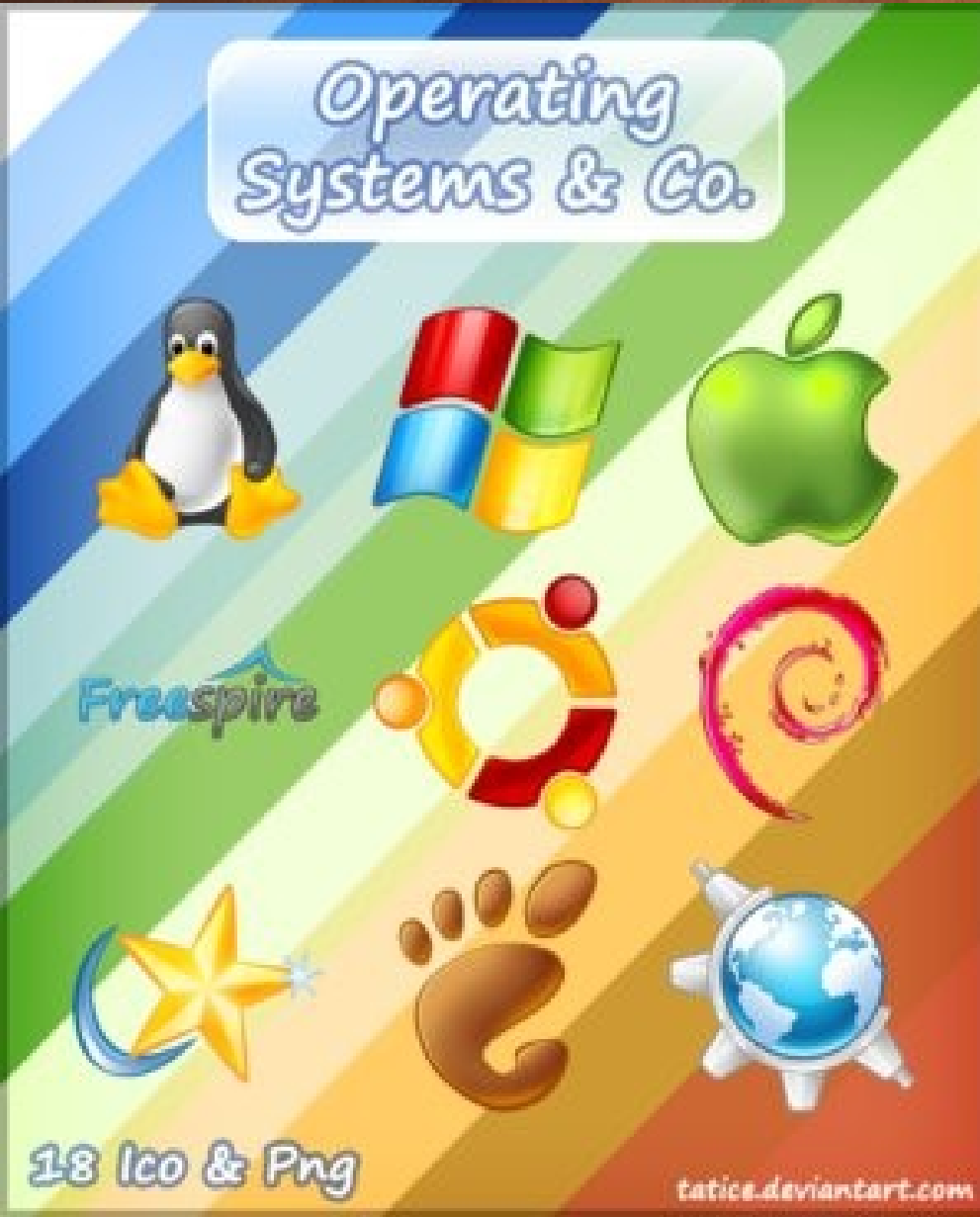


INTRODUCTION TO



OPERATING SYSTEMS



- What is an OS?
- What are different OS?



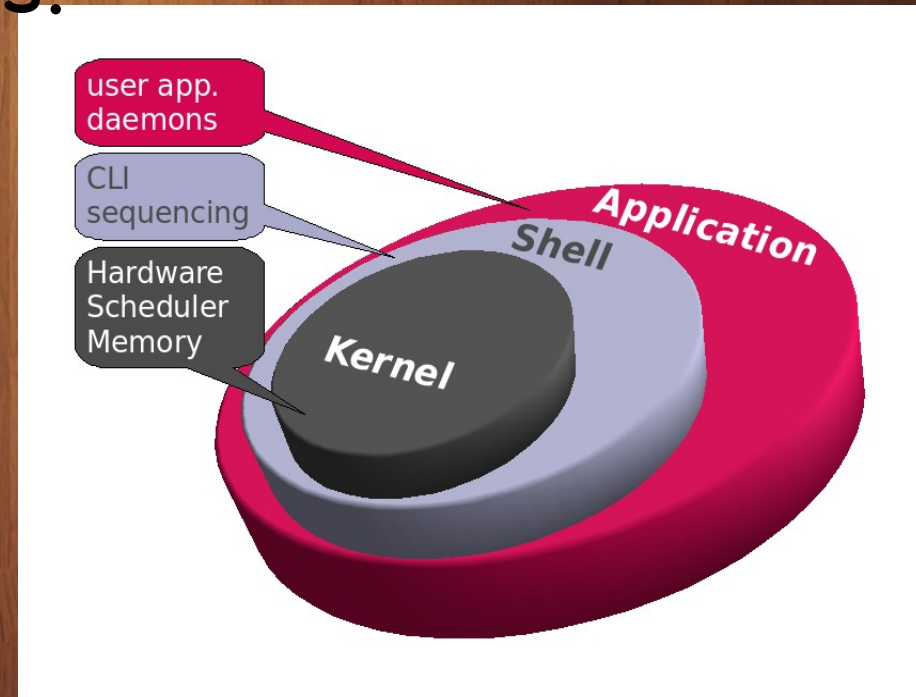
WHAT IS GNU?

- GNU is a recursive acronym stands for-Gnu Not Unix.
- GNU is a project initiated by RMS in 1983.



WHAT IS LINUX?

- Linux is a Kernel. Kernel is the heart of OS.
- Started by Linus Torvalds.



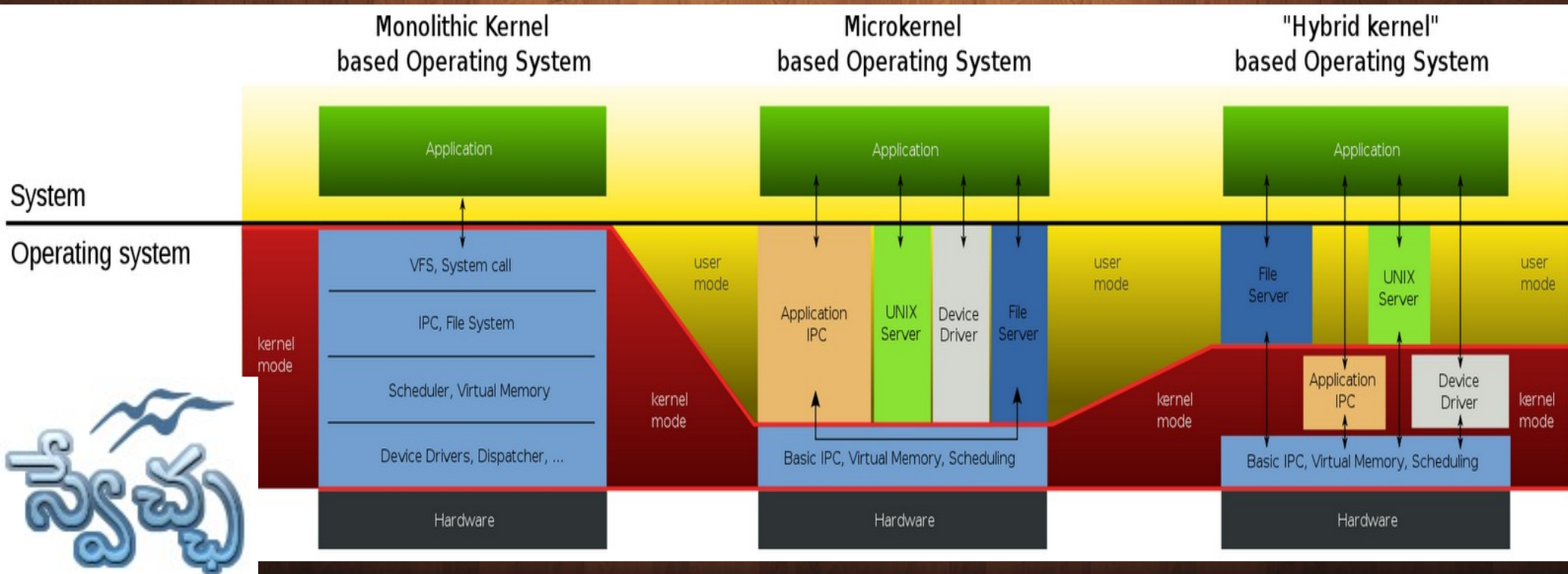
WHAT IS GNU/LINUX?

- GNU/Linux is completely called an OS.
- It consists of two modes.
 - User space.
 - Kernel space.



TYPES OF KERNELS

- Monolithic Kernel (Linux)
- Microkernel (Minix, Darwin)
- Hybrid Kernel (NT)



GNU/LINUX BASED DISTRIBUTIONS

- Debian (Debian package manager)
- Ubuntu (Debian package manager)
- Redhat (Redhat package manager)
- Rolling distros like Gentoo, Arch
- Swecha, e-Swecha, Bal-Swecha
- Other distributions can be found at
www.distrowatch.com



WHERE GNU/LINUX IS USED?

- Educational Institutes like IITs and IIITs
- SuperComputers.
- Android-based Smart mobiles.
- Web-Serving.
- Scientific Computing.
- Desktops and Databases.
- Networking.



WHO USES GNU/LINUX?

- Government Agencies in US, China, Germany, Norway, Cuba.
- www.amazon.com
- NASA
- Facebook
- Twitter
-

The Google logo is displayed in its characteristic multi-colored font (blue, red, yellow, blue, green, red) with a white background.

INSTALLATION OF GNU/LINUX

- Mediums of Installations.
 - Removable Media
 - CD/DVD
 - Network
- Boot priority in BIOS(Basic Input Output System).





debian

The Universal Operating System

Installer boot menu

Install

Graphical install

Advanced options

Help



Select a language

Choose the language to be used for the installation process. The selected language will also be the default language for the installed system.

Language:

Chinese (Simplified)	-	中文(简体)
Chinese (Traditional)	-	中文(繁體)
Croatian	-	Hrvatski
Czech	-	Čeština
Danish	-	Dansk
Dutch	-	Nederlands
Dzongkha	-	འབྲུག་སྐད་
English	-	English
Esperanto	-	Esperanto
Estonian	-	Eesti
Finnish	-	Suomi
French	-	Français
Galician	-	Galego
Georgian	-	ქართული
German	-	Deutsch

Select your location

The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.

This is a shortlist of locations based on the language you selected. Choose "other" if your location is not listed.

Country, territory or area:

- Botswana
- Canada
- Hong Kong
- India
- Ireland
- New Zealand
- Nigeria
- Philippines
- Singapore
- South Africa
- United Kingdom
- United States
- Zimbabwe
- other**

Select your location

The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.

Select the continent or region to which your location belongs.

Continent or region:

- Africa
- Antarctica
- Asia
- Atlantic Ocean
- Caribbean
- Central America
- Europe
- Indian Ocean
- North America
- Oceania
- South America**

Select your location

The selected location will be used to set your time zone and also for example to help select the system locale. Normally this should be the country where you live.

Listed are locations for: South America. Use the <Go Back> option to select a different continent or region if your location is not listed.

Country, territory or area:

- Argentina
- Bolivia**
- Brazil
- Chile
- Colombia
- Ecuador
- French Guiana
- Guyana
- Paraguay
- Peru
- Suriname
- Uruguay
- Venezuela

Select a language

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French	-	Français
Galician	-	Galego
Georgian	-	ქართული
German	-	Deutsch

Configure locales

There is no locale defined for the combination of language and country you have selected. You can now select your preference from the locales available for the selected language. The locale that will be used is listed in the second column.

Country to base default locale settings on:

Antigua and Barbuda	-	en_AG
Australia	-	en_AU.UTF-8
Botswana	-	en_BW.UTF-8
Canada	-	en_CA.UTF-8
Hong Kong	-	en_HK.UTF-8
India	-	en_IN
Ireland	-	en_IE.UTF-8
New Zealand	-	en_NZ.UTF-8
Nigeria	-	en_NG
Philippines	-	en_PH.UTF-8
Singapore	-	en_SG.UTF-8
South Africa	-	en_ZA.UTF-8
United Kingdom	-	en_GB.UTF-8
United States	-	en_US.UTF-8
Zimbabwe	-	en_ZW.UTF-8

Configure the keyboard

Keymap to use:

- American English
- Belarusian
- Belgian
- Brazilian (ABNT2 layout)
- Brazilian (EUA layout)
- British English
- Bulgarian
- Bulgarian (phonetic layout)
- Canadian French
- Canadian Multilingual
- Croatian
- Czech
- Danish
- Dutch
- Dvorak
- Estonian
- Finnish

Configure the network

Please enter the hostname for this system.

The hostname is a single word that identifies your system to the network. If you don't know what your hostname should be, consult your network administrator. If you are setting up your own home network, you can make something up here.

Hostname:

Configure the network

The domain name is the part of your Internet address to the right of your host name. It is often something that ends in .com, .net, .edu, or .org. If you are setting up a home network, you can make something up, but make sure you use the same domain name on all your computers.

Domain name:

Set up users and passwords

You need to set a password for 'root', the system administrative account. A malicious or unqualified user with root access can have disastrous results, so you should take care to choose a root password that is not easy to guess. It should not be a word found in dictionaries, or a word that could be easily associated with you.

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

The root user should not have an empty password. If you leave this empty, the root account will be disabled and the system's initial user account will be given the power to become root using the "sudo" command.

Note that you will not be able to see the password as you type it.

Root password:

Please enter the same root password again to verify that you have typed it correctly

Re-enter password to verify:

Set up users and passwords

A user account will be created for you to use instead of the root account for non-administrative activities.

Please enter the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user's real name. Your full name is a reasonable choice.

Full name for the new user:

Guillermo Garron

Set up users and passwords

Select a username for the new account. Your first name is a reasonable choice. The username should start with a lower-case letter, which can be followed by any combination of numbers and more lower-case letters.

Username for your account:

Set up users and passwords

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

Choose a password for the new user:

Please enter the same user password again to verify you have typed it correctly

Re-enter password to verify:

WHAT IS A FILE SYSTEM?

- A filesystem is a means to organize, retrieve, update and store data.
- Different types of Filesystems:
 - FAT
 - NTFS
 - Ext3
 - Ext4
 - XFS
 - ReiserFS
 - Google Filesystem.

Partition disks

The installer can guide you through partitioning a disk (using different standard schemes) or, if you prefer, you can do it manually. With guided partitioning you will still have a chance later to review and customise the results.

If you choose guided partitioning for an entire disk, you will next be asked which disk should be used.

Partitioning method:

Guided - use entire disk

Guided - use entire disk and set up LVM

Guided - use entire disk and set up encrypted LVM

Manual

Partition disks

Note that all data on the disk you select will be erased, but not before you have confirmed that you really want to make the changes.

Select disk to partition:

SCSI1 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK

Partition disks

Selected for partitioning:

SCSI1 (0,0,0) (sda) - ATA VBOX HARDISK: 8.6 GB

The disk can be partitioned using one of several different schemes. If you are unsure, choose the first one.

Partitioning scheme:

All files in one partition (recommended for new users)

Separate /home partition

Separate /home, /usr, /var, and /tmp partitions

Partition disks

This is an overview of your currently configured partitions and mount points. Select a partition to modify its settings (file system, mount point, etc.), a free space to create partitions, or a device to initialize its partition table.

- Guided partitioning
- Configure software RAID
- Configure the Logical Volume Manager
- Configure encrypted volumes

▼	SCSI1 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDISK						
>	#1	primary	8.2 GB	B	F	ext3	/
>	#5	logical	401.6 MB		F	swap	swap

- Undo changes to partitions
- Finish partitioning and write changes to disk

Partition disks

If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually:

WARNING: This will destroy all data on any partitions you have removed as well as on the partitions that are going to be formatted.

The partition tables of the following devices are changed:
SCSI1 (0,0,0) (sda)

The following partitions are going to be formatted:
partition #1 of SCSI1 (0,0,0) (sda) as ext3
partition #5 of SCSI1 (0,0,0) (sda) as swap

Write the changes to disks?

- ☐ No
- ☒ Yes

Configure the package manager

Your installation CD or DVD has been scanned; its label is:

Debian GNU/Linux sq-di-rc1 _Squeeze_ - Official Snapshot i386 CD Binary-1 20110108-16:28

You now have the option to scan additional CDs or DVDs for use by the package manager (apt). Normally these should be from the same set as the installation CD/DVD. If you do not have any additional CDs or DVDs available, this step can just be skipped.

If you wish to scan another CD or DVD, please insert it now.

Scan another CD or DVD?

☒ No

☐ Yes

Configure the package manager

A network mirror can be used to supplement the software that is included on the CD-ROM. This may also make newer versions of software available.

You are installing from a CD, which contains a limited selection of packages. Unless you don't have a good Internet connection, use of a mirror is recommended, especially if you plan to install a graphical desktop environment.

Note that using a mirror can result in a large amount of data being downloaded during the next step of the installation.

Use a network mirror?

☐ No

☒ Yes

Configure the package manager

The goal is to find a mirror of the Debian archive that is close to you on the network -- be aware that nearby countries, or even your own, may not be the best choice.

Debian archive mirror country:

- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Taiwan
- Thailand
- Turkey
- Ukraine
- United Kingdom
- United States**
- Uzbekistan
- Venezuela

Configure the package manager

Please select a Debian archive mirror. You should use a mirror in your country or region if you do not know which mirror has the best internet connection to you.

Usually, `ftp.<your country code>.debian.org` is a good choice.

Debian archive mirror:

ftp.us.debian.org

ftp.egr.msu.edu

mirrors.kernel.org

debian.lcs.mit.edu

debian.osuosl.org

mirror.cc.columbia.edu

mirror.hmc.edu

mirrors.hoef.org

debian.cc.lehigh.edu

cdn.debian.net

ftp.gtlib.gatech.edu

distro.ibiblio.org

ftp-mirror.internap.com

mirror.cs.wisc.edu

Configure the package manager

If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

The proxy information should be given in the standard form of "http://[[user][:pass]@]host[:port]/".

HTTP proxy information (blank for none):

Configuring popularity-contest

The system may anonymously supply the distribution developers with statistics about the most used packages on this system. This information influences decisions such as which packages should go on the first distribution CD.

If you choose to participate, the automatic submission script will run once every week, sending statistics to the distribution developers. The collected statistics can be viewed on <http://popcon.debian.org/>.

This choice can be later modified by running "dpkg-reconfigure popularity-contest".

Participate in the package usage survey?

☒ No

☐ Yes

Software selection

At the moment, only the core of the system is installed. To tune the system to your needs, you can choose to install one or more of the following predefined collections of software.

Choose software to install:

☒ Graphical desktop environment

☐ Web server

☐ Print server

☐ DNS server

☐ File server

☐ Mail server

☐ SQL database

☐ SSH server

☐ Laptop

☒ Standard system utilities

Configuring man-db

It seems that this new installation is the only operating system on this computer. If so, it should be safe to install the GRUB boot loader to the master boot record of your first hard drive.

Warning: If the installer failed to detect another operating system that is present on your computer, modifying the master boot record will make that operating system temporarily unbootable, though GRUB can be manually configured later to boot it.

Install the GRUB boot loader to the master boot record?

☐ No

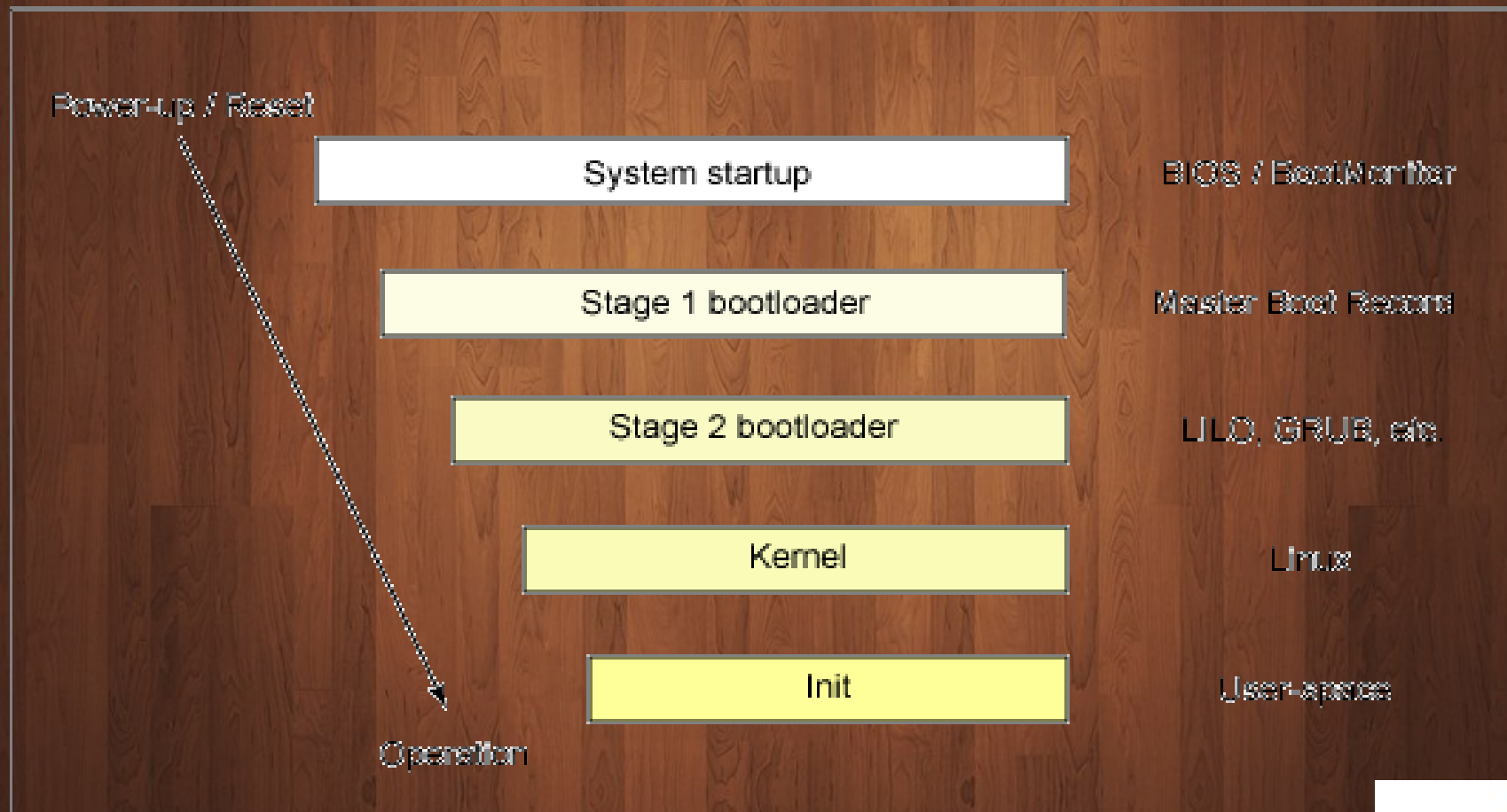
☒ Yes

Finish the installation

*Installation complete*

Installation is complete, so it is time to boot into your new system. Make sure to remove the installation media (CD-ROM, floppies), so that you boot into the new system rather than restarting the installation.

BOOT PROCESS IN GNU/LINUX



DESKTOP ENVIRONMENT

- Graphical User Interface(X-Window System)
 - Window Manager.(Metacity, Kwin, IceWM)
 - File Manager(Nautilus Dolphin)
 - Themes
- Examples of GUIs.



BASIC ADMINISTRATION

- User Management
- Process Management
 - Linux init() Process
 - Linux Monitoring commands like pstree, top, iostat, ps -ef
- Memory Usage
 - free, vmstat, top, pmap
- System Monitor



QUERIES ? ? ?







Sandeep Billakanti
EmailID: sandeep@swecha.net