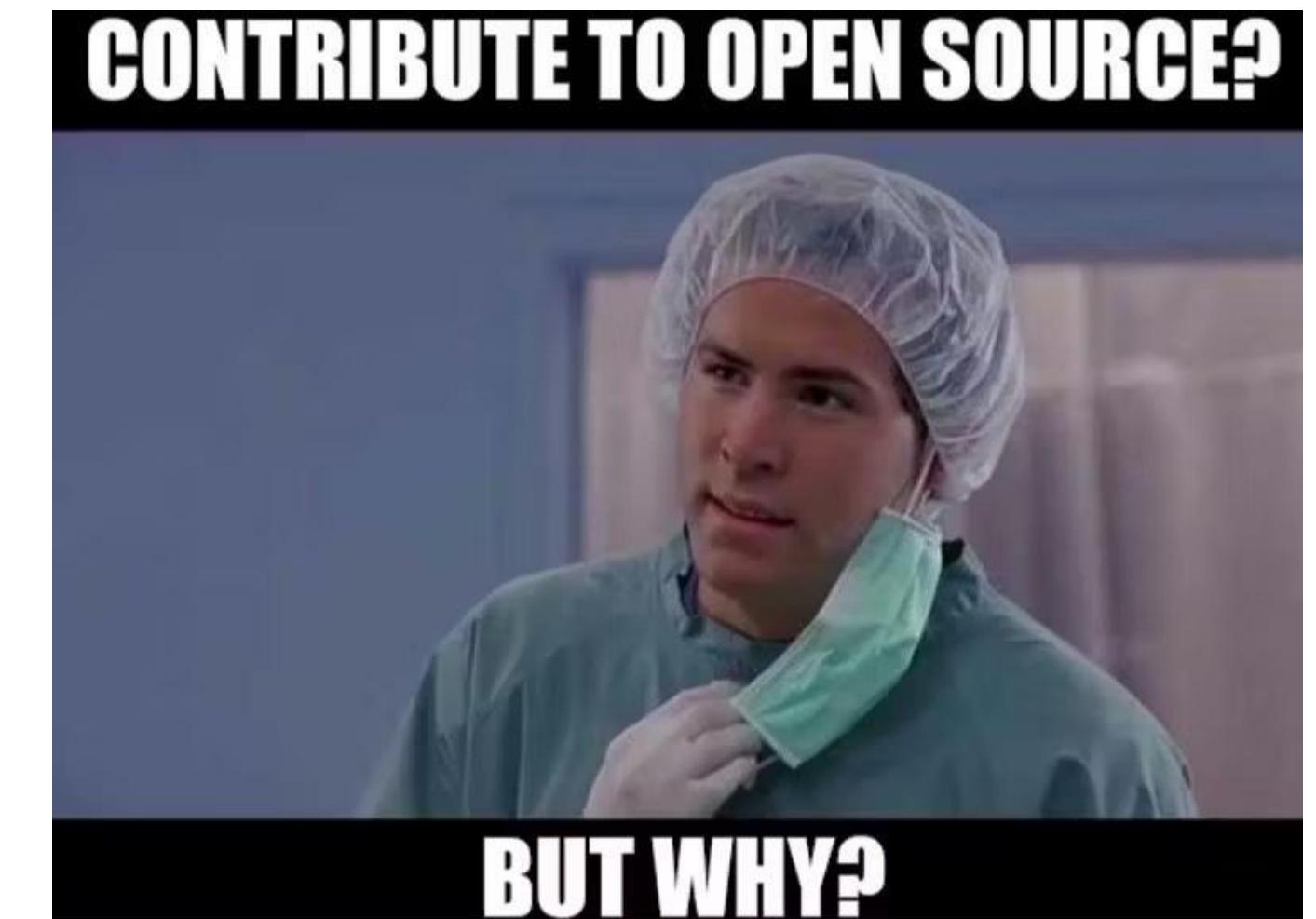
# Key aspects of open source projects:

- **Open access to source code:**  
allows anyone to inspect, modify, and enhance the code
- **License:**  
terms under which the software can be used, modified, and distributed
- **Transparency:**  
projects are transparent, with development discussions, decisions, and issue tracking often taking place in public forums  
this transparency helps build trust within the community
- **Collaboration:**  
contributors can suggest improvements, report bugs, and submit changes to the project



# Why contribute to open source projects?

- Skill development
- Portfolio Enhancement
- Learn Best Practices
- Networking



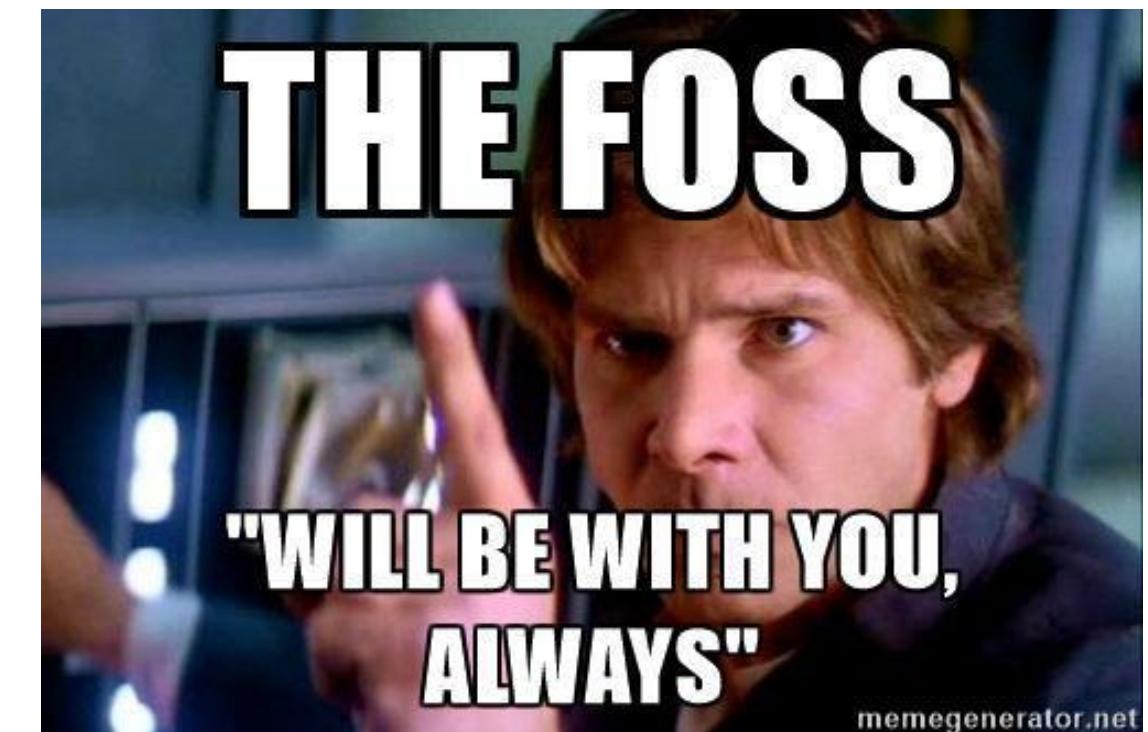
# The FOSS Club Projects

- **Face recognition system** will be integrated into our college's existing security camera infrastructure
  - **Operating system** designed to enhance the computing experience for students, faculty, and staff, providing a seamless and efficient platform for academic and administrative purposes
- \* We will use only open source tech stack

# Excited to contribute?

- Follow [@thefossclub](#) on GitHub;
- the projects will be live very soon.

and remember...



# DESIGNING

Harsh Sharma  
**Graphics Designer**



# WHAT ARE WE COOKING TODAY

- What is ‘Designing’? and Why are we designing?
- Benefits
- Some open source softwares



# Benefits

- **Cost-Effectiveness :** Open source software is often available for free, which can significantly reduce software costs for individuals, businesses, and organizations.
- **Community Collaboration:** Open source projects are developed in a collaborative, community-driven manner. This means that developers from around the world can contribute to the improvement and enhancement of the software.
- **Enhanced Functionality:** Through the design process, functionality is refined and optimized. Designs are not only aesthetically pleasing but also practical and efficient in meeting their intended purposes.
- The transparency of open source software contributes to its security. With many eyes on the source code, vulnerabilities can be identified and addressed quickly. The open source community is often responsive to security issues, releasing patches and updates promptly.

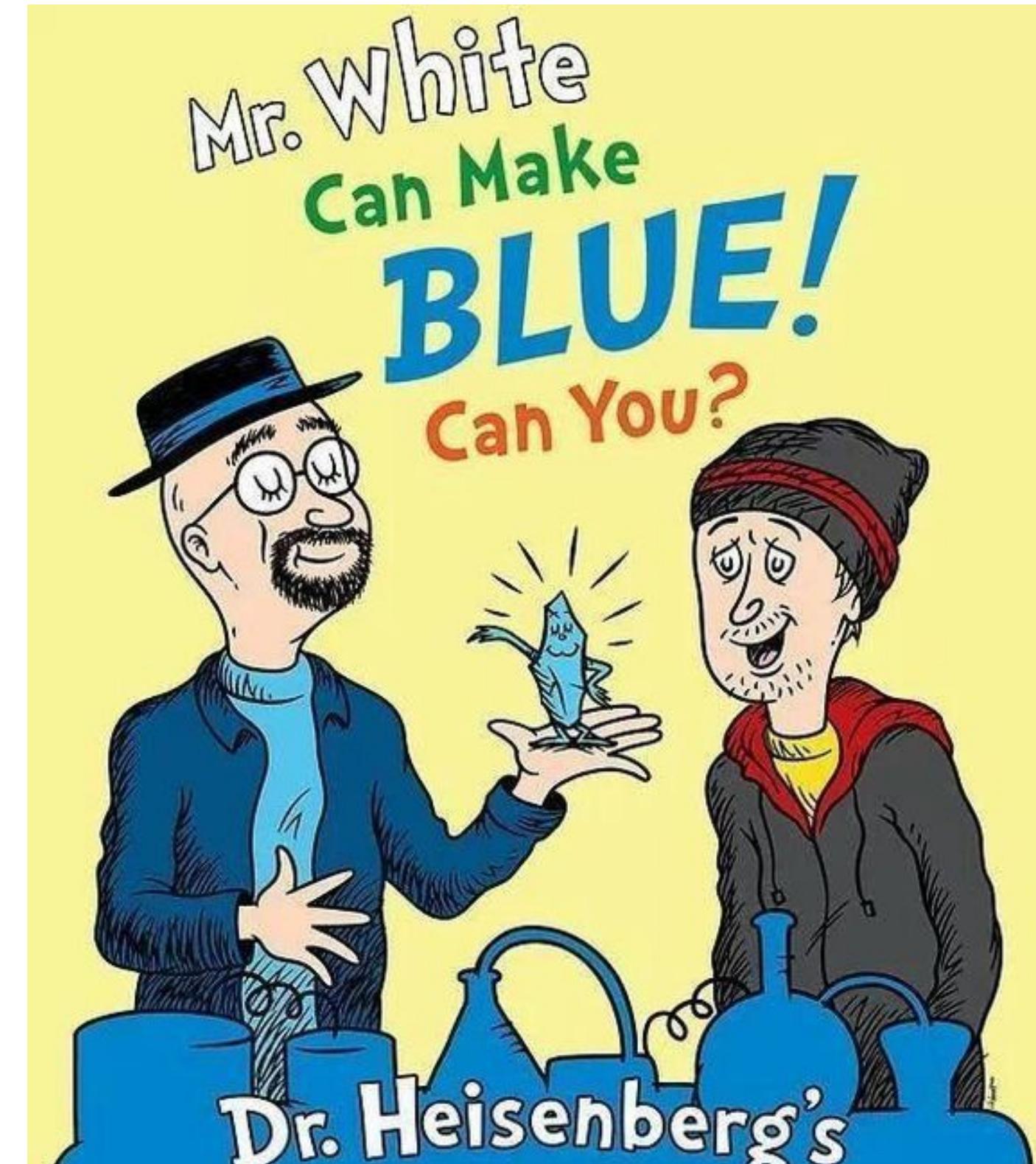
# What is ‘Designing’ ?

- Designing is like using your creativity to make things look cool and work well. It's about making stuff that's both functional and pretty. Whether it's drawing, decorating a room, or making a website, designing is all about making things look awesome!



# Why ‘Designing’ ?

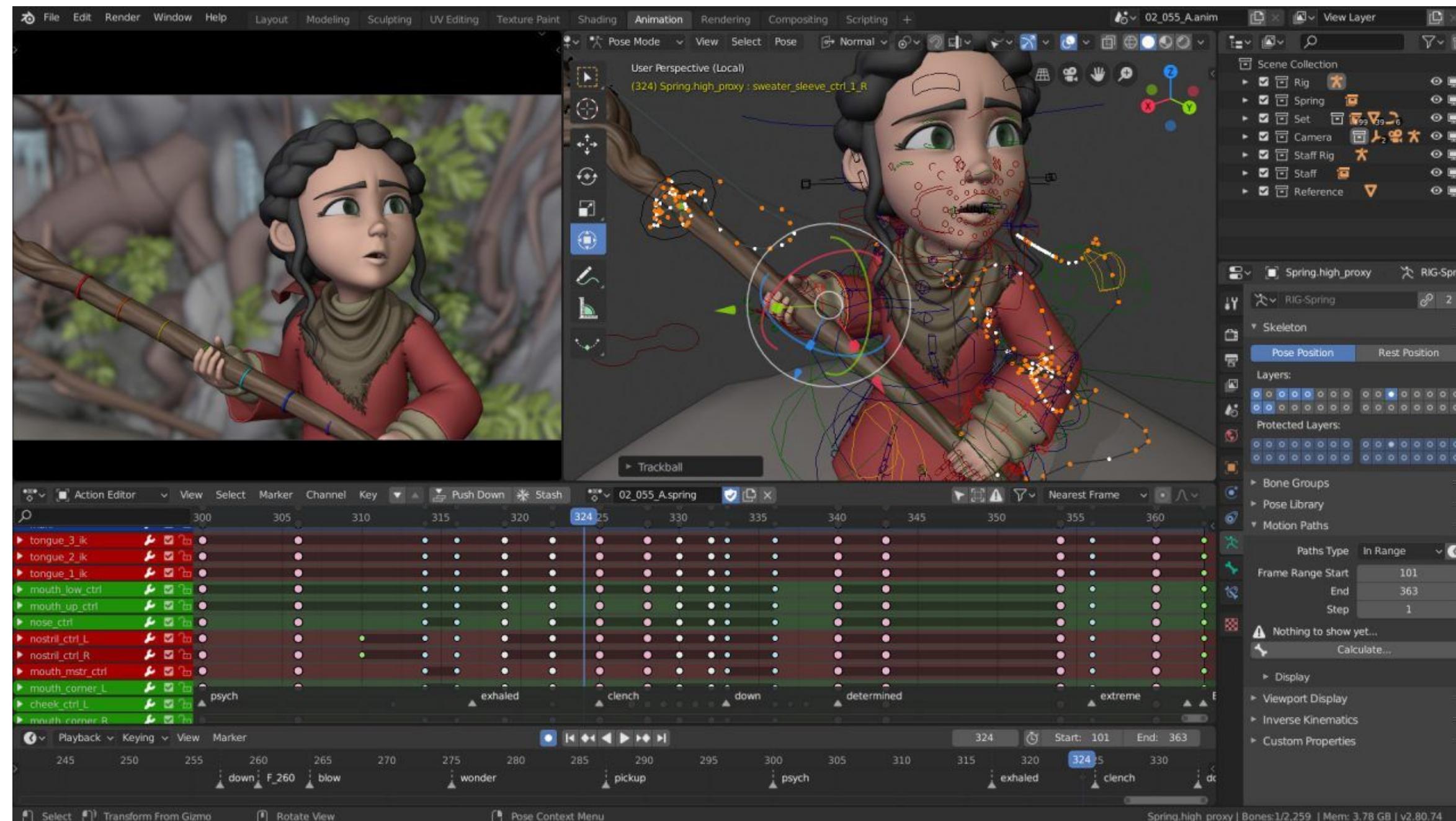
- Designing is important because it combines creativity and functionality to make things look cool and work well. It solves problems, improves experiences, and lets us express our unique style. From logos to websites, designing adds value and makes things awesome!



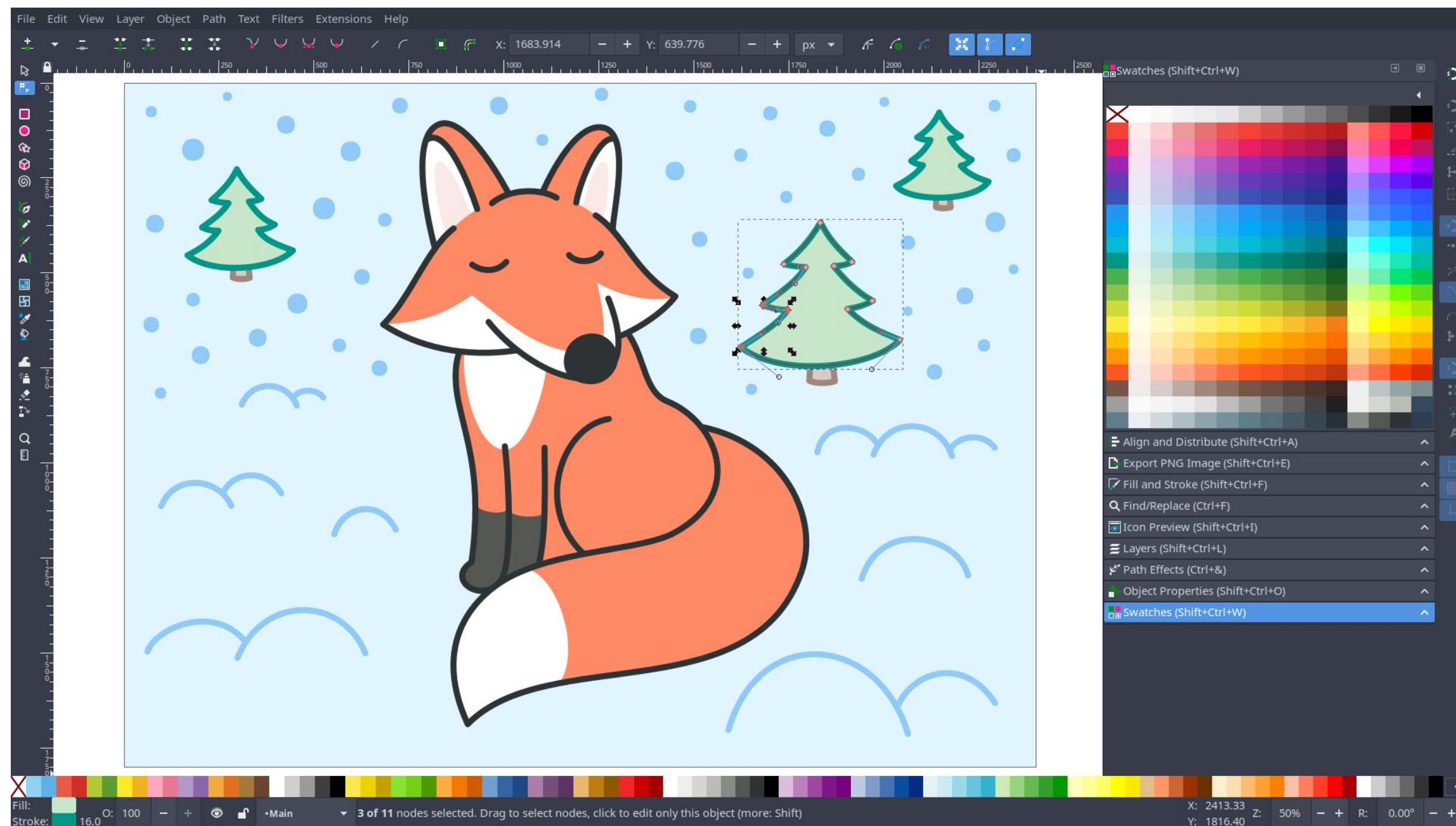
# **Some Open Source Design Softwares**



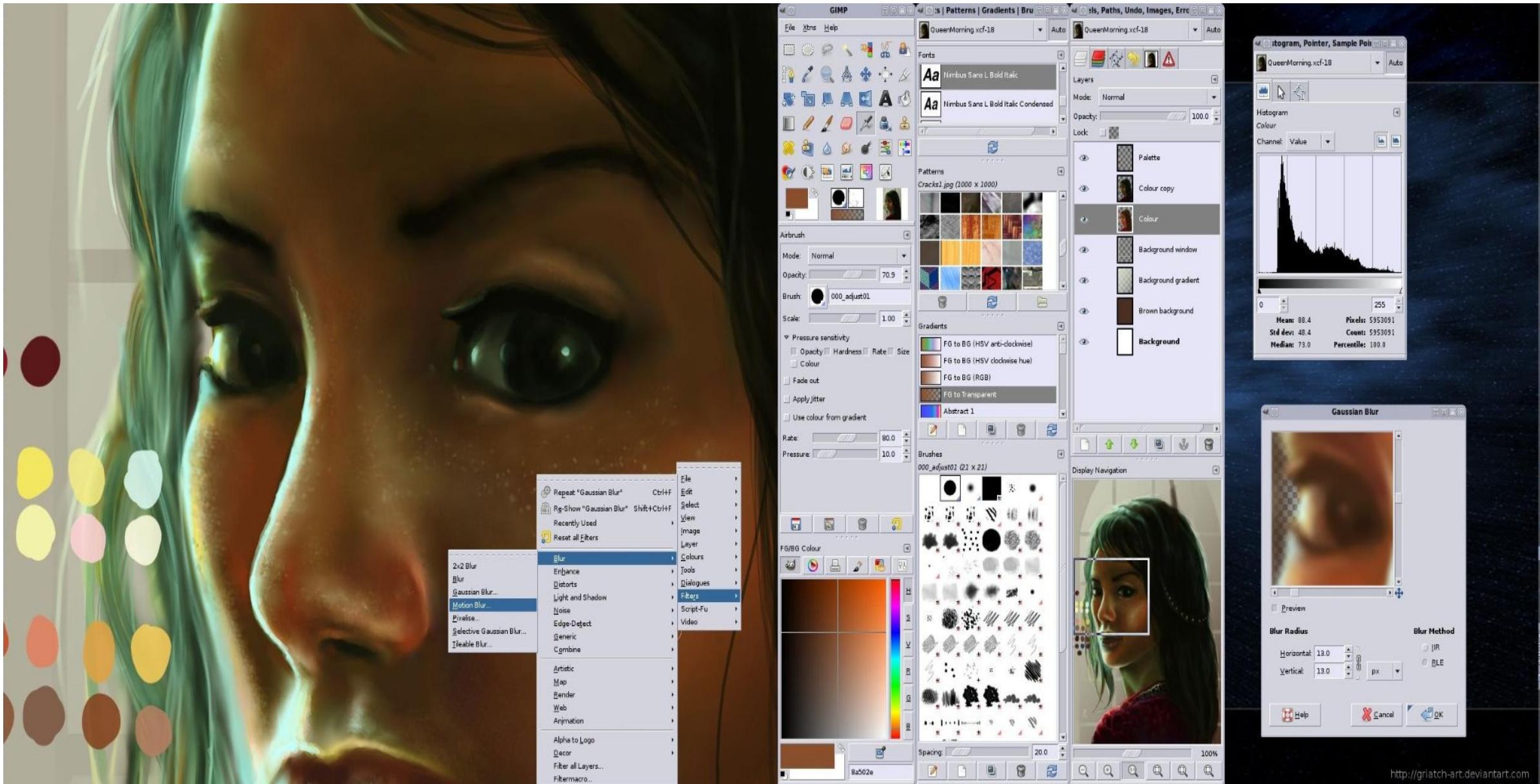
**Blender** : Blender is a 3D drawing creation software. The topmost famous animators use Blender to make short films, feature films, TV shows, etc. Its interface is quite complex at first, but when you go forward to design, then it is easy. It has many customizable features; of course, you can also create your extensions and features that the way you want to design.



- **Inkscape** is much like Adobe Illustrator and Corel Draw. It is also one of the powerful tools available free to everyone. It is also known as the counterpart of vector graphics creator adobe illustrator.Inkscape basic and default file format is in Scalable Vector Graphics (SVG). Inkscape is available for Linux, Mac, and Windows operating systems.

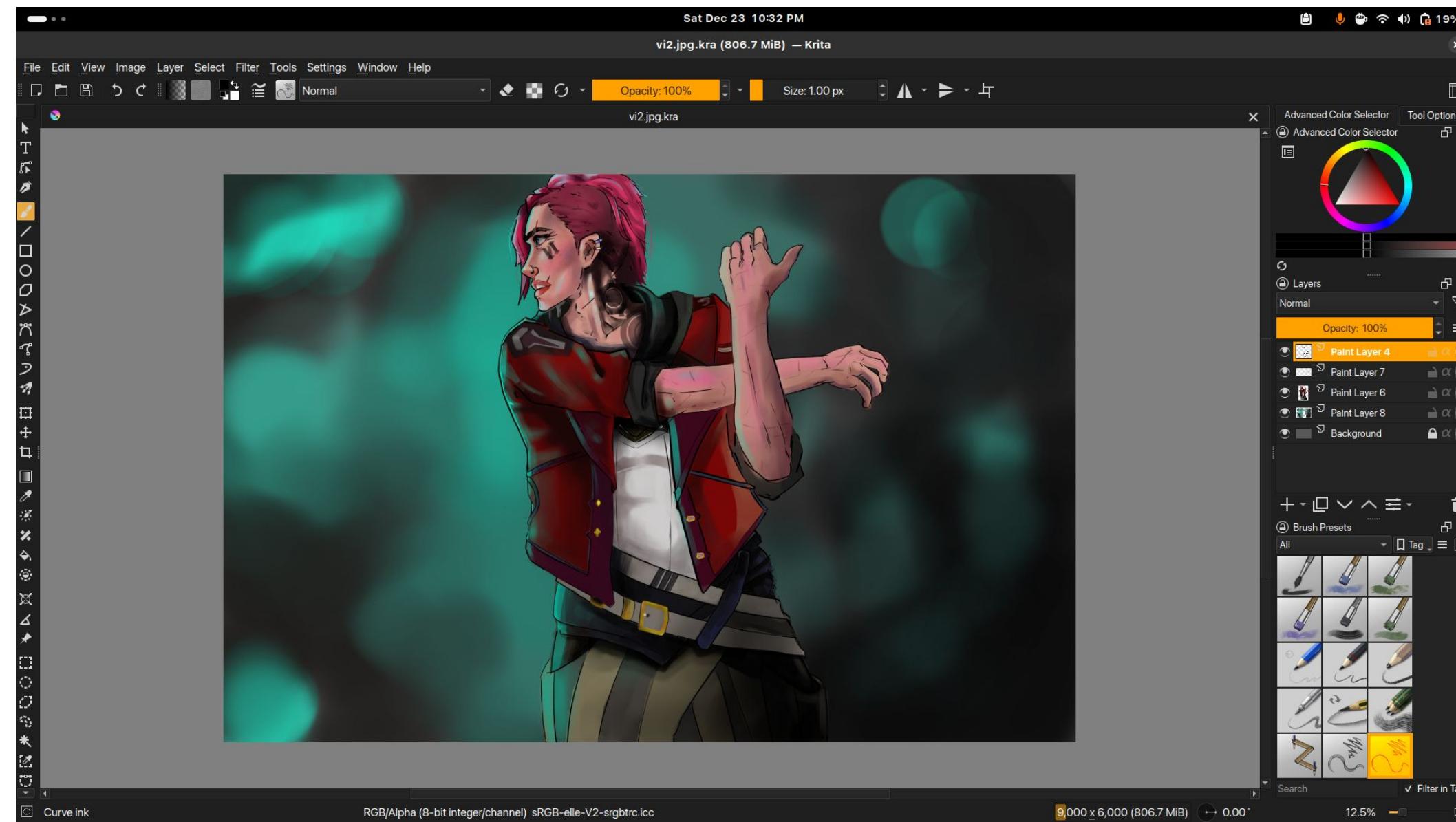


- **Gimp** : Gimp is one of the most popular and open-source graphics design and photo editing tools. It is a featured-packed graphic design suite and image editor. This tool is the same as Adobe photoshop layout. A fantastic tool for any beginner or advanced designer who primarily works with photos.



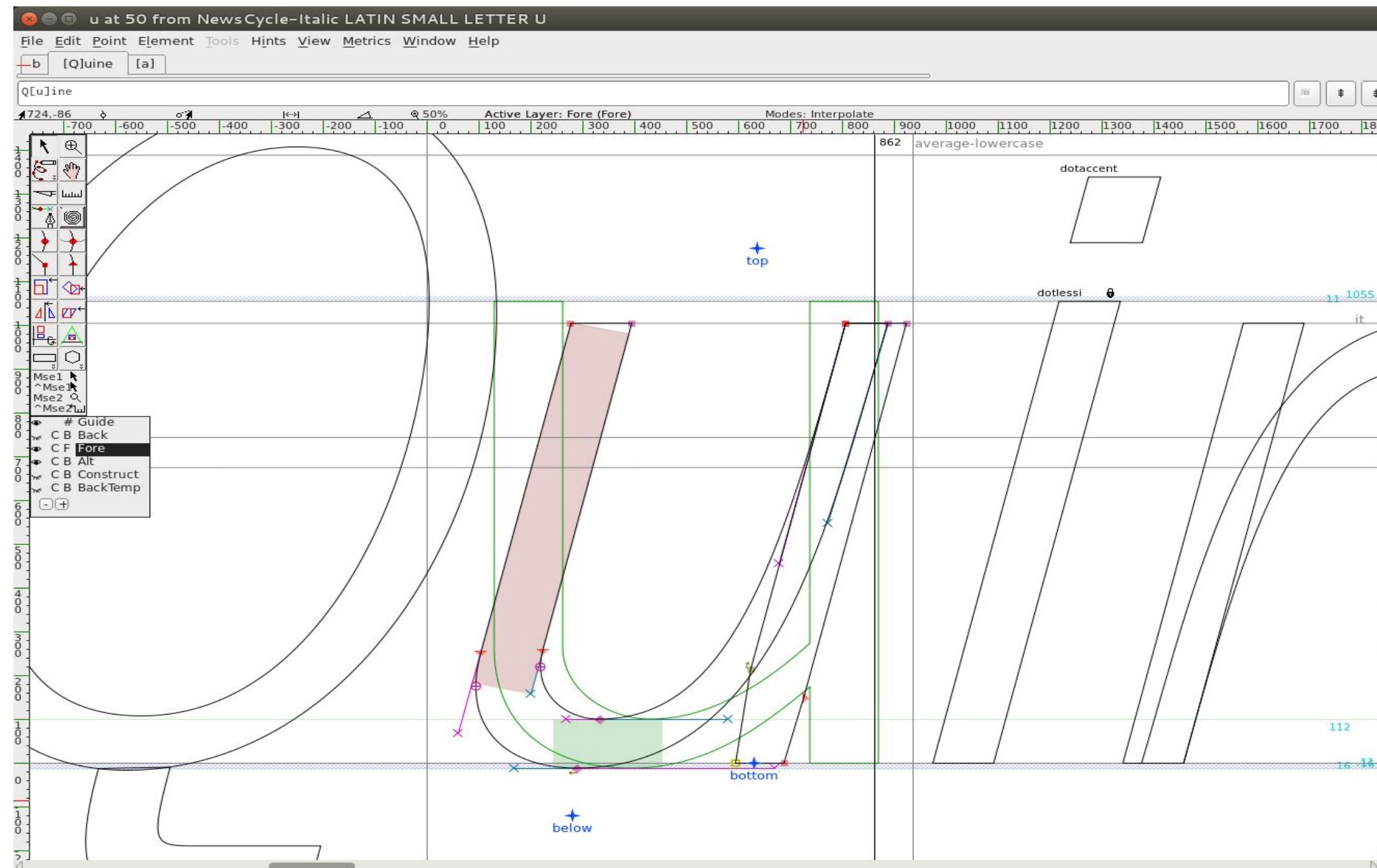


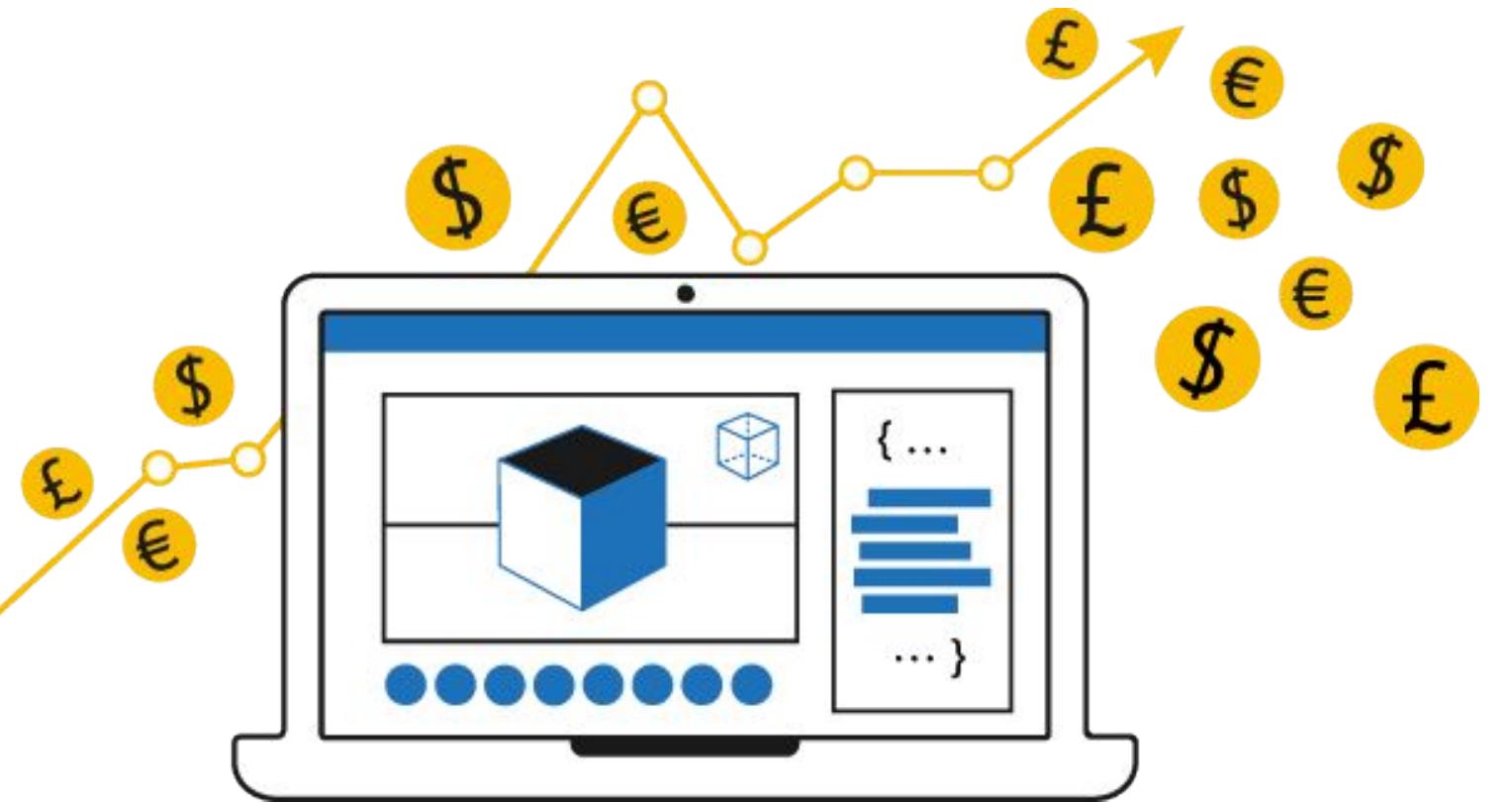
- **Krita** : Krita is a powerful vector graphics creator with a heavy focus on digital painting and illustration. It is mainly used to design comic books. It is free software with advanced templates and features.





**Fontforge** : FontForge is an advanced **font editor**, which supports many font formats for designers. It is lightweight and enables you to create smooth designs of your own-type, true-type, and postscript. It is free software developed by George Williams and written in C-programming language.





# Monetization

Ashwany K. Sharma  
**Event Coordinator**

# Dual Licensing:



- Release your software under two licenses: an open source license for the community and a commercial license for businesses or individuals who want to use the software in proprietary projects. This allows you to generate revenue from those who don't want to comply with the open source license terms.
- Copyleft license- So that everyone can use ex-AGPL, MIT, APACHE.
- Copyright licenses- Creative Common- revenue from Videos posted on YouTube.

# Partnerships and Sponsorships:

- Seek partnerships with companies or organizations that could benefit from your open source project. They may be willing to sponsor development, provide resources, or collaborate in other ways.



# Support and Maintenance Services:

- Offer premium support services, consulting, and maintenance for your open source project. Many businesses are willing to pay for professional assistance, especially if they rely on the software for critical operations.
- Example- Redhat, Fedora



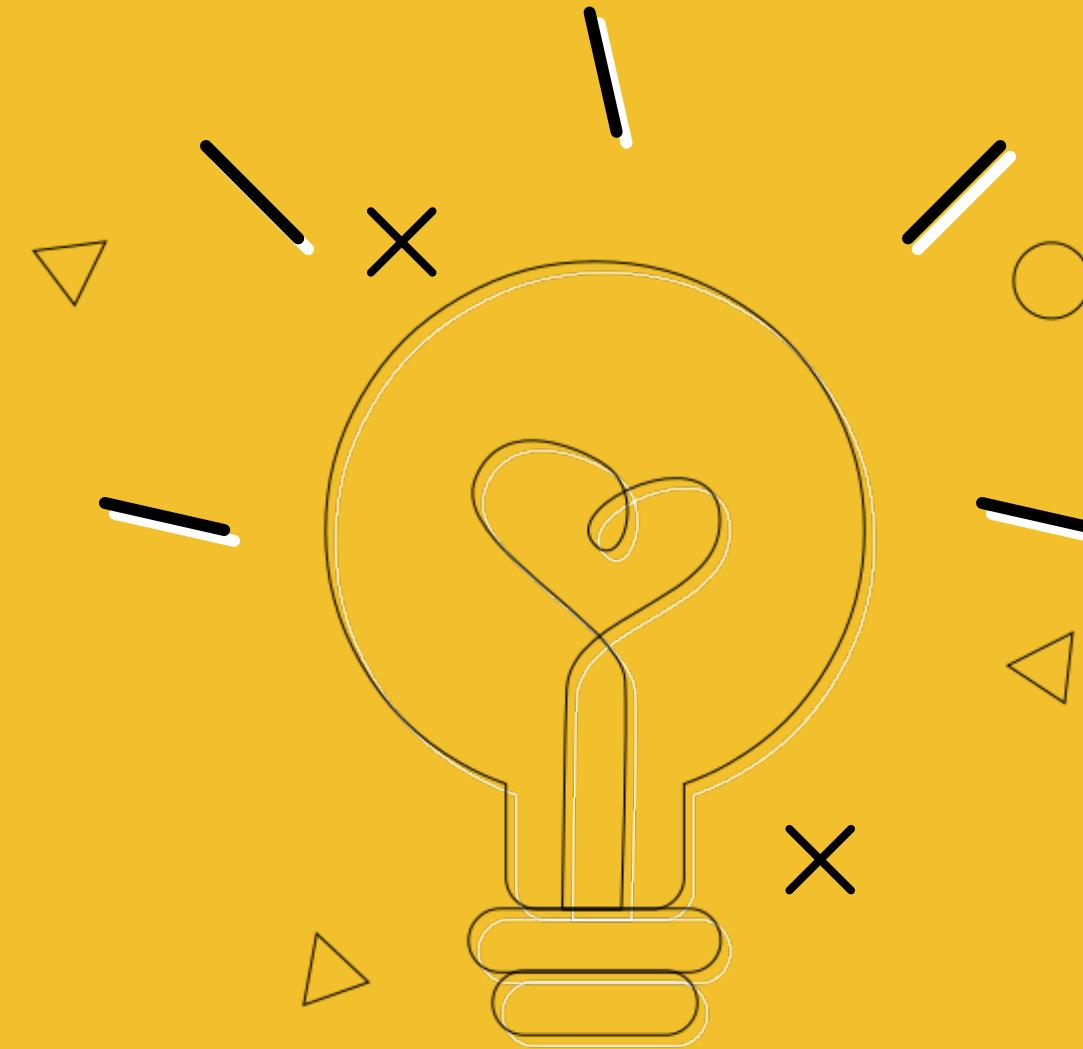


# The FOSS Club

**Got any questions ?**

Raise your hand 





**THANK YOU :)**