Research notes

A.3 concept Map project

Topic A – Productivity & Application Software

The Linux desktop is not just for people who like to mess with computers. With a wide range of enterprise class productivity and collaboration tools Linux users can enjoy computing parity with their peers and colleagues running other popular desktop computing platforms

[Tomboy](https://wiki.gnome.org/Apps/Tomboy) is a simple note-taking app. It’s not for Linux only – you can get it for Unix, Windows, and macOS, too. Tomboy is pretty straightforward to use – you write a note, choose whether to make it sticky on your desktop, and delete it when you are done with it

With the new Quantum update, Mozilla has given people reason to check out Firefox again. Linux users in particular may be happy to see support for client-side decorations, which makes Firefox feel more at home in desktop environments such as GNOME and Elementary OS Pantheon. Mozilla bakes in privacy options that don’t come with Chrome, one of [several reasons to consider using Firefox instead](https://www.makeuseof.com/tag/switch-chrome-firefox/).

Linux operating system is one of the popular versions of the UNIX operating system, which is designed to offer a free or low cost operating system for personal computer users. It gained the reputation as a fast performing and very efficient system.This is a remarkably complete operating system, including a GUI (graphical user interface), TCP/IP, the Emacs editor,can X Window System, etc.

Topic B – Entertainment & Media Software

[Kodi](https://kodi.tv/) (previously known as XBMC) is a free and open source, highly customizable media server software. It is cross-platform and runs on Linux, Windows, MacOS; iOS and Android. It is more than just a media server; it’s an ideal entertainment center software with a fabulous user interface and several other media server software appliances are based on it

MPlayer is an open-source, free media player. This Linux media center software sports tons of video and audio format compatibility, subtitle capabilities, and physical media playback. While MPlayer is a command line utility, there are several front-ends available that use graphical user interfaces.

[Like Plex, Emby is a Linux media server software](https://www.smarthomebeginner.com/emby-media-server-alternative-plex-kodi/) application. But it’s a similarly fantastic Linux media center software choice. Where Emby differs from Plex is its customization options. While Plex can be tailored with an array of plugins and options, Emby aims at power users. Plex does include customization aspects such as the [Sub-Zero plugin for automatic subtitle downloads](https://www.smarthomebeginner.com/install-sub-zero-plugin-for-plex/). [**Read**: [Plex vs Emby: A Comprehensive Comparison](https://www.smarthomebeginner.com/plex-vs-emby-comparison-with-kodi/)]

Emby remains intuitive to install and use. However, Plex is increasingly beginner-friendly. Where Emby shines is its extreme customization. You’ll find loads of skins as well as database management options. These ensure a tailored Ubuntu HTPC software experience when using Emby. Like Plex, Emby is available on a smattering of client devices. Where Plex yields larger client device support, Emby delivers increased control. [**Read**: [How to install Emby on Ubuntu server the easy way](https://www.smarthomebeginner.com/install-emby-on-ubuntu/)]

Plex is essentially a do-it-yourself Netflix. The massively popular [media server software](https://www.smarthomebeginner.com/media-server-software-options-2017/) allows you to stream your movies, television shows, and pictures on [Plex client devices](https://www.smarthomebeginner.com/5-best-plex-client-devices-2017-plex-tv-boxes/). As Linux media center software, Plex sports a simple installation process. It’s available as Ubuntu HTPC software in the form of a DEB file for Debian-based ditros. Additionally, Plex features an RPM package for CentOS and Fedora. [**Read**: [Guide: How to install Plex on Ubuntu server](https://www.smarthomebeginner.com/install-plex-on-ubuntu/)]

Unlike Windows and macOS, Plex Linux media center software is actually a web-based app. While there is a download as a DEB or RPM package, when you run Plex it opens in a web browser. Still, it’s an excellent option for both watching content locally as well as streaming to client devices. That’s because Plex organizes your media into a gorgeous library. In addition to its vast server playback options, Plex supports customization options like [official and unofficial channels](https://www.smarthomebeginner.com/best-plex-unofficial-channels-2017/). These lend access to the likes of [TED Talks](https://www.smarthomebeginner.com/how-to-watch-ted-talks-on-plex-ted-talks-plex-channel-install/), Plex ranks in the top Linux media center 2017 software on account of its user-friendliness, ease of use, and excellent Linux compatibility.

Topic C – Programming Tools & Environment

[Bluefish](http://bluefish.openoffice.nl/) is one of the most popular IDEs for Web development available. It can handle programming and markup languages, but it focuses on creating dynamic and interactive Web sites. Like many Linux applications, Bluefish is lightweight (using about 30% to 40% of the resources that similar applications use) and fast. Bluefish can open multiple documents at once (up to 3,500 documents, if needed). It includes project support, remote file support, search and replace (including regular expressions), unlimited undo/redo, customizable syntax highlighting for many languages, anti-aliased text in windows, and multiple encodings support, among other features

One of Bluefish's nice features is the Quickba, a user-defined toolbar that allows you to add buttons by right-clicking and choosing Add To Quickbar. You can add any HTML toolbar buttons to the Quickbar. Bluefish has a number of simple tools to help you add various elements to your code. Need a DHTML auto-submit select box? Easy. Choose Auto-submit Select Box from the DHTML drop-down and fill out the necessary items to add the element to your code. Bluefish has wizards for C, Apache, DHTML, DocBook, HTML, PHP+HTML, and SQL. If you develop your sites by hand, you should certainly be using Bluefish.

[Anjuta](http://anjuta.sourceforge.net/) is a free, open source IDE for the C and C++ languages. It's easy to install (*urpmi anjuta* on Mandriva, for example) and offers such features as project management, application wizards, an interactive debugger, and a powerful source code editor (with source browsing, code completion, and syntax highlighting). The Anjuta team developed this powerful IDE to be easy to use and still meet all of your C and C++ programming needs.

Anjuta has a flexible and powerful user interface that allows you to drag and drop the tools in the layout to arrange the GUI nearly any way you like. And each user-configured layout is persistent for the project (so you can have different layouts for every project you have going). Anjuta also enjoys a powerful plug-in system that allows you to decide which plug-ins are active and which are not for each project. And like all open source projects, you can develop your own plug-ins for Anjuta. One of the most powerful tools in the Anjuta application is the project manager. This tool can open nearly any automake/autoconf-based project. This project manager doesn't add any Anjuta-based information to the project, so your project can be maintained and developed outside of Anjuta as well

I decided to include [Gedit](http://projects.gnome.org/gedit/index.html) in this list because even though it doesn't have all the bells and whistles of other tools, in terms of simplicity, it can't be beat. Gedit is the official Gnome desktop editor, and is part of the default installation for any Gnome based flavors of Linux.

It supports development in many languages, with syntax highlighting. An extensive collection of [plugins](http://projects.gnome.org/gedit/plugins.html) allows you to further expand the functionality.

This is the tool that I use for quick editing or changing of files. One of the things that keeps me from using it more is the inability to mount remote network drives.

Topic D – System Tools

List open files(LSFO) ]

Lsof command used in many Linux/Unix like system that is used to display list of all the open files and the processes. The open files included are disk files, network sockets, pipes, devices and processes. One of the main reason for using this command is when a disk cannot be unmounted and displays the error that files are being used or opened. With this command you can easily identify which files are in use.

Tcpdump

Tcpdump one of the most widely used command-line network packet analyzer or packets sniffer program that is used capture or filter TCP/IP packets that received or transferred on a specific interface over a network. It also provides a option to save captured packages in a file for later analysis. tcpdump is almost available in all major Linux distributions.

Netstat

Netstat is a command line tool for monitoring incoming and outgoing network packets statistics as well as interface statistics. It is very useful tool for every system administrator to monitor network performance and troubleshoot network related problems.

Lotop

Iotop is also much similar to top command and Htop program, but it has accounting function to monitor and display real time Disk I/O and processes. This tool is much useful for finding the exact process and high used disk read/writes of the processes.

Topic E – Software Security & Updates

Ubuntu Linux

Ubuntu Linux has become one of the most popular of all the Linux distributions. And through the process of updating a system, you should be able to tell exactly why this is the case. Ubuntu is very user friendly

Fedora

Fedora is a direct descendant of Red Hat Linux, so it is the beneficiary of the Red Hat Package Management system (rpm).¬† Like Ubuntu, Fedora can be upgraded by:

* yum: Command line tool.
* GNOME (or KDE) PackageKit: GUI tool.

Depending upon your desktop, you will either use the GNOME or the KDE front-end for PackageKit. In order to open up this tool you simply go to the Administration sub-menu of the System menu and select the Software Update entry.¬† When the tool opens (see Figure 3) you will see the list of updates. To get information about a particular update all you need to do is to select a specific package and the information will be displayed in the bottom pane.

Software security

[Sandboxes](https://www.makeuseof.com/tag/whats-a-sandbox-and-why-should-you-be-playing-in-one/) help to protect your system by restricting what your programs can do in them. Programs inside of them aren’t able to affect anything outside of it, such as important system files. This can act as a second layer of security for apps that might have potential exploits in them, such as your web browser

Fire jail

[Firejail](https://www.makeuseof.com/tag/firejail-simple-way-improve-security-linux/) makes this process easy. Running programs in a sandbox is just a matter of an extra terminal command. If using the command line is not for you, it also provides a simple graphical tool to manage them instead

Everyone knows that Linux is more secure than Windows. But what about the apps? Are they safe? Firejail is a sandboxing tool that can help you secure your apps without making them unusable.

Topic F – File System & User Accounts

[Ext](http://en.wikipedia.org/wiki/Extended_file_system)-Extended file system

was the first created specifically for Linux. It’s had four major revisions. “Ext” is the first version of the file system, introduced in 1992. It was a major upgrade from the Minix file system used at the time, but lacks important features. Many Linux distributions no longer support Ext.

[BtrFS](http://en.wikipedia.org/wiki/Btrfs)

pronounced “Butter” or “Better” FS, was originally designed by Oracle. It stands for “B-Tree File System” and allows for drive pooling, on the fly snapshots, transparent compression, and online defragmentation. It shares a number of the same ideas found in ReiserFS, a file system some Linux distributions used to use by default. BtrFS is designed to be a clean break from the Ext series of file sytstems. Ted Ts’o, the maintainer of the Ext4 file system, considers Ext4 a short-term solution and believes [BtrFS is the way forward](https://arstechnica.com/information-technology/2009/04/linux-collaboration-summit-the-kernel-panel/). Expect to see BtrFS become the default in both enterprise server and consumer desktop Linux distributions in the next few years as it’s further tested.

Topic G – Special Features of your OS

The main features of Linux operating system are

**Portable:** Linux operating system can work on different types of hardwares as well as Linux kernel supports the installation of any kind of hardware platform.

**Open Source:** Source code of LINUX operating system is freely available and, to enhance the ability of the LINUX operating system, many teams work in collaboration.

**Multiuser:** Linux operating system is a multiuser system, which means, multiple users can access the system resources like RAM, Memory or Application programs at the same time.

Topic H – Limitations of your OS

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