Experiment No. 5

<u>Objective</u>: What is Linux? And Installation of Debian and RPM

Linux is a family of open source Unix-like operating systems based on linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds. Linux is typically packaged in a Linux distribution.

Distributions include the linux kernel and supporting system software and libraries, many of which are provided by the GNU project. Many Linux distributions use the word "linux" in their name, but the Free Software Foundation uses the name GNU/Linux to emphasize the importance of GNU software, causing some controversy.

Popular linux distributions include Debian, Fedora and Ubuntu. Commercial distributions include Red Hat Enterprise linux and SUSE linux Enterprise Server. Desktop linux distributions include a windowing system such as X11 or Wayland, and a desktop environment such as GNOME or KDE Plasma 5. Distributions intended for servers may omit graphics altogether, or include a solution stack such as LAMP. Because linux is freely redistributable, anyone may create a distribution for any purpose.

Linux also runs on embedded systems, i.e. devices whose operating system is typically built into the firmware and is highly tailored to the system. This includes routers, automation controls, televisions, digital video recorders, video game consoles, and smartwatches. Many smartphones

Linux is one of the most prominent examples of free and open-source software collaboration. The source code may be used, modified and distributed-commercially or non-commercially - by anyone under the terms of its respective licenses, such as the GNU General Public License.

Design

A Linux-based system is a modular Unix-like operating system, deriving much of its basic design from principles established in Unix during the 1970s and 1980s. Such a system uses a monolithic kernel, the linux kernel, which handles process control, networking, access to the peripherals, and file systems. Device drivers are either integrated directly with the kernel, or added a modules that are loaded while the system is running.

Video input infrastructure

Linux currently has two modern kernel-userspace APIs for handling video input devices: V4L2 API for video streams
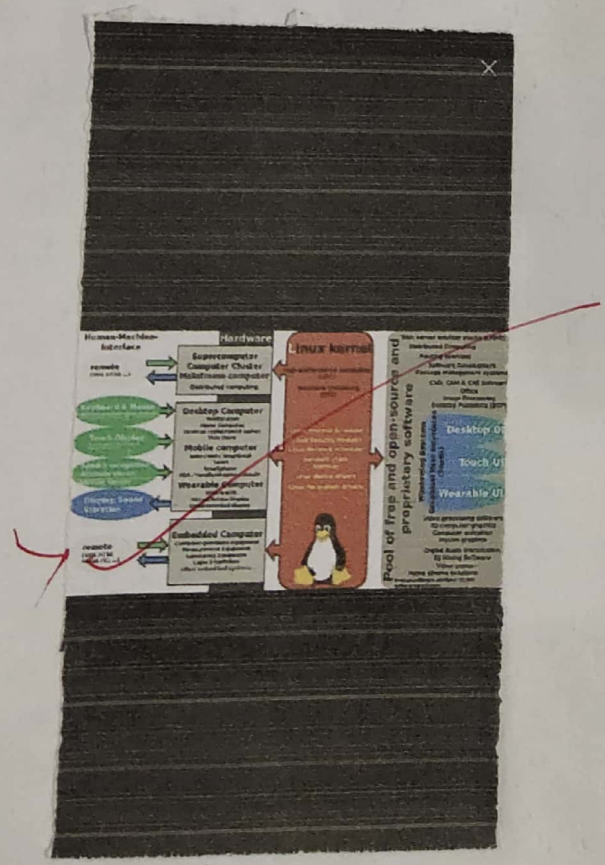
and radio, and DVB API for digital TV reception.

Due to the complexcity and diversity of different devices, and due to the large amount of formats and standards handled by those APIs, this infrastructure needs to evolve to better fit other devices. Also, a good userspace device library is the key of the success for having userspace applications to be able to work with all formats supported by those devices.

Hardware support

The Linux Kernel is a widely ported operating system Kernel, available for devices ranging from mobile phones to supercomputers; it runs on a highly diverse range of computer architecture, including the hand-held ARM-based iPAQ and the IBM mainframe System z9 or System z10.
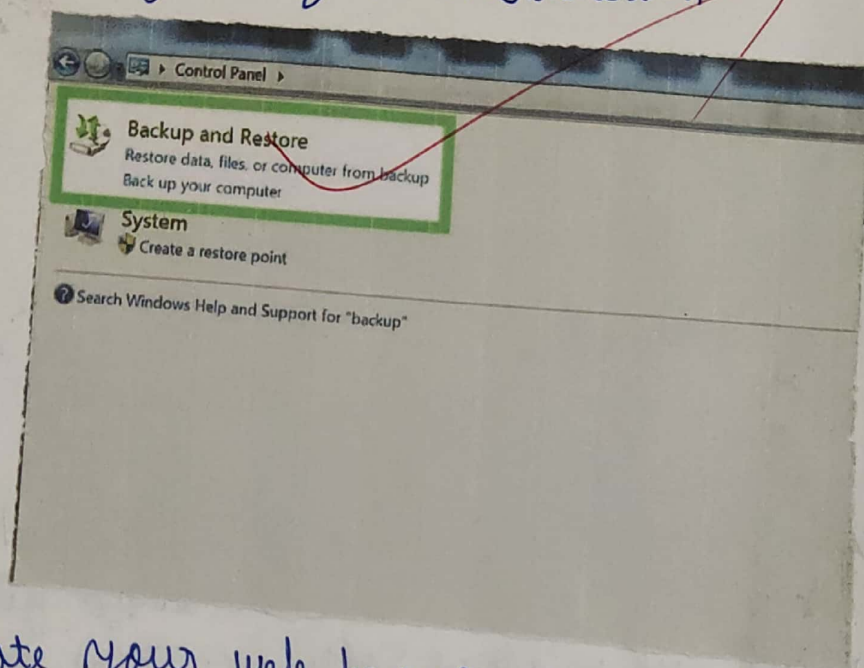
Uses

Beside the linux distribution designed for general-purpose use on desktop and server, distributions may be specialized for different purposes including: computer architecture support, embedded system, stability, security, localization to a specific region or language, targeting of specific user groups, supports for real-time applications, or commitment to a given desktop envt..

Furthermore, some distributions deliberately include only free software. As of 2015, over four hundred linux distributions are actively developed, with about a dozen distribution being most popular for general purpose use.
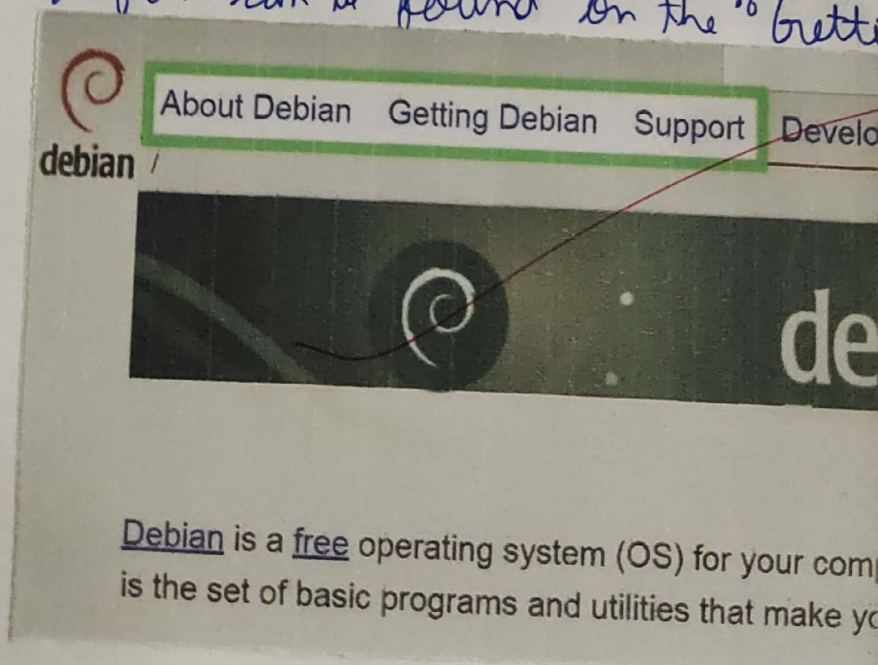
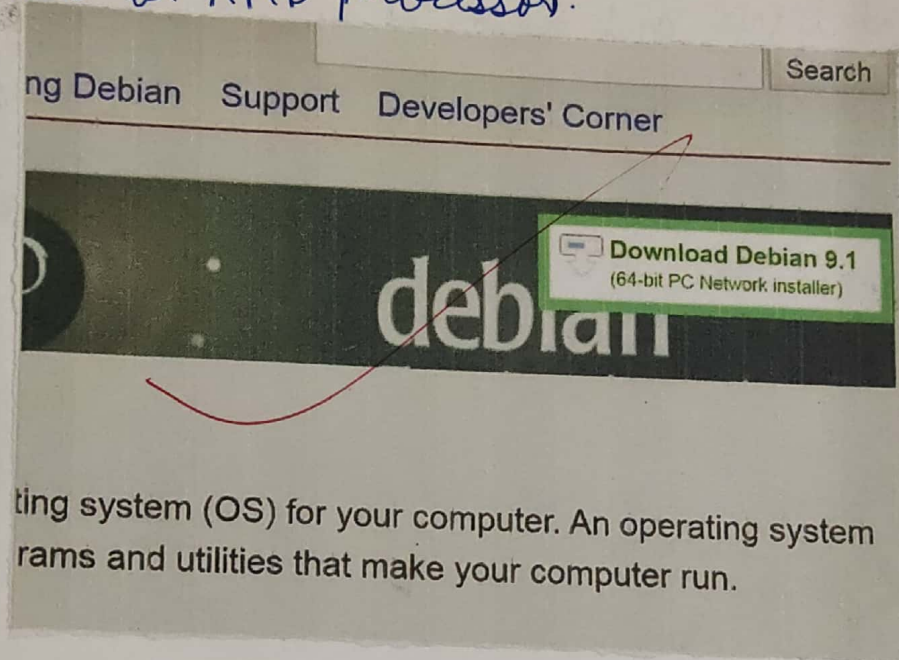~~Objective~~ To install debian with CD installation method.

Procedure

Step 1: Back up any important files on your computer. Installing Debian on your machine will clear your entire hard drive and reformat it, erasing all data in the process. Store your imp. inf. on a removable drive before beginning the installation.
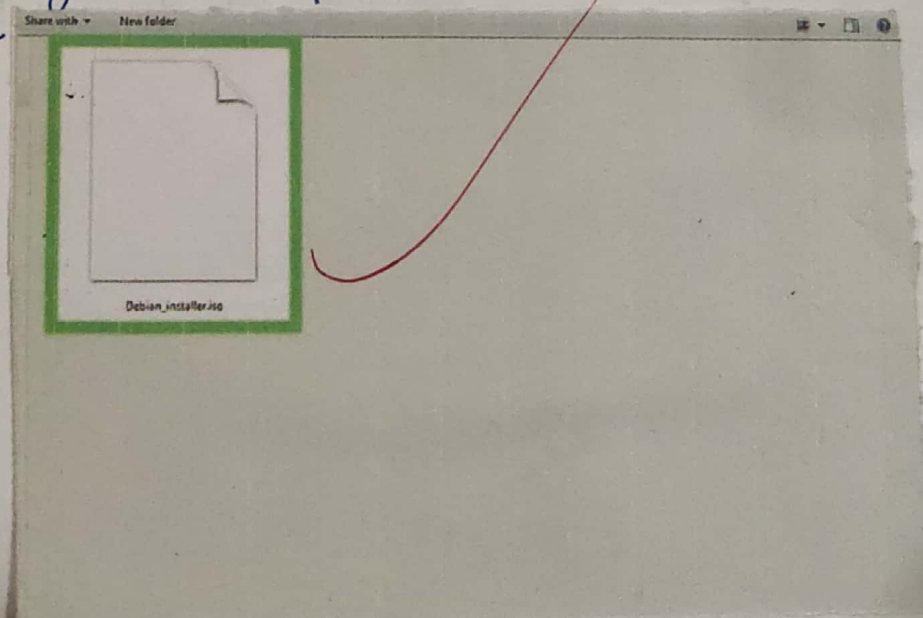

Step 2: Navigate your web browser to the Debian website. Debian is distributed through www. debian. org, and the necessary files can be found on the "Getting Debian" page.
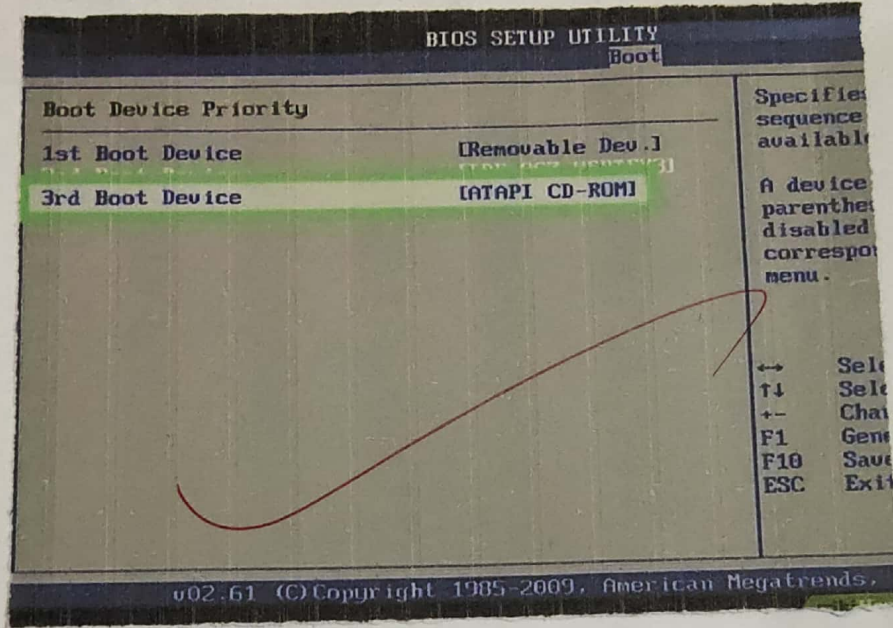
Step 3: Download the Debian installation image.
From the Debian website, choose the installation image that is suited for your processor architecture. If you don't know what type of processor your machine has, choose the "32-bit PC netinst iso" image, as this one is compatible with common 32-bit intel or AMD processor.
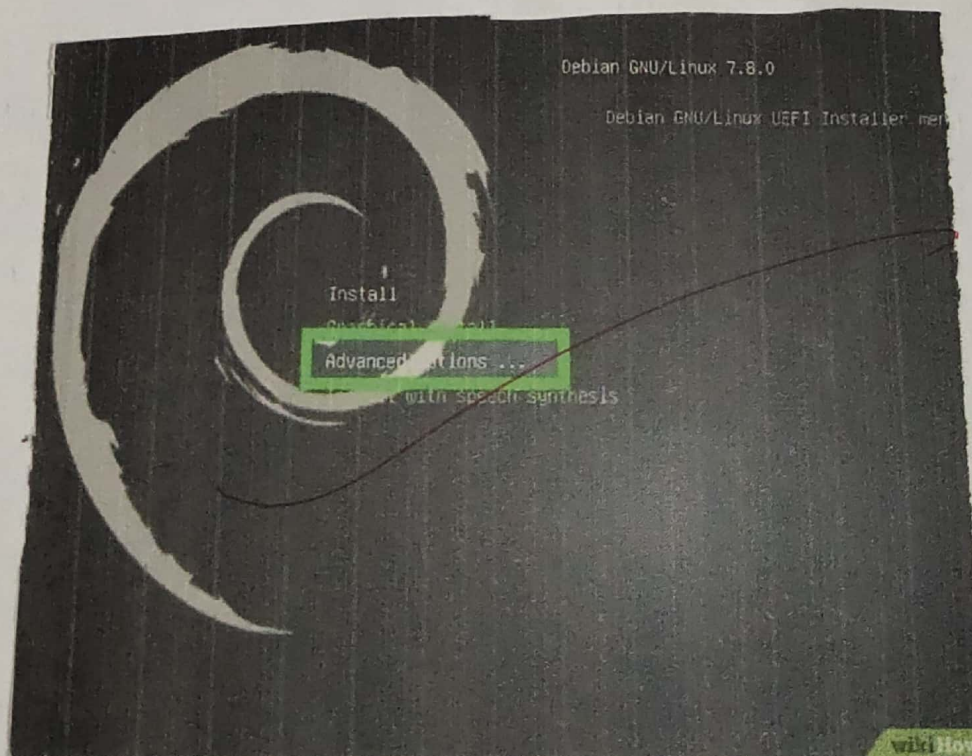

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debian

Download Debian 9.1
(64-bit PC Network installer)

ting system (OS) for your computer. An operating system
rams and utilities that make your computer run.

Step 4: Burn the installation image to a CD or DVD.
Once you have downloaded the image file burn it to a disc using disk imaging software. There are several free applications available that can perform this task, though your computer must have a CD-R or DVD-R drive.

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Debian_installer.iso

<u>Step 5</u>: Boot your computer from the newly-burned disc. Once you mount the .iso file onto a disc, leave the disc in your optical drive and restart the computer. The computer will boot from the disc and take you directly to the Debian installation wizard.

<u>Step 6</u>: Test Debian Live from the disc if desired. Debian includes an option that lets you run the operating system completely from the CD or DVD, without overwriting any information on your hard drive.

Step 7: Install Debian according to the instructions in the installation wizard.

When you are ready to proceed with the full installation, follow the prompts in the installation wizard to set up the operating system as desired.