

Notes Lecture 1 What is Linux

Why Do you need to learn Linux?

- Linux runs in a lot of devices. Example: laptops, desktops, servers, smartphones, IoT devices, etc
- Linux powers the cloud
- Linux is used by a lot of companies even Microsoft

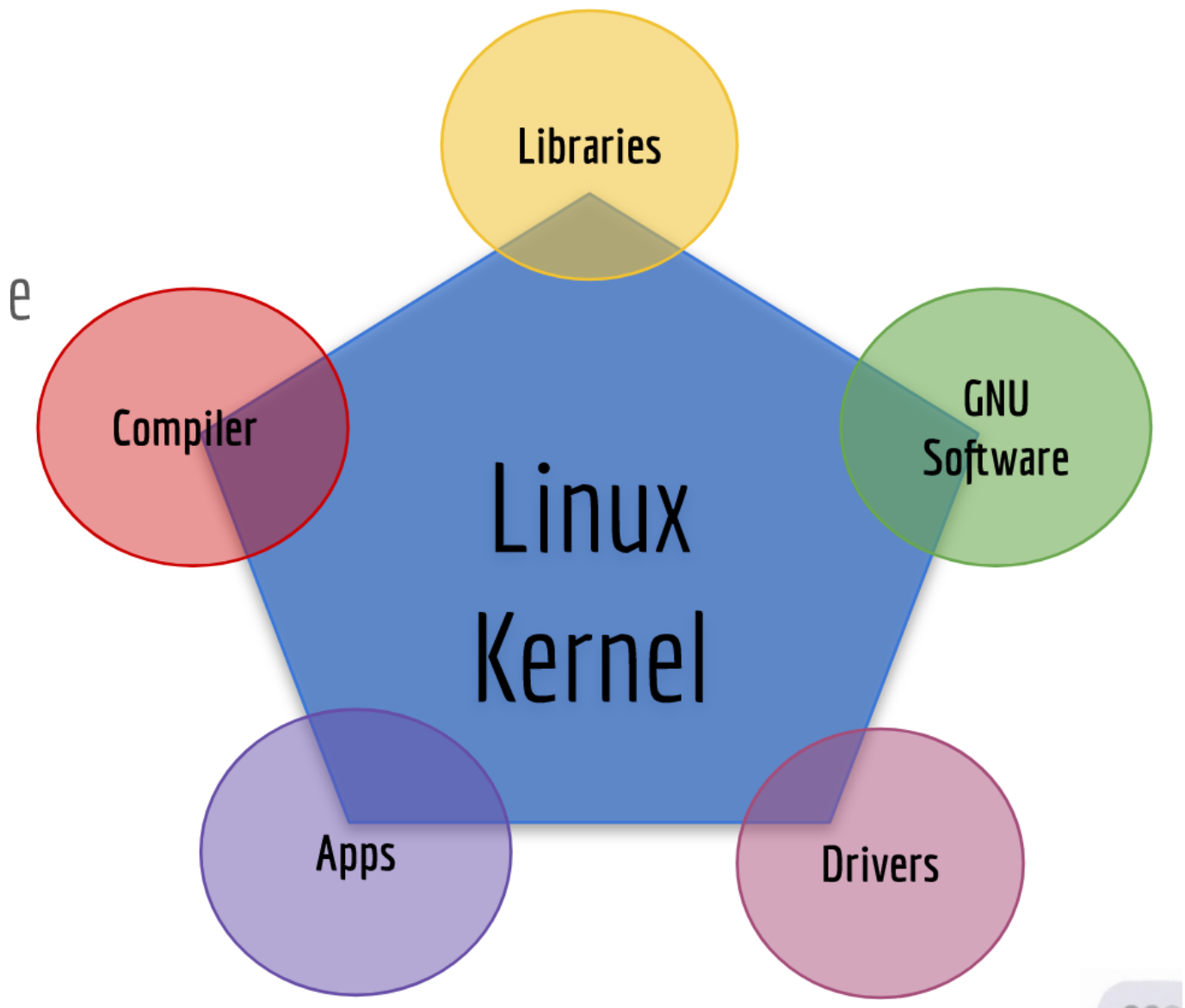
What is Linux?

- Linux is a kernel. A kernel is the core of any operating system
- An operating system that uses the Linux kernel is called a Linux Distribution. Example: Ubuntu and Android
- Linux is multitasking, multi-user, and multipurpose OS.
- Linux is a modular operating system.

Linux books I Can Use:

- Linux Administration A Beginner's Guide 8th Edition by Wale Soyinka
- CompTia Linux+ Study Guide by Christine Bresnahan
- The Linux Command Line by William Shotts

Linux Distributions



- There are a large number of Linux distributions.
- There are two main Linux Distributions:
 - Debian
 - Redhat
- There are also other independent distributions:
 - Slackware
 - Arch
 - Gentoo

Linux Architecture





Graphical Desktop Environment



Daemons

Ftpd
Httpd
Inetd

Shells

Bash
C
Korn

Linux Kernel



Hardware



Components of the Linux Architecture

- Linux is modular which means that users can remove and add/remove whatever they need or don't need.

- **Kernel** = the core of the operating system. Manages the hardware
- **Daemons** = background programs that run independent of the user
- **Shells** = the interface that accepts user input and translates it so that the kernel can use it.
- **Graphical Desktop Environment** = a collection of software that makes the graphical interface
- In Linux everything is a file.
- Type of files:
 - Device files
 - Directory files
 - Binary files
 - Regular files

Software licensing agreement

- A license agreement outlines the right a user has to given software
- Types of licensing agreement:

Open Source	Closed Source	Free Software
Software can be distributed for free or a fee. The source code must be distributed with the software.	Software can be distributed for free or a fee. The end user has limited access to the software and the source code is not available	Software can be distributed for free or a fee. The user has total control of the software and the source code. The software must comply with the 4 freedoms.

Open Source Software



Libre Office



Mozilla Firefox



VLC Media Player



Jami



Super Tux Kart



Sumatra PDF Reader

Close Source Software



Microsoft Office



Internet Explorer



Windows Media Player



Skype



Mario Kart 64



Adobe Acrobat



The 4 freedoms

- Freedom 0: the user can run the program as you wish, for any purpose

- Freedom 1: the user can study how the program works, and change it
- Freedom 2: the user can redistribute copies
- Freedom 3: the user can distribute copies of your modified versions.

Learn more: <https://www.gnu.org/philosophy/free-sw.en.html>

Advantages/Disadvantages of Open Source Software

Advantages	Disadvantages
<ul style="list-style-type: none">• Software is “generally” available for free• The user can modify the code• General more reliable	<ul style="list-style-type: none">• Can be risky• User friendliness• Lack of corporate support

What is Ubuntu?

Ubuntu is a complete Linux operating system, freely available with both community and professional support. Ubuntu is suitable for both desktop and server use. The current Ubuntu release supports Intel x86 (IBM-compatible PC), AMD64 (x86-64), ARMv7, ARMv8 (ARM64), IBM POWER8/POWER9 (ppc64el), IBM Z zEC12/zEC13/z14 and IBM LinuxONE Rockhopper I+II/Emporer I+II (s390x). Ubuntu includes thousands of pieces of software, starting with the Linux kernel version 5.4 and GNOME 3.28, and covering every standard desktop application from word processing and spreadsheet applications to internet access applications, web server software, email software, programming languages and tools and of course several games.