

THE LINUX VAULT



TABLE OF CONTENTS

- + Open Source & Linux basics
- + Distros and Desktop Environments
- + Virtual Machine Fundamentals
- + Starting with CLI
- + Hands-on Lab



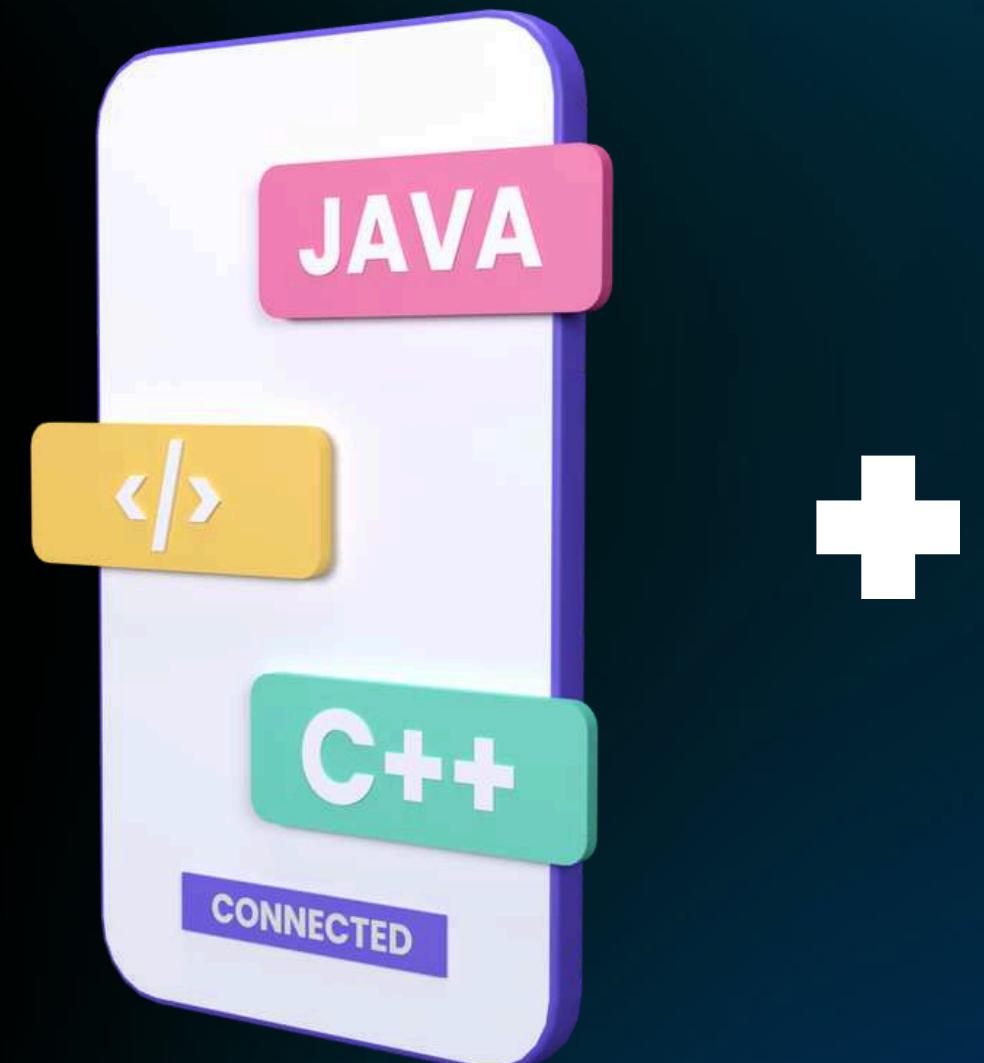


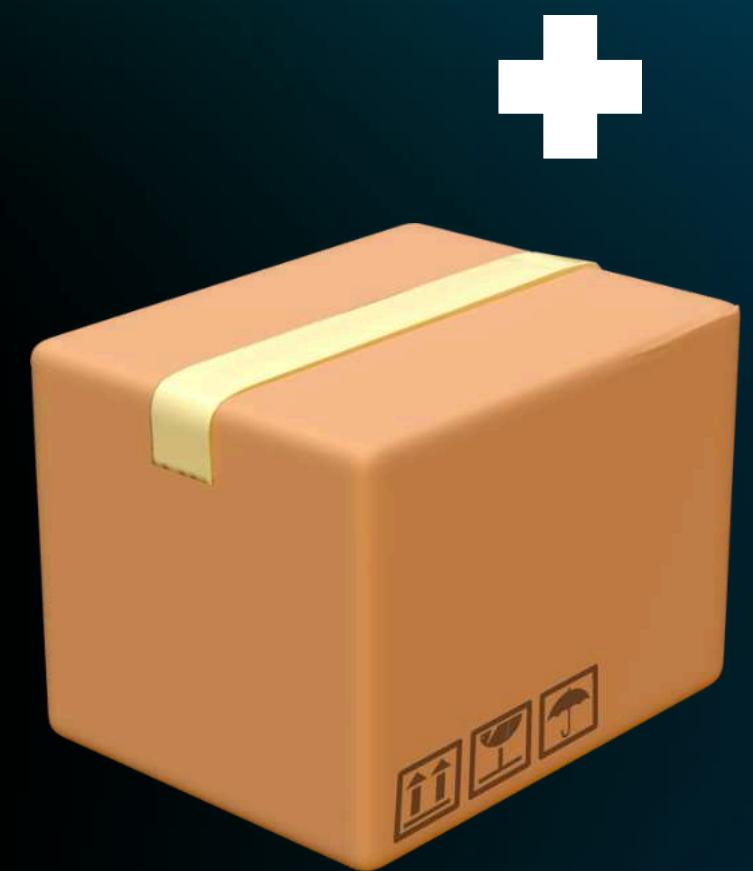
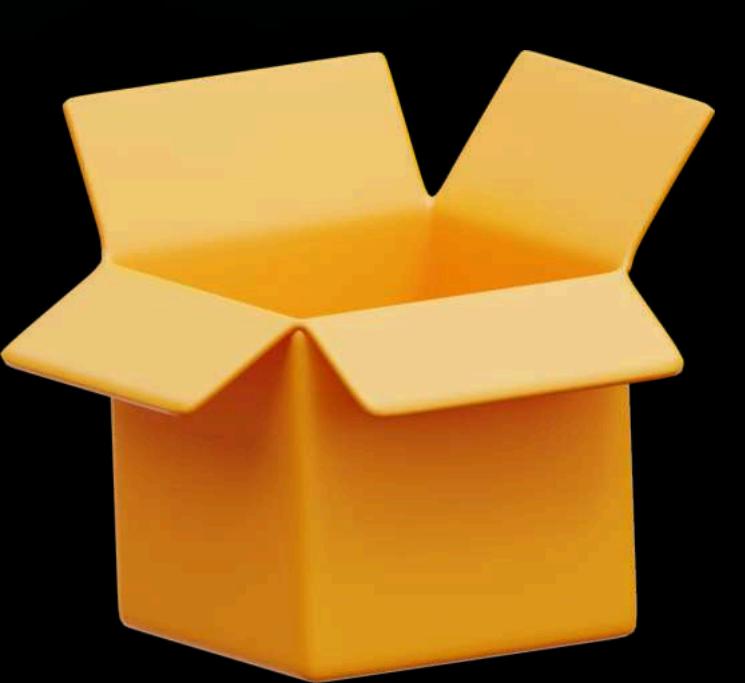
WHAT IS OPEN SOURCE SOFTWARE?

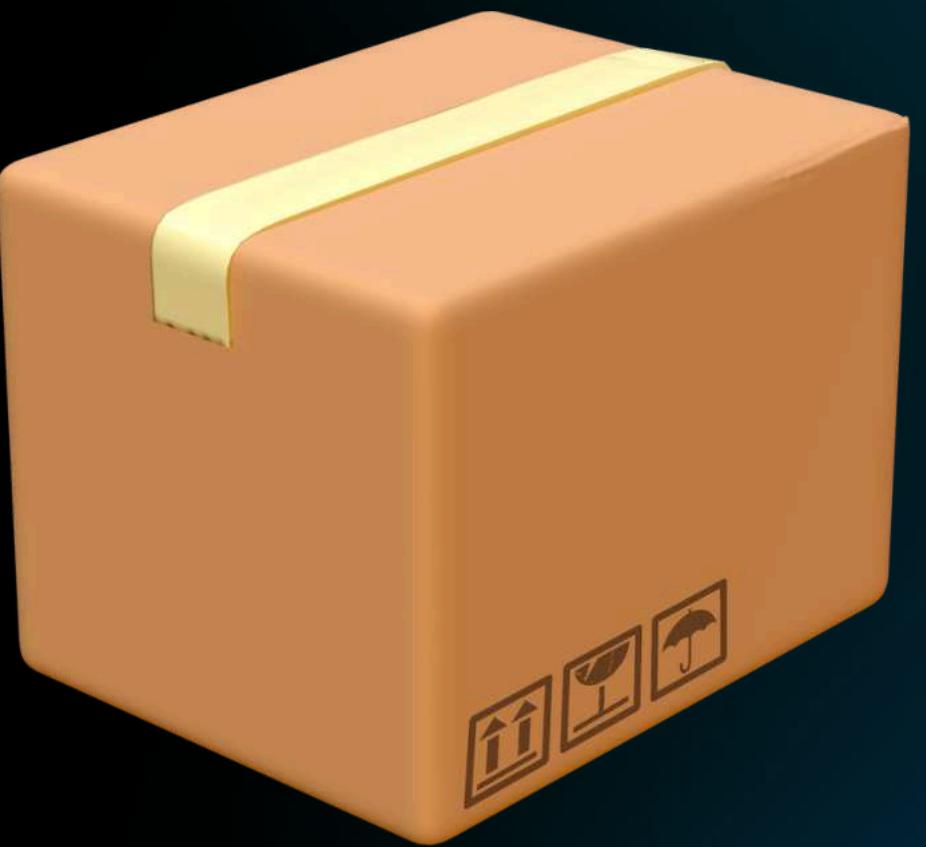


SOURCE CODE

- + Human-readable set of instructions
- + Tells the computer what tasks to perform
- + Later compiled or interpreted into machine code

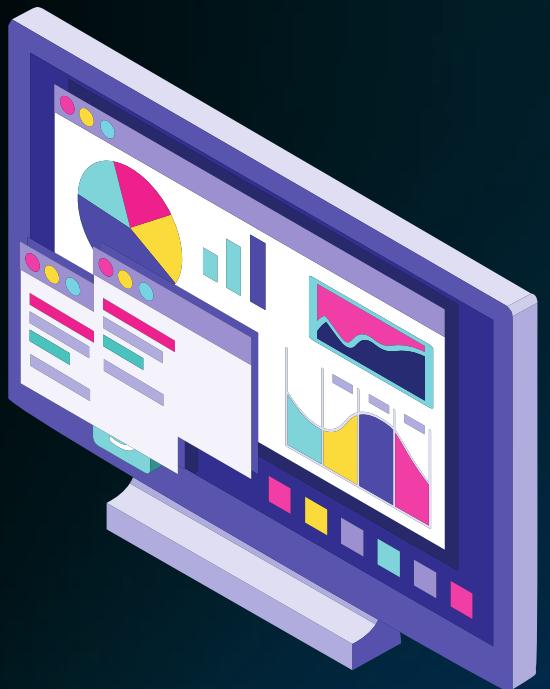






OPEN SOURCE SOFTWARE

- + The source code is freely available to the public
- + Anyone can view, use, modify and distribute its source code
- + It is often developed collaboratively by a community



OPEN SOURCE SOFTWARES



OPEN SOURCE SOFTWARES



Blender



VLC Media Player



VS Code



Git



CLOSED SOURCE SOFTWARE

- + Refers to software whose source code is not made publicly available
- + The code is kept secret and users can't inspect, modify or distribute it



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Microsoft Word



Skype





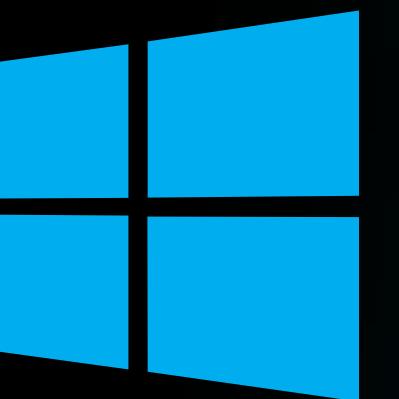
ADVANTAGES OF OPEN SOURCE

- + Free
- + Customizable
- + Secure
- + Community Support



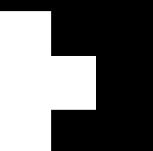
OPERATING SYSTEM

- + System software that enables users to interact with the hardware
- + Manages the overall resources and operations of the computer
- + Interface between user and hardware



KERNEL

- + Core part of an operating system
- + Handles tasks like running programs, accessing files and connecting to devices
- + Interface between hardware and software



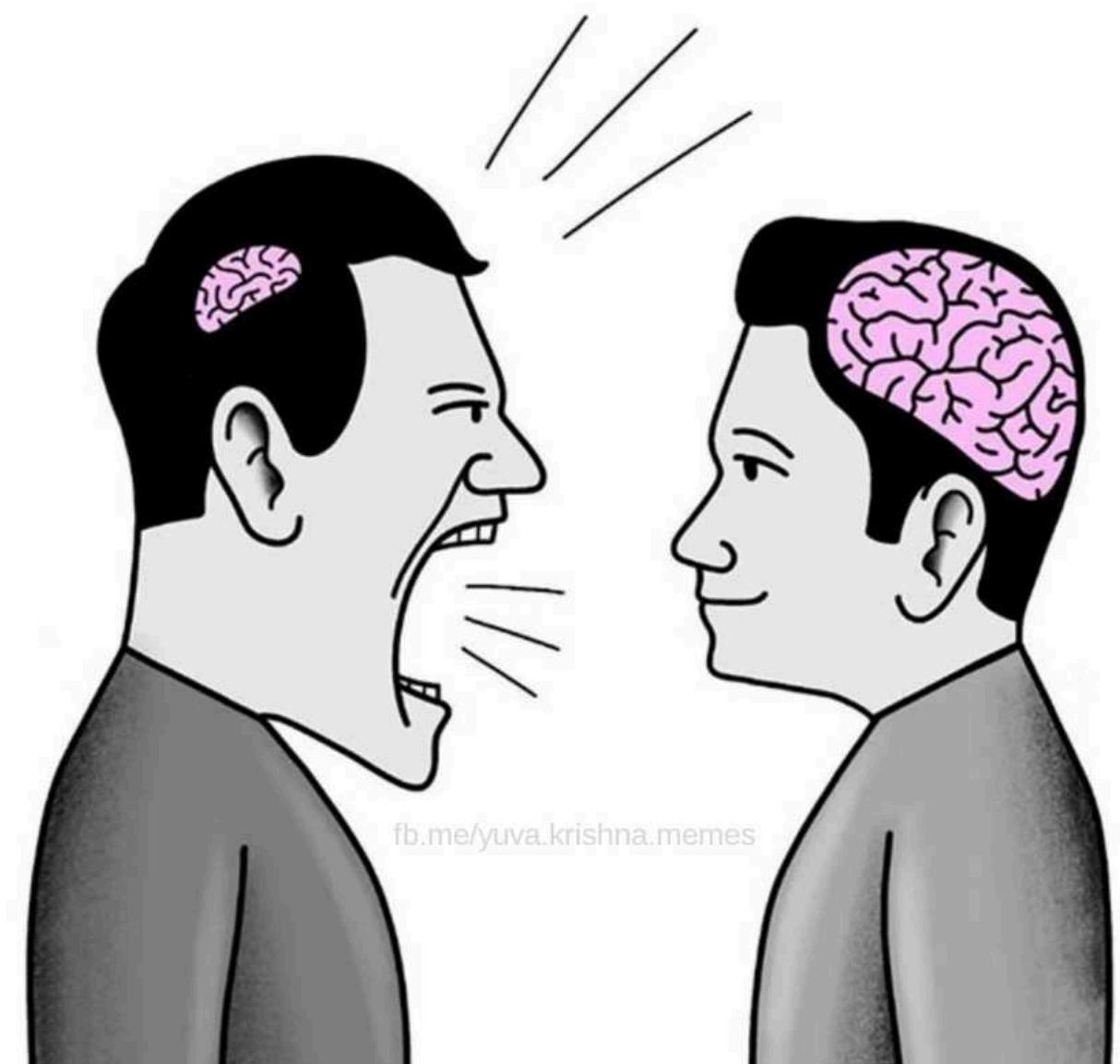


WHAT IS LINUX?



**Linux is
the best OS**

**Linux is not
an OS, it's a
kernel**



fb.me/yuva.krishna.memes

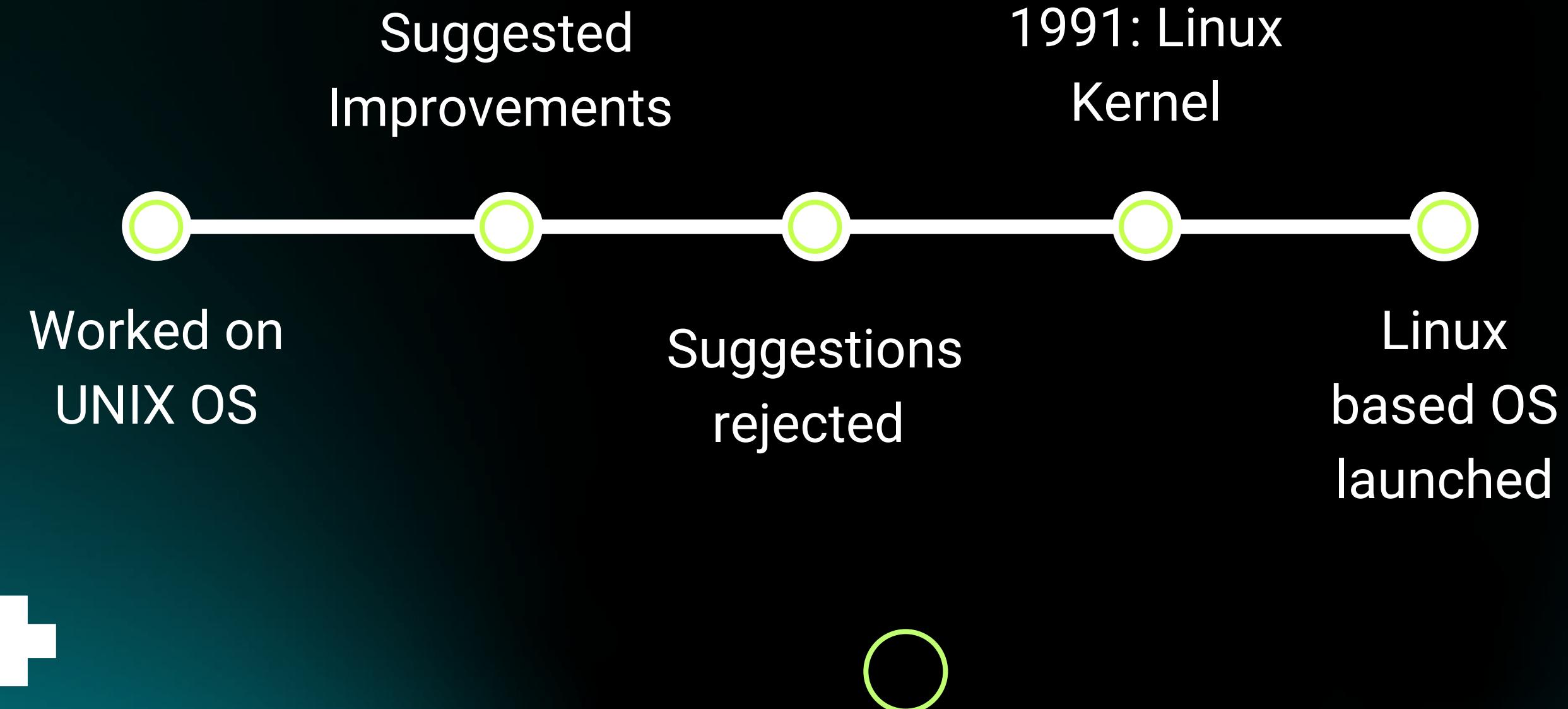
LINUX



- + Free and Open Source Unix-like kernel
- + Created by Linus Torvalds in 1991
- + Later adopted as the kernel for the GNU operating systems



HISTORY OF LINUX



PACKAGE



- + Contains all the essential files needed to install and run software
- + Includes executables, libraries, config files, documentation and dependencies needed for proper software functionality



BREWING SOFTWARE



Ingredients



PACKAGE MANAGER

- + Automates the process of installing, upgrading, configuring and removing the programs
- + Manages software without needing to manually download and install each program

LINUX PACKAGE MANAGERS

- + APT
- + YUM/DNF
- + PACMAN





LINUX DISTRIBUTIONS



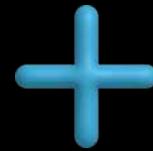
LINUX DISTRIBUTIONS



Kernel



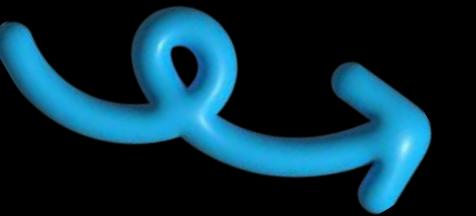
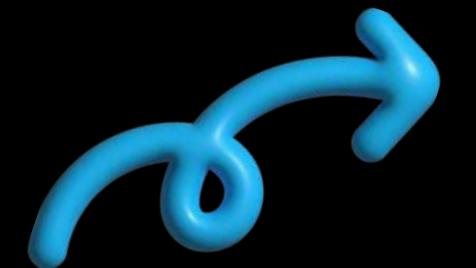
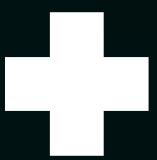
Softwares



Interface



FLAVOURS OF LINUX





LINUX FAMILIES



DEBIAN

- + Popular amongst general users
- + Known for stability, security and extensive repository



ARCH



- + Popular among developers
- + Known for vast repositories i.e. AUR
- + Rolling releases



RED HAT ENTERPRISE LINUX

- + Designed specifically for commercial and enterprise environments
- + Used in servers







UBUNTU

- + Base: Debian
- + User-friendly interface and stable
- + Lots of pre-installed apps
- + Package Manager: apt





Applications Places Activities

Sun Jul 7 13:53:52

Overcast Clouds, 24 °C

80%



Home





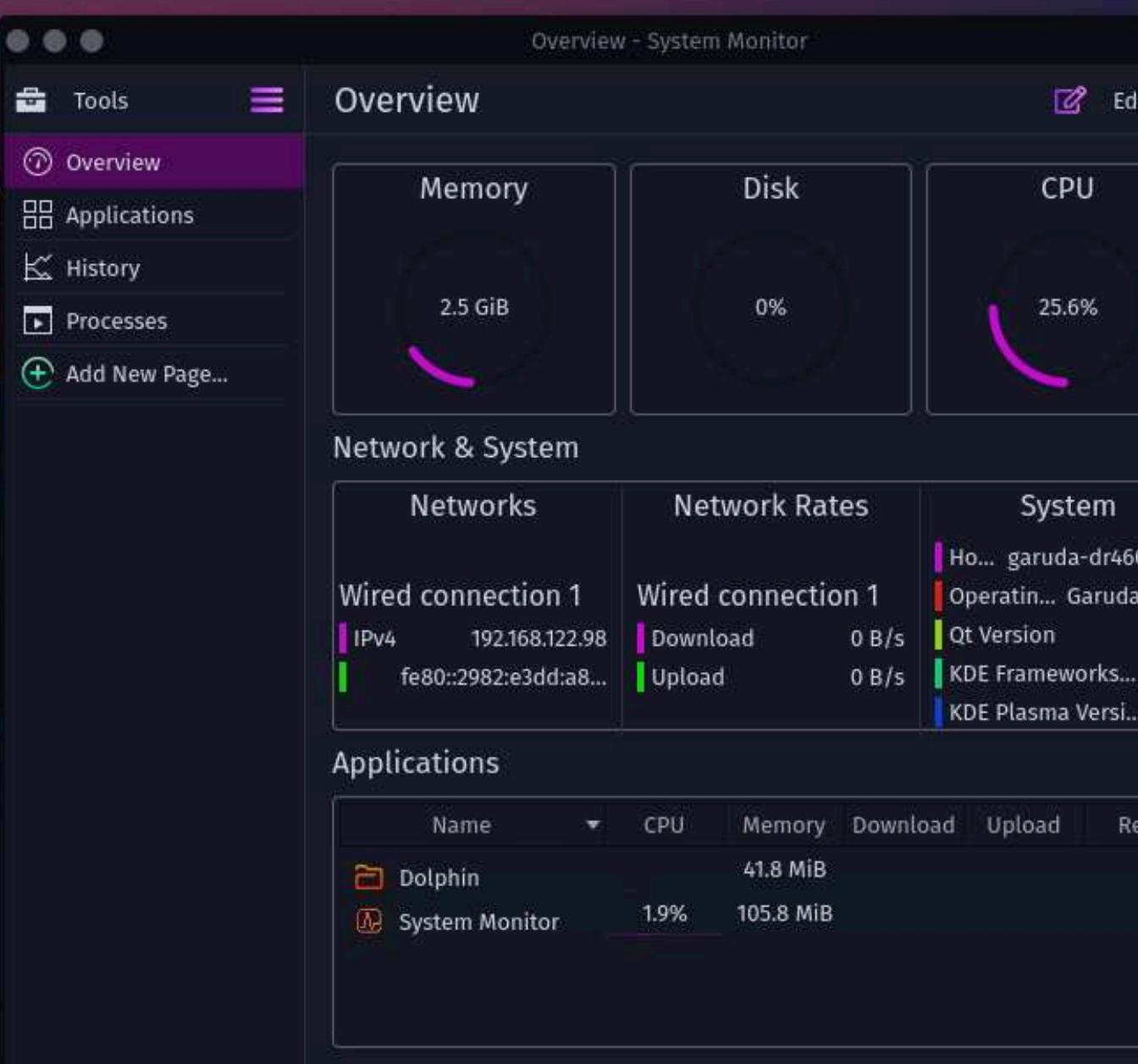
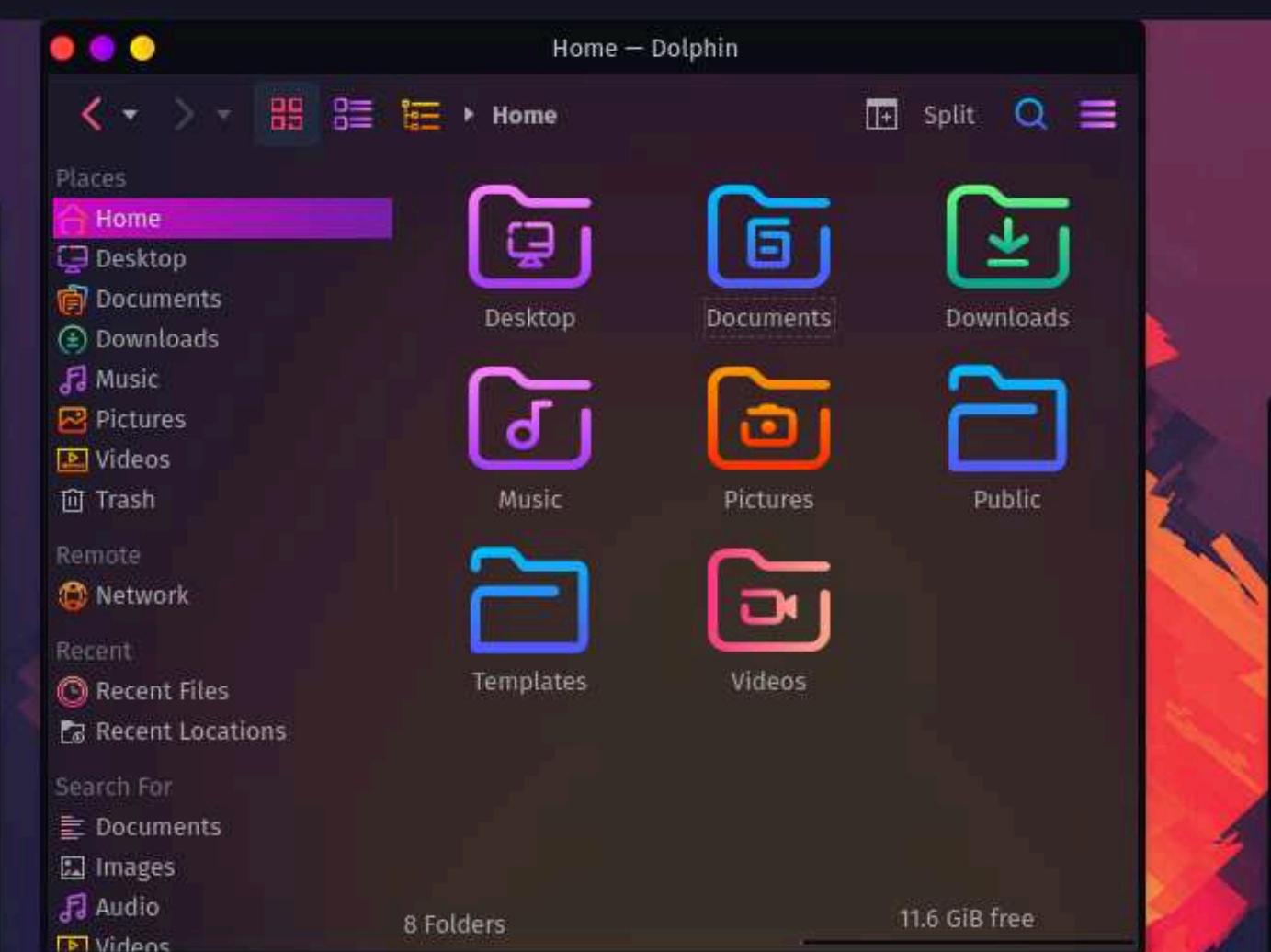
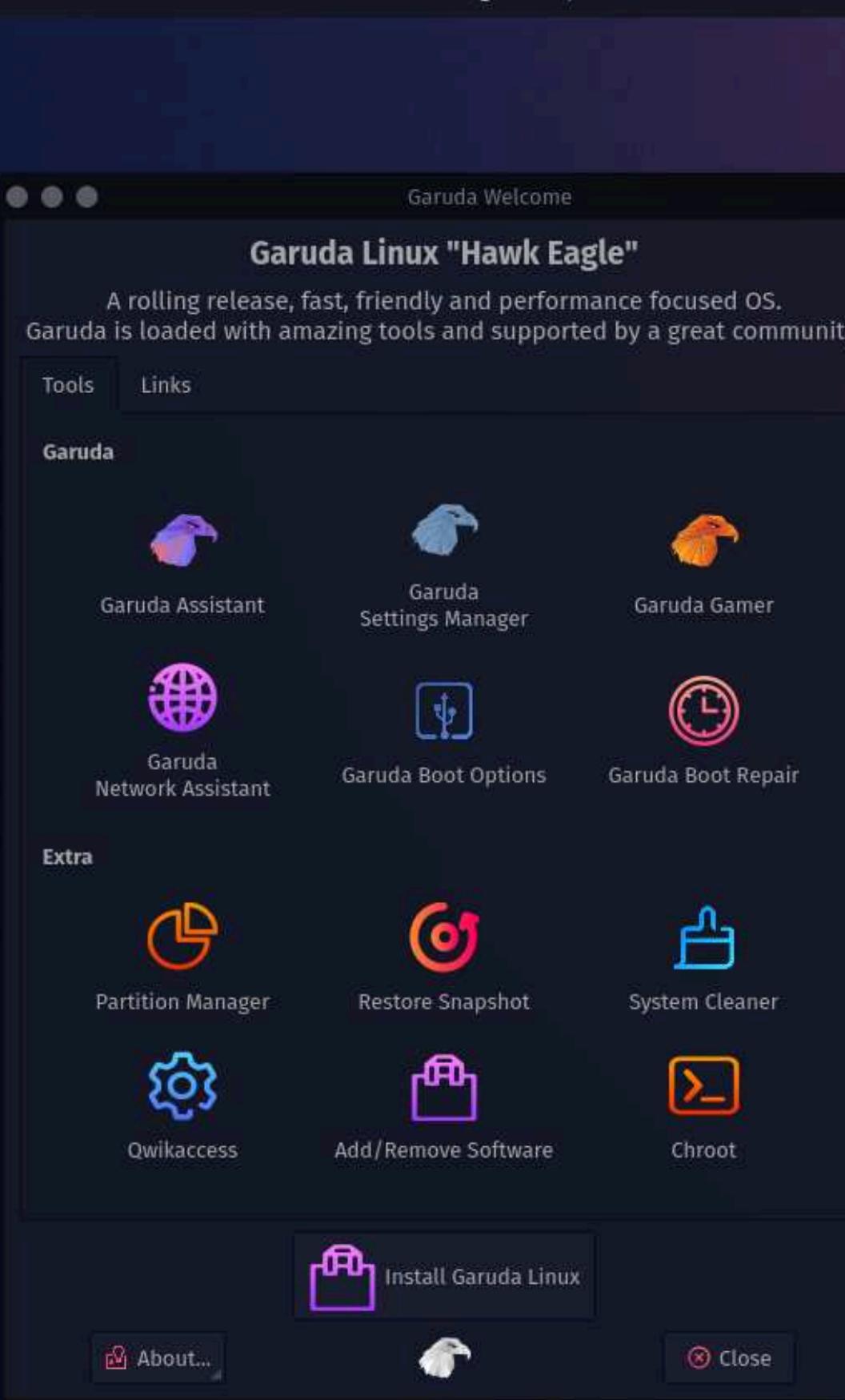
GARUDA

GARUDA



- + Base: Arch
- + Simple interface
- + Pre-installed softwares for gaming
- + Package Manager: pacman



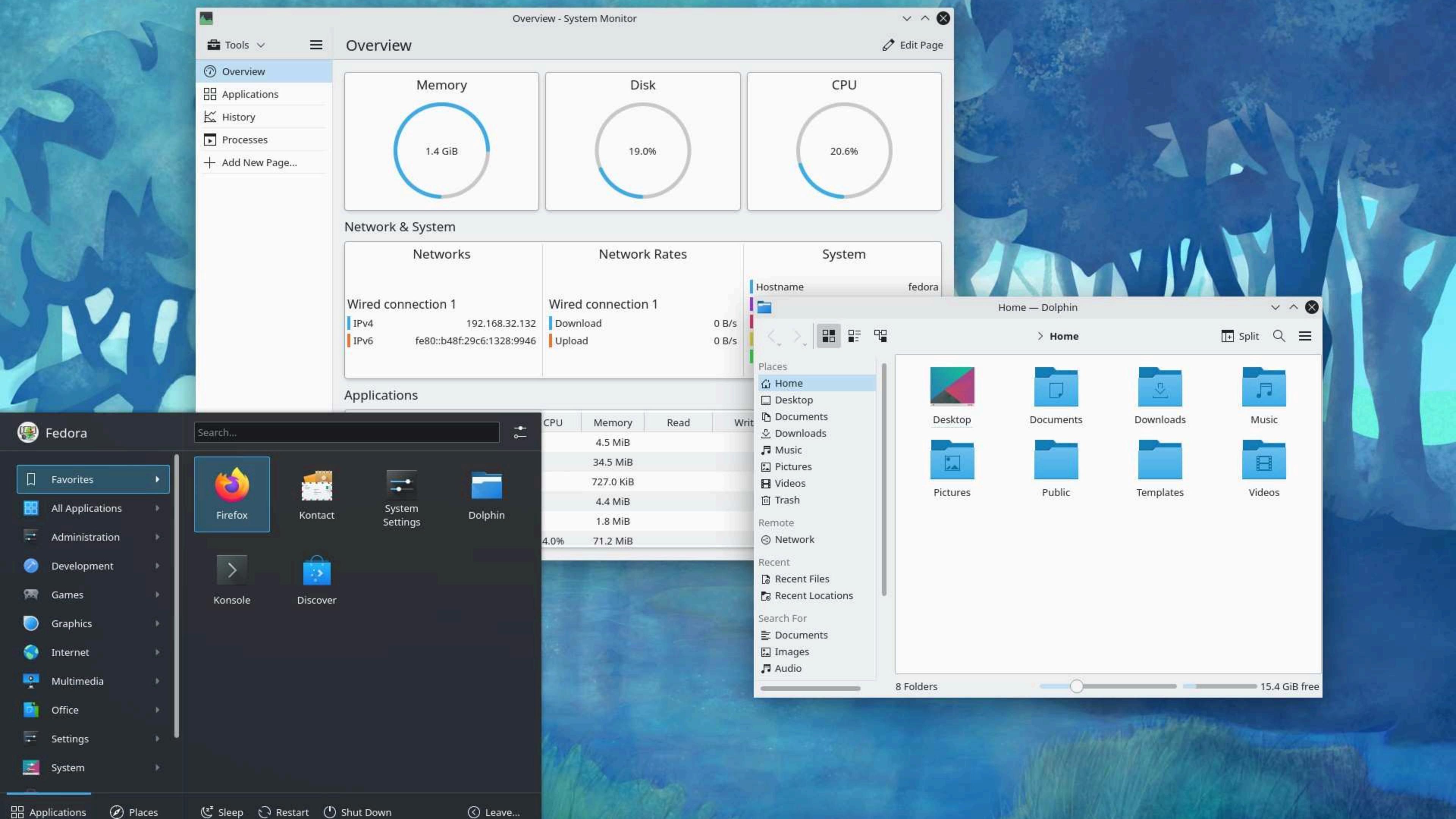




FEDORA

- + Base: Independent
- + Regular updates
- + Developer friendly
- + Package Manager: dnf



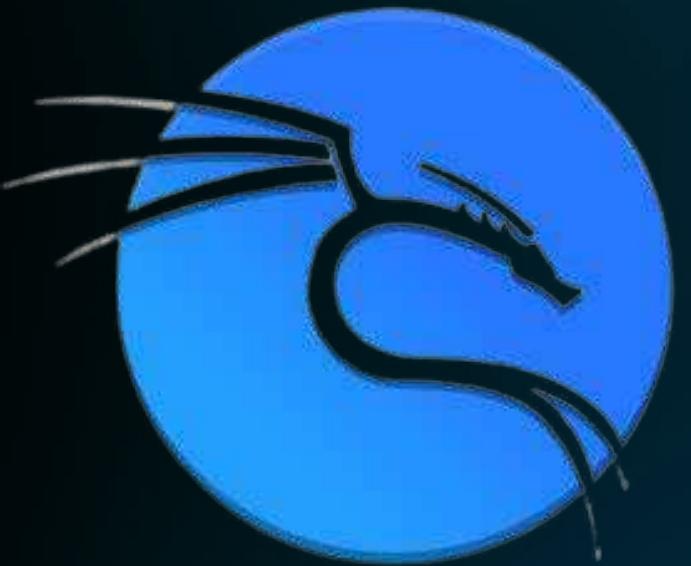


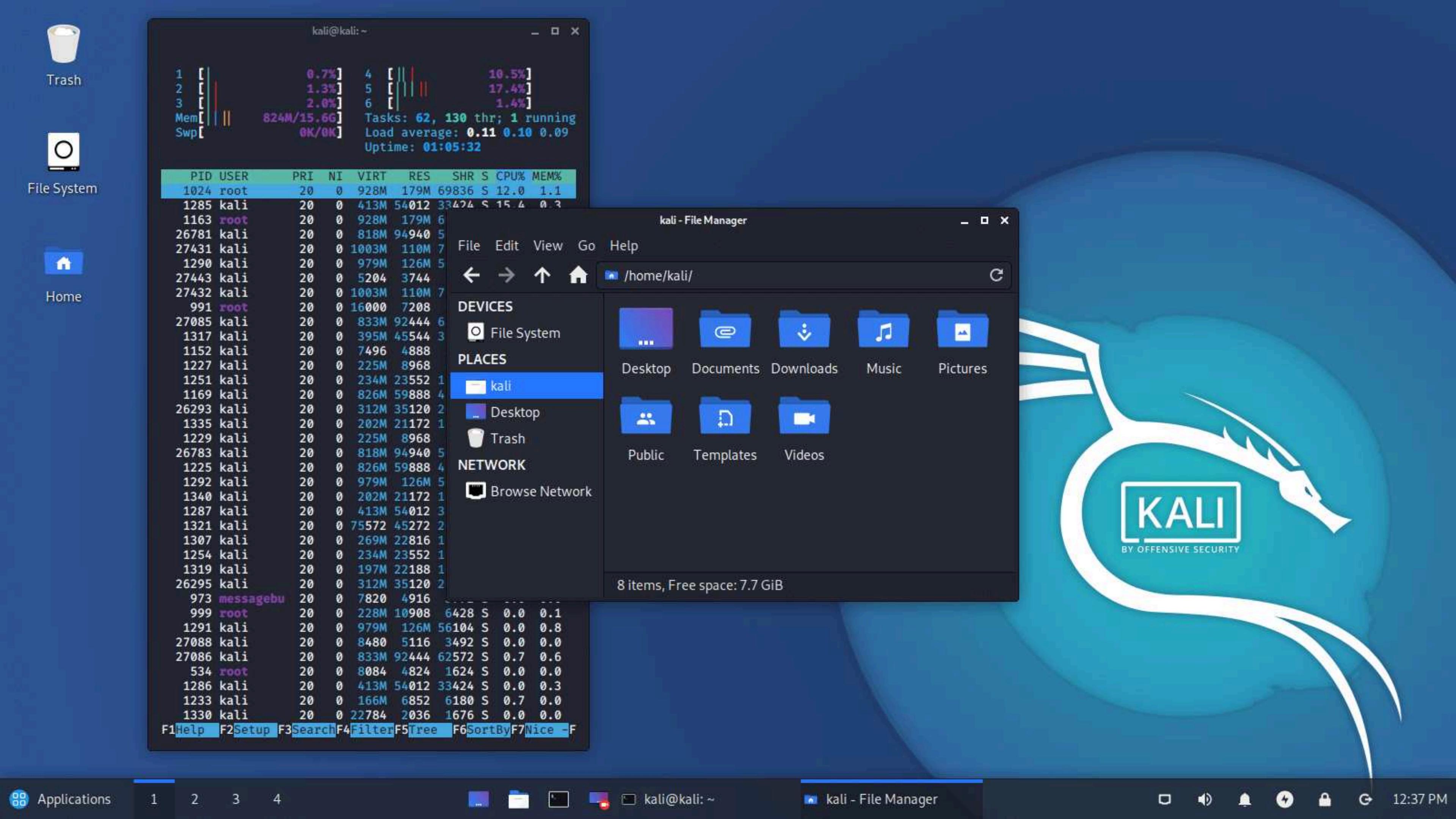




KALI

- + Base: Debian
- + Pre-installed with numerous security and forensic tools
- + ARM & Mobile Support
- + Package Manager: apt





Trash



File System



Home

kali@kali: ~

1 [0.7% 4 [10.5%
2 [1.3% 5 [17.4%
3 [2.0% 6 [1.4%
Mem[824M/15.66] Tasks: 62, 130 thr; 1 running
Swp[0K/0K] Load average: 0.11 0.10 0.09
Uptime: 01:05:32

| PID | USER | PRI | NI | VIRT | RES | SHR | S | CPU% | MEM% |
|------|------|-----|----|------|------|-------|---|------|------|
| 1024 | root | 20 | 0 | 928M | 179M | 69836 | S | 12.0 | 1.1 |

| | | | | | | | | | |
|-------|-----------|----|---|-------|-------|-------|---|------|-----|
| 1285 | kali | 20 | 0 | 413M | 54012 | 33424 | S | 15.4 | 0.3 |
| 1163 | root | 20 | 0 | 928M | 179M | 6 | | | |
| 26781 | kali | 20 | 0 | 818M | 94940 | 5 | | | |
| 27431 | kali | 20 | 0 | 1003M | 110M | 7 | | | |
| 1290 | kali | 20 | 0 | 979M | 126M | 5 | | | |
| 27443 | kali | 20 | 0 | 5204 | 3744 | | | | |
| 27432 | kali | 20 | 0 | 1003M | 110M | 7 | | | |
| 991 | root | 20 | 0 | 16000 | 7208 | | | | |
| 27085 | kali | 20 | 0 | 833M | 92444 | 6 | | | |
| 1317 | kali | 20 | 0 | 395M | 45544 | 3 | | | |
| 1152 | kali | 20 | 0 | 7496 | 4888 | | | | |
| 1227 | kali | 20 | 0 | 225M | 8968 | | | | |
| 1251 | kali | 20 | 0 | 234M | 23552 | 1 | | | |
| 1169 | kali | 20 | 0 | 826M | 59888 | 4 | | | |
| 26293 | kali | 20 | 0 | 312M | 35120 | 2 | | | |
| 1335 | kali | 20 | 0 | 202M | 21172 | 1 | | | |
| 1229 | kali | 20 | 0 | 225M | 8968 | | | | |
| 26783 | kali | 20 | 0 | 818M | 94940 | 5 | | | |
| 1225 | kali | 20 | 0 | 826M | 59888 | 4 | | | |
| 1292 | kali | 20 | 0 | 979M | 126M | 5 | | | |
| 1340 | kali | 20 | 0 | 202M | 21172 | 1 | | | |
| 1287 | kali | 20 | 0 | 413M | 54012 | 3 | | | |
| 1321 | kali | 20 | 0 | 75572 | 45272 | 2 | | | |
| 1307 | kali | 20 | 0 | 269M | 22816 | 1 | | | |
| 1254 | kali | 20 | 0 | 234M | 23552 | 1 | | | |
| 1319 | kali | 20 | 0 | 197M | 22188 | 1 | | | |
| 26295 | kali | 20 | 0 | 312M | 35120 | 2 | | | |
| 973 | messagebu | 20 | 0 | 7820 | 4916 | | | | |
| 999 | root | 20 | 0 | 228M | 10908 | 6428 | S | 0.0 | 0.1 |
| 1291 | kali | 20 | 0 | 979M | 126M | 56104 | S | 0.0 | 0.8 |
| 27088 | kali | 20 | 0 | 8480 | 5116 | 3492 | S | 0.0 | 0.0 |
| 27086 | kali | 20 | 0 | 833M | 92444 | 62572 | S | 0.7 | 0.6 |
| 534 | root | 20 | 0 | 8084 | 4824 | 1624 | S | 0.0 | 0.0 |
| 1286 | kali | 20 | 0 | 413M | 54012 | 33424 | S | 0.0 | 0.3 |
| 1233 | kali | 20 | 0 | 166M | 6852 | 6180 | S | 0.7 | 0.0 |
| 1330 | kali | 20 | 0 | 22784 | 2036 | 1676 | S | 0.0 | 0.0 |

F1Help F2Setup F3Search F4Filter F5Tree F6SortByF7Nice -F

kali - File Manager

File

Edit

View

Go

Help

← → ↑ ↻ /home/kali/ C

DEVICES

File System



PLACES

kali

Desktop

Trash

Public

Browse Network

Desktop Documents Downloads Music Pictures

Templates Videos

8 items, Free space: 7.7 GiB



Applications

1

2

3

4



kali@kali: ~

kali - File Manager

12:37 PM

Beginner hackers after installing Kali Linux for the first time



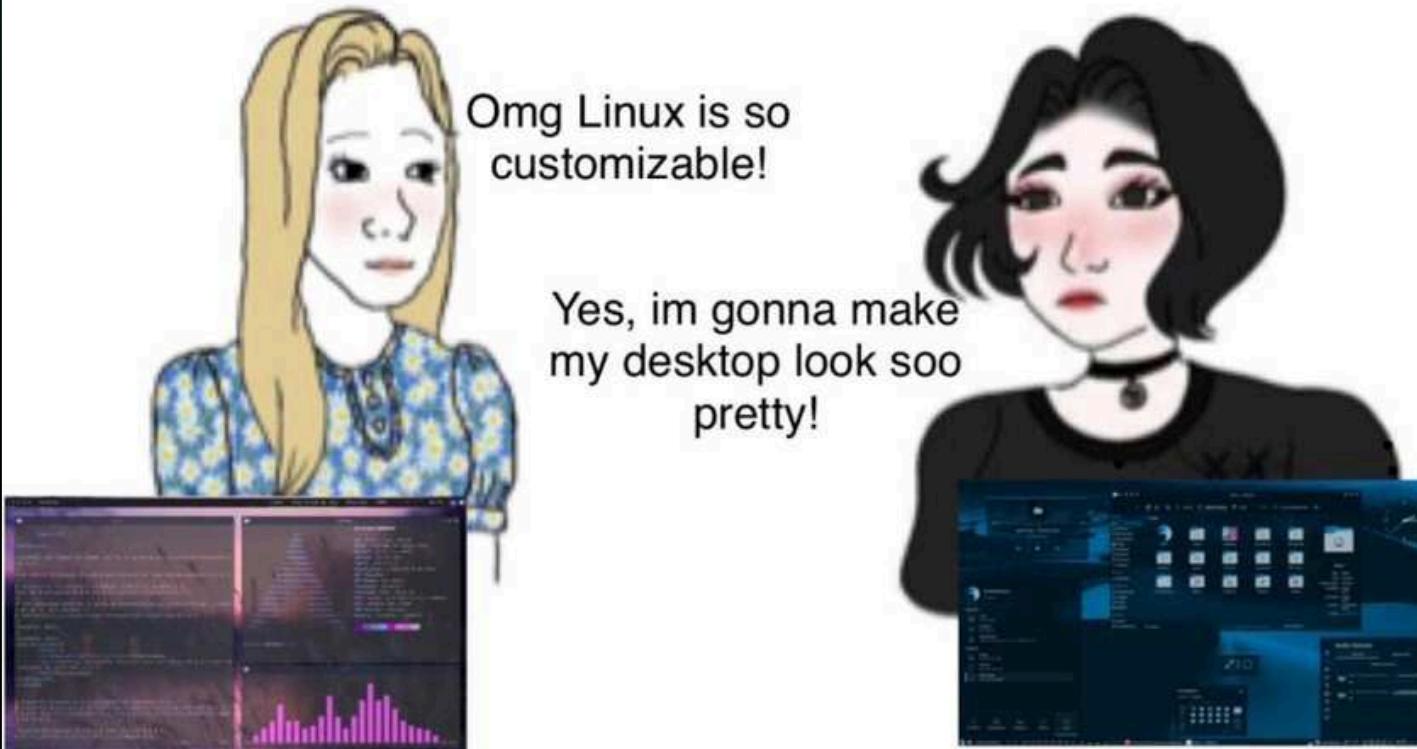
DESKTOP ENVIRONMENT

DESKTOP ENVIRONMENT

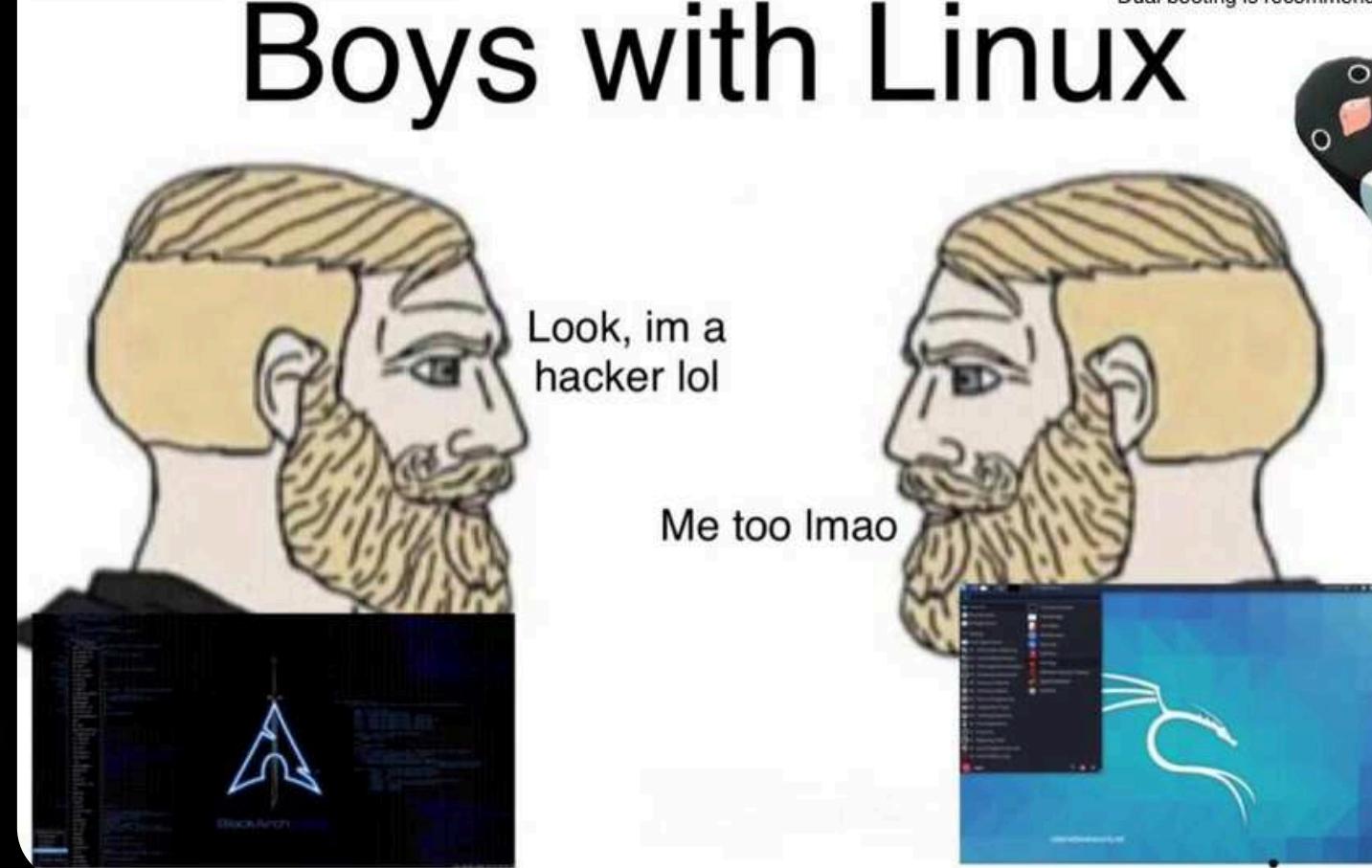
- + A graphical user interface for interacting with OS
- + Ex. GNOME, MATE, KDE Plasma, XFCE & many more



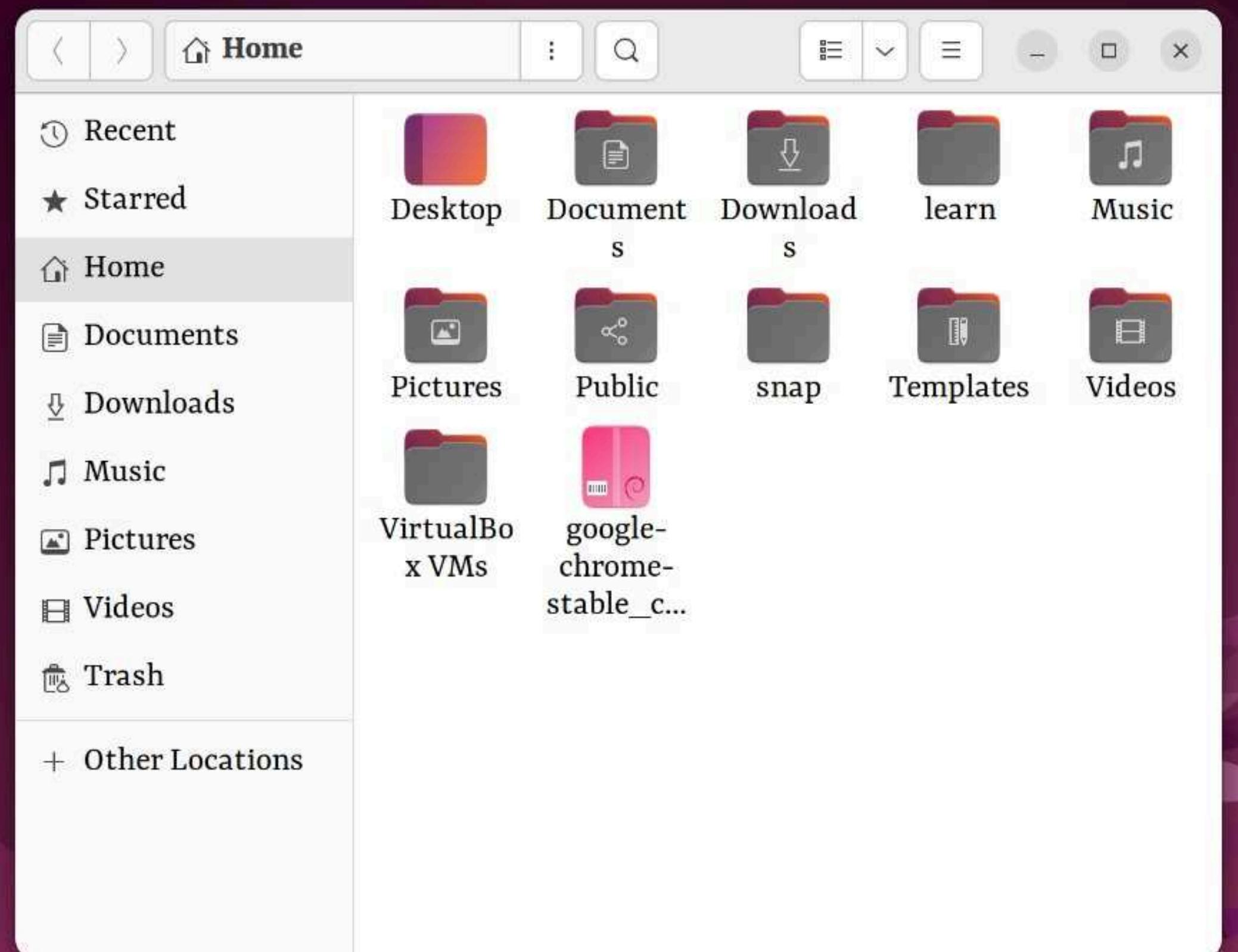
Girls with Linux



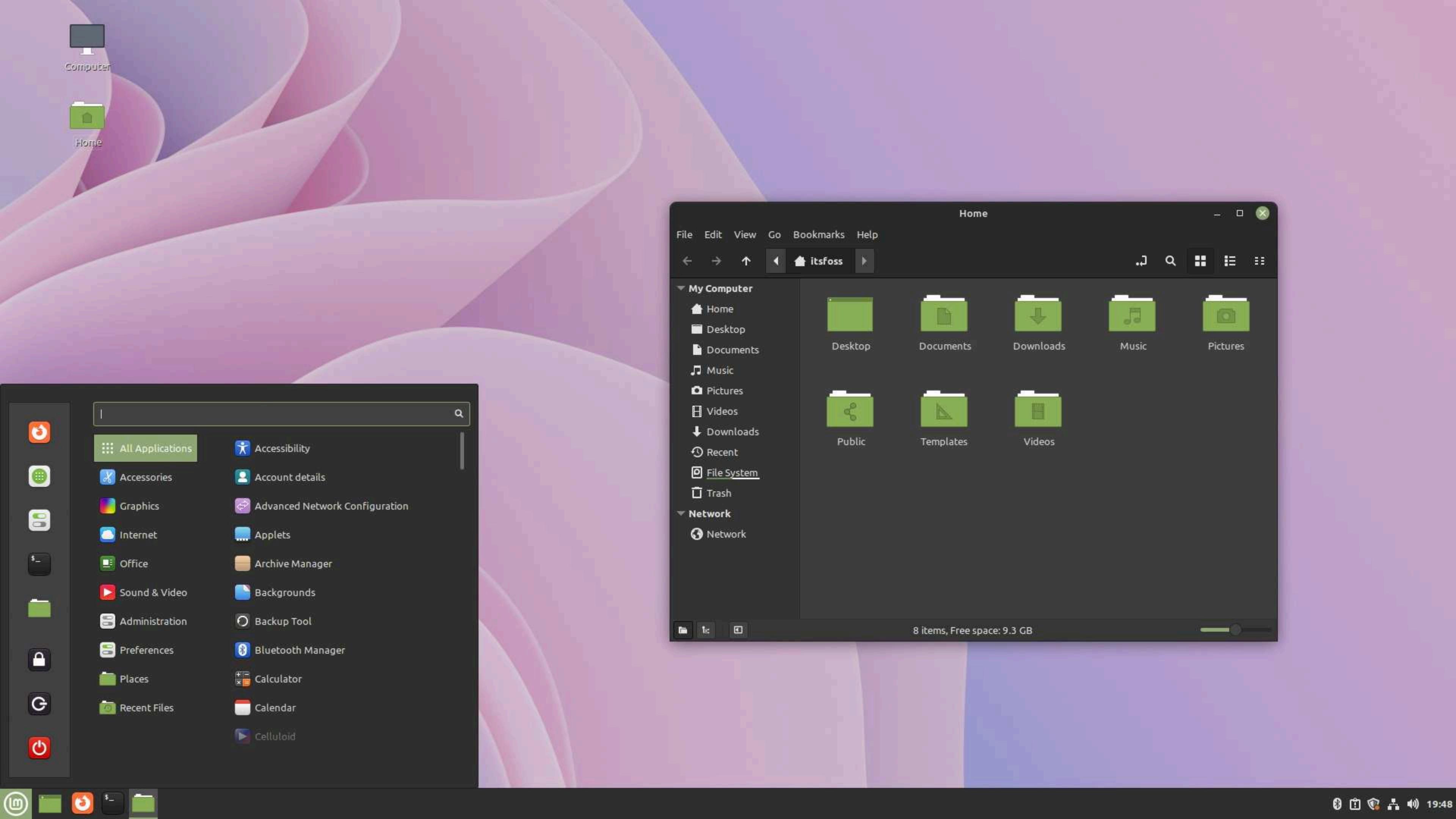
Boys with Linux



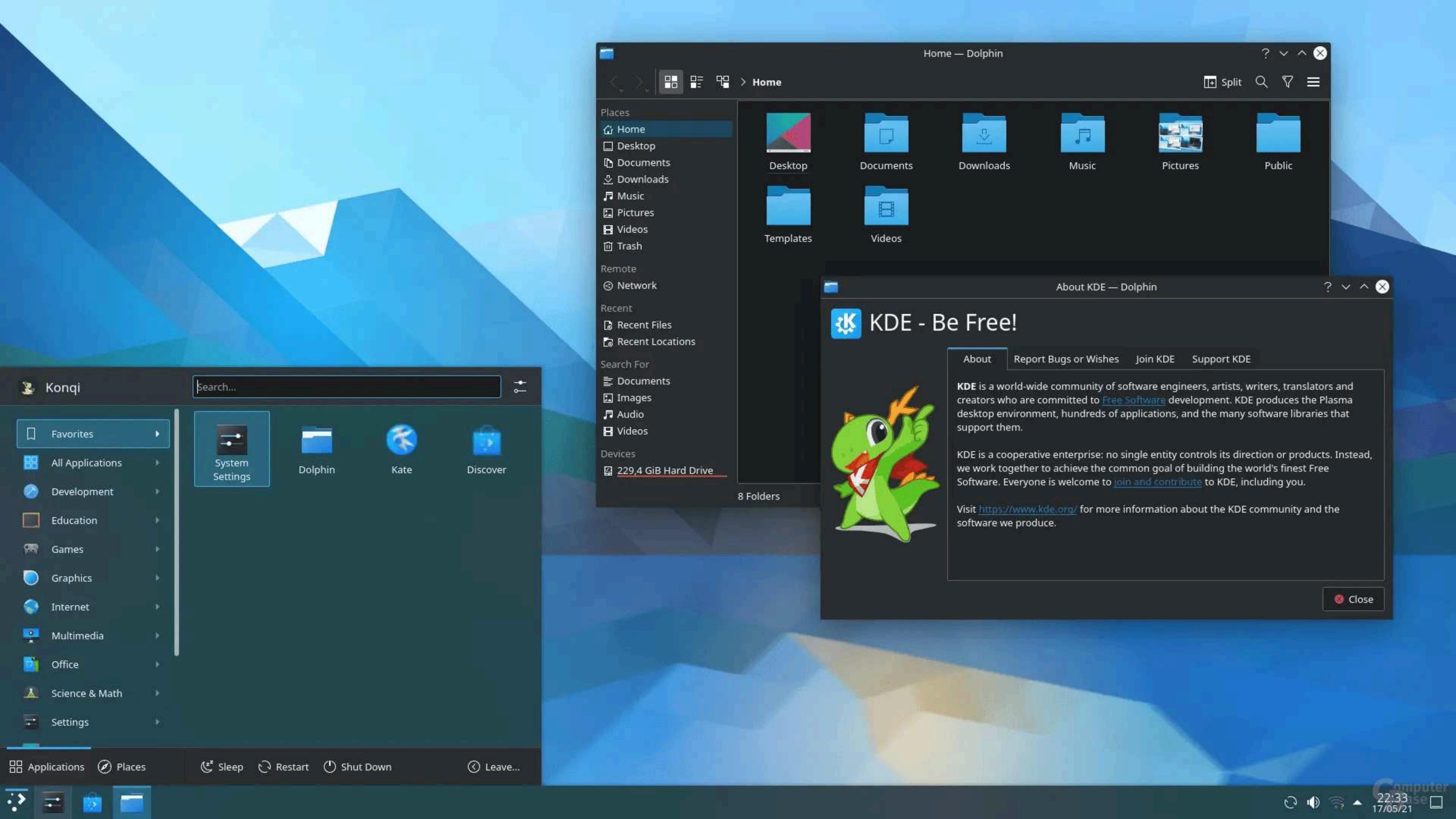














Panel Preferences

Profiles: Backup a

Panel 1

Display Appearance Items

- Applications Menu
- Window Buttons
- Separator
- Workspace Switcher
- Separator
- Status Tray Plugin
- PulseAudio Plugin (external)
- Notification Plugin (external)
- Separator
- Clock
- Separator
- Action Buttons (external)

Help

Status Tray Items

Icons

Adjust size automatically

Fixed icon size (pixels): 22 - +

Behavior

Arrange items in a single row

Hide items by default

Square items

Status Notifiers Systray Icons

Known Items

| Item | Hidden |
|------|--------|
| | |

Features

Menu is primary action

Request symbolic icons

Clear Known Items

Close

xfce



kde



Gnome



Installing all of them
and switching every
other week



WHY LINUX?

- + Free & Open Source
- + Lightweight & Fast
- + Highly Customisable
- + Security & Privacy



VIRTUAL MACHINE

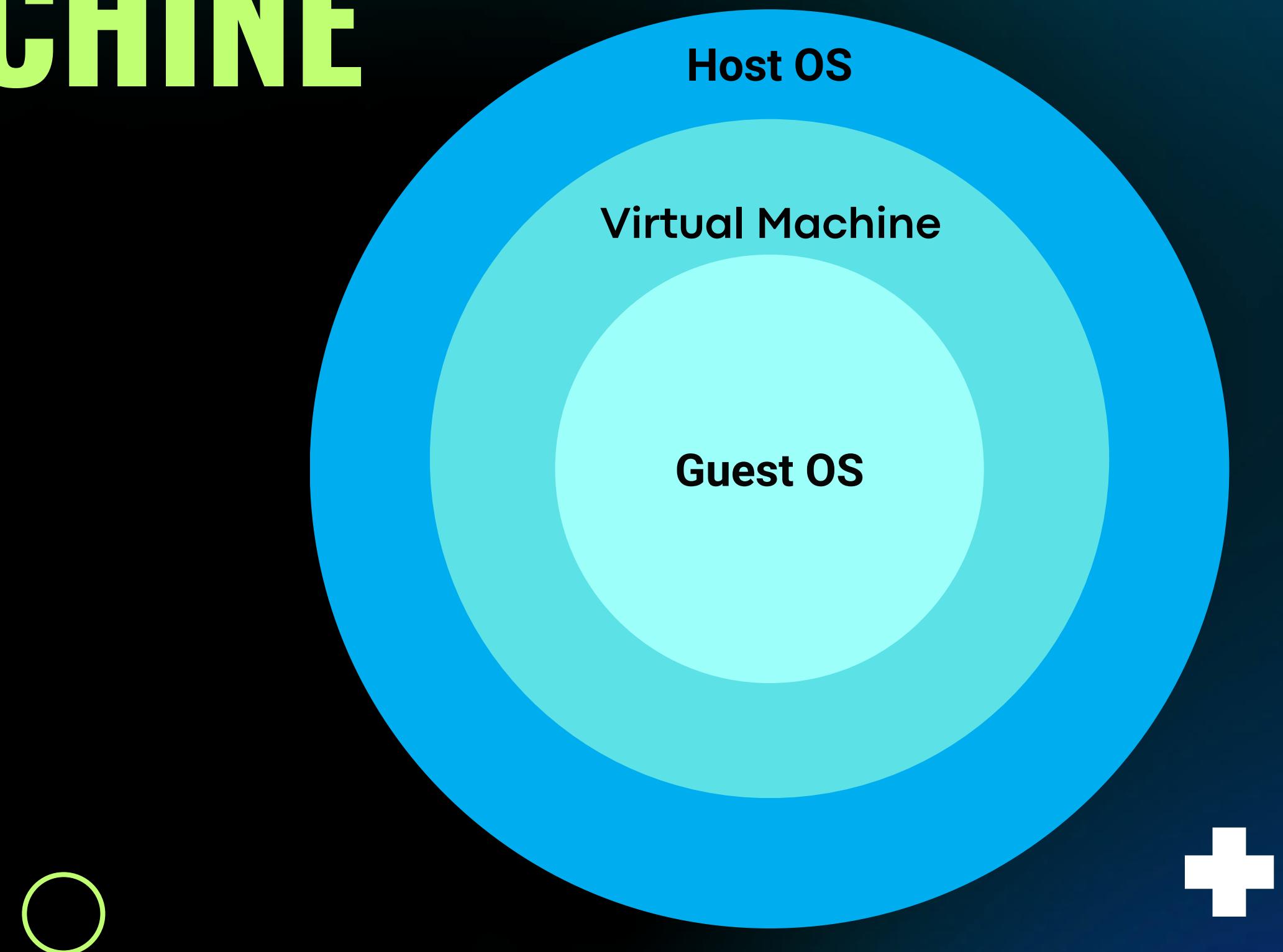
WHAT IS A VIRTUAL MACHINE?

- + A software based emulation of physical computer that runs on host OS



VIRTUAL MACHINE

- + Guest OS is the OS running inside the VM
- + Host OS is our main OS



ADVANTAGES

- + Resource Efficiency
- + Isolation
- + Security & Testing





DISADVANTAGES

- + Low Performance
- + Latency / Delay
- + Dependency on Host OS



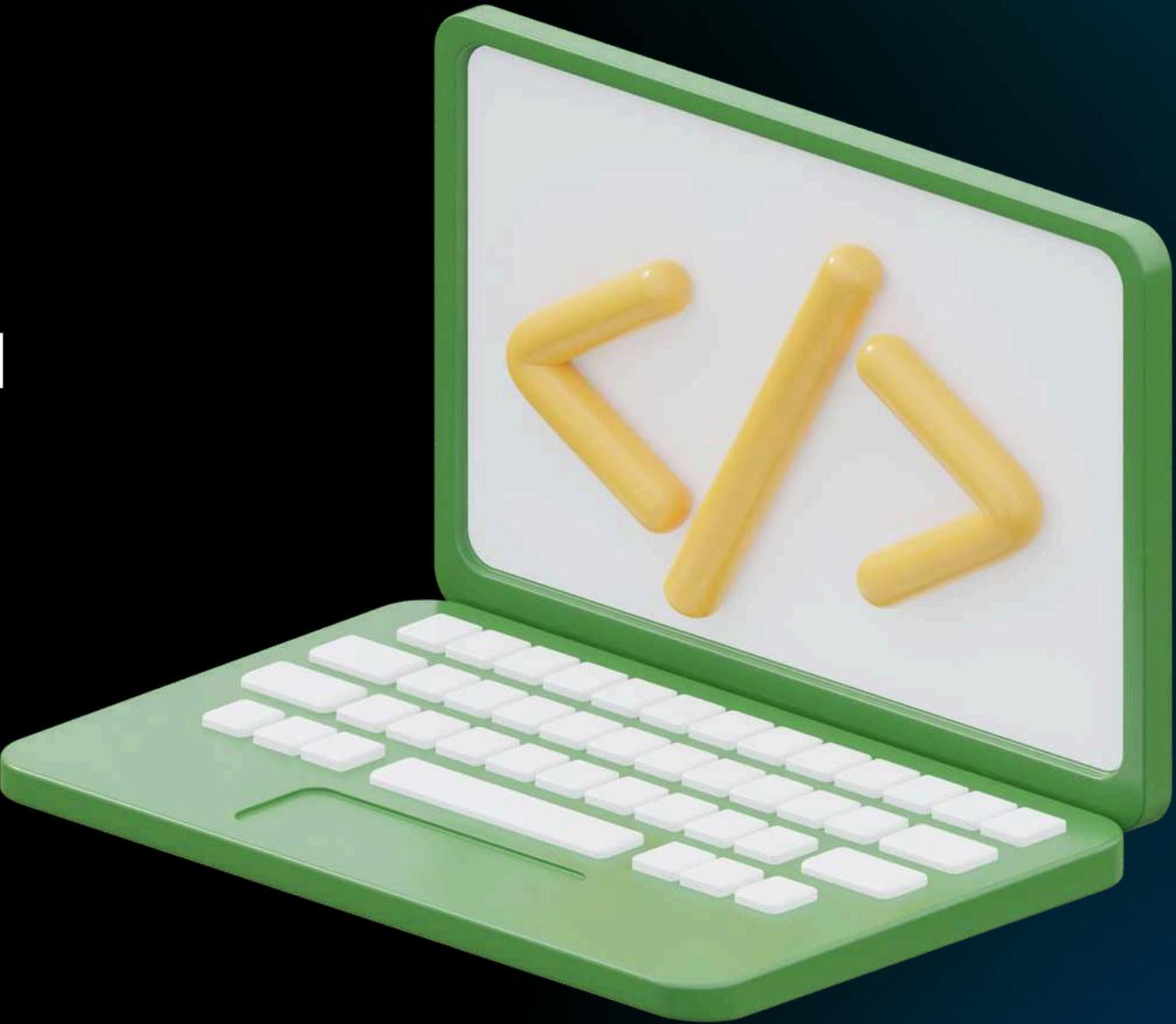


TERMINAL



WHAT IS TERMINAL?

- + Terminal is a text-based interface used to interact with an OS



```
suraj-upadhye@suraj: ~/Desktop
```

```
+---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
|I|f| |y|o|u| |c|a|n| |d|r|e|a|m| |i|t|,| |y|o|u| |c|a|n| |d|o| |i|t|
+---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+ +---+
suraj-upadhye@suraj:~$ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
suraj-upadhye@suraj:~$ cd Desktop
suraj-upadhye@suraj:~/Desktop$ ls
suraj-upadhye@suraj:~/Desktop$ mkdir Linux-Basics
suraj-upadhye@suraj:~/Desktop$ ls
Linux-Basics
suraj-upadhye@suraj:~/Desktop$
```



SHELL

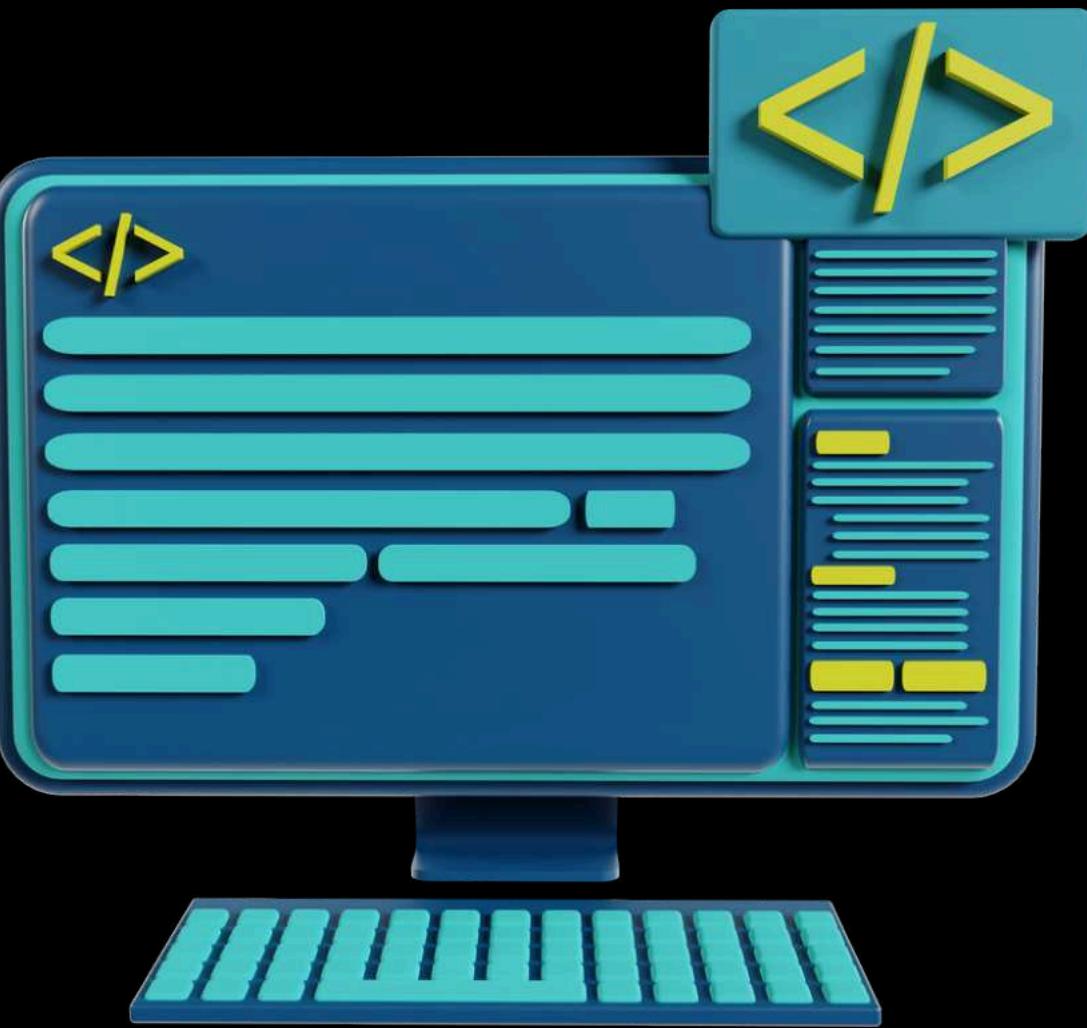


WHAT IS SHELL?

- + A command interpreter that processes commands and scripts



BASIC COMMANDS



BASIC COMMANDS

+ pwd

To print current working directory

```
...  
$ pwd
```

+ ls

To list directory content

-l: long listing format

-a: Includes hidden files

-h: human readable file sizes

```
...  
$ ls  
$ ls -l  
$ ls -a  
$ ls -h
```

BASIC COMMANDS

+ cd

To change directory



```
$ cd Desktop/
```

+ mkdir

To make a directory

-p: Creates parent directory as needed



```
$ mkdir Linux/
```

```
$ mkdir -p LinuxFamily/Arch
```

BASIC COMMANDS

+ touch

To create an empty file

```
$ touch file.txt  
$ touch file1.txt file2.txt
```

+ man

To display the manual pages for other commands and utilities

```
$ man commandName
```



Kinnaird McQuade



@kmcquade3

*☆ Linux tips 📖

1. Always remove the french language pack:

```
sudo rm -fr ./*
```

HANDS-ON TIME!



QUIZ TIME!



+ JOIN US



+ JOIN US





WALCHAND COLLEGE OF ENGINEERING, SANGLI

WALCHAND LINUX USERS' GROUP



METAMORPHOSIS

LIMITED SEATS

Navigating the DevOps Wave

EXCITING PRIZES



Let's Dock It!

SESSION 1

DockerVerse

SESSION 2

15 & 16 FEB



REGISTER AT

Sailing to K8s

SESSION 3

Pod Power

SESSION 4

WARGAMES

POWERED BY
IT'S FOSS

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Main & Mini CCF

THANK YOU!

