**UNIVERSITY OF ASIA PACIFIC**

Department of Computer Science & Engineering



**Operating Systems Lab**

**Course Code: CSE 406**

**Assignment -1**

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**Linux:**

Linux is an open-source operating system based on the Linux kernel. Linux Kernel operating system was first released in 1991 by its founder, Linus Torvalds. Linux was one of the first operating systems to be open source and is provided free of cost. Debian, Fedora and Ubuntu are some popular open-sourced distributions of Linux whereas Red Hat Enterprise Linux and SUSE Linux Enterprise Server are the commercial ones. The distributions made for servers may lack the graphics altogether or may include solution stacks like LAMP. Because Linux is free for distribution, anyone knowing codes can create a distribution for any kind of purpose.It has some advantages and disadvantages that have been discussed below:

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| **Advantages of Linux** | **Disadvantages of Linux** |
| **Open Source:** Linux is an open-source operating system. This can come in handy especially for people who code and/or need to make changes to the way their computer works. It is also free to install and use unlike Windows or Mac. | **Learning Curve:** Learning how to use Linux can take a while, especially if you are used to using other Operating Systems and not an open-source operating system like Linux. The user experience is a lot different in Linux. |
| **Security:** One of the best qualities of Linux is that it is extremely secure. Since it is an open-source OS, there are several developers in the world that look out for viruses and potential threats. Another reason for this security is that since the number of Linux users is comparatively lower than Windows users, it is not profitable to create viruses for this system. | **Installing Software:** A variety of applications that work on Windows or Apple OS do not work in Linux. If you are someone who needs to have access to certain applications for your work, you will probably want to see if it works in Linux. Microsoft applications are one such example of a software that isn’t available for Linux users. |
| **Speed:** It is a fact that anti-virus programs slow down a system. Since the software is constantly updating its database of viruses and checking the system for those viruses, it uses a lot of memory. Linux does not require the installation of this software, a huge chunk of memory is unused, creating a faster system. | **Lack of Games:** Statistically, the majority of computer users use either Windows or Apple OS so game developers create games suited to these operating systems. A lot of popular games aren’t supported by Linux. This is one reason why Linux isn’t popular among young users yet. |
| **Redesigning:** One of the biggest advantages of Linux is that is very easy to change according to your needs. It is also one reason why it is very popular amongst programmers. Since you can see the source code for this OS, it is easier and legal (unlike Windows), to change it according to your needs for your system. | **Hardware Drivers:** One of the biggest problems in Linux, as reported by users, is that drivers don’t exist in this operating system. Like most software, there are ways to work around that but there have been problems reported when people tried to use old hardware or certain other hardware. |
| **Low System Specifications:** Another one of the reasons why Linux is a better choice is the fact that it works on computers with very low system specifications. If you have an older computer that you use and cannot throw away, Linux is a great choice for you. | **No Hibernation:** Hibernation is an excellent feature that every operating system must-have, but either Linux distributions miss out on this feature wholly or it is unstable. This feature is available for Windows users. |

**Windows:**

Microsoft Windows is commonly referred to as Windows. It is a group of numerous graphical operating system families. All of these are developed and marketed by Microsoft. Windows are available on a lot of platforms- personal and desktop computers, smartphones, web servers etc. It has some advantages and disadvantages that have been discussed below:

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| **Advantages of Windows** | **Disadvantages of Windows** |
| **Easy to use:** All versions of Microsoft Windows have something common in it which makes users easy to shift from one version to another. Windows 7 users have no difficulty in migrating to Windows 10 because most of the features of Windows 10 are the same as windows 7. The user interface of windows is also easy to use than Unix and Mac. | **High resource requirements:** If you are installing windows OS then your computer should have high ram capacity, a lot of hard drive space and good graphics card. This is because of features that are used in windows. If you want to install graphics software i.e. Photoshop then 16 GB of ram is recommended. |
| **Vast Software Availability:** Because of the dominance of Windows in the world market for personal computers, a lot of software are designed for Windows users. Suppose you are running an organization and you want a particular software for your organization, chances are high that if such software exists, it will also have a version of Windows available on the net. | **The source is closed:** Windows does not provide the source code for its users. So the user is left all alone to try and fix the errors by hit and trial method. The best outcome possible from this method is that it is time-consuming. And the worst? You can even end up damaging the whole program (or in some cases the entire system) beyond repair! |
| **Support for new hardware:** Due to the immense popularity of Microsoft Windows, it becomes impossible for computer hardware manufacturers to ignore Windows. So someday if you go out to buy computer hardware, chances are incredibly high that the device is compatible with the latest version of Windows. | **Inadequate Security:** This is the disadvantage of its high popularity! Because of its immense popularity among personal computer users all over the world, programmers have made a lot of malware, especially for Windows. Even their developers admit that their products “just aren’t engineered for security”. |
| **Support for a wide range of games:** Windows is the best operating system for you. Due to Windows’ dominance in the world market of personal computers, a plethora of video games is available from almost all video games developing companies that run on Windows. At the same time, many hardware needed to play a certain kind of video games is also compatible with the latest version of Windows. So, Windows is the best choice for computer game lovers. | **Very less privacy:** Indeed, Windows users do not enjoy that much privacy. When registering for a copy of Windows, Microsoft will squeeze out your personal information. And while installing the modern versions of operating systems, you will be required to log into Outlook mail or in the case; you don’t have, you have to create a new one! Apart from that, Microsoft has access to a lot of your activities. They claim that it is to improve the user experience. |
| **Backwards Compatibility:** If you're currently using an older version of Windows and need something more up to date, but you don't want to loose the use of some older programs that are only available for Windows and are critical to your business needs, the chances are good (although not a certainty) that those programs will also work with a newer version of Windows. | **Additional expenses after installing Windows:** Very few essential Windows compatible software are available for free. For instance, essential software like anti-viruses, Office suites, photoshops, even video games-all needs the users to splash out some cash to get them. So, the user have to buy these software for their use |