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**Activity: Assignment on C and Unix**

**1)WRITE BRIEFLY ON UNIX OPERATING SYSTEM ESPECIALLY LINUX FLAVOUR**

**SOLUTION**

**UNIX**

The Unix Operating System was developed in the 1960s and 1970s by Dennis Ritchie and Ken Thompson in the Bell Labs which was a breakthrough for the computer operating System. The Unix is a family of Multitasking , multi-User Computer Operating System. That is derive from the Original AT & T UNIX.

It was mainly used in Mainframe Computer, Workstation and as Internet servers. The Linux was worked upon and Upgraded to Various version like BERKELEY SOFTWARE DISTRIBUTION(BSD) and with more improvements gave birth to the likes of SYSTEM V later.

Unix served as the foundation for future, free Operating System like Linux, and FreeBSD) Linux is Largely used by apple Inc's Mac OSX.

**LINUX**

Like the windows Home, the Linux is a free and open Source Operating System software, which was provided by the GNU PROJECT. It's like a Unix Operating System based on a kernel Operating System. It was developed by Linus Torvald in the early 1990s. Example of Linux Distribution includes Ubuntu(Xubuntu, Lubuntu), Fedora Linux Red Hat Enterprise Linx etc.

Linux was initially made for PC but due to it's intel x86 architecture and flexibility, it has been integrated into more platforms on mobile phones like the iOS and Android Operating system.

**LINUX FLAVOUR**

Technically, there are a lot of Linux flavours with over 300 actively managed Linux Distribution, depending on your purpose(academically, commercial, research, learning etc), there is a Linux flavour for you

**\*Debian**: This is know as the mother of popular Linux distributions like the Ubuntu, mint etc. it's know for it's speed and stability with almost 60 000 software which supports most PC

**\* Ubuntu**: This one of the most popular Linux distribution, it's known to be User-friendly and has a user interface somewhat similar to windows, and this makes transition from windows to mac and Vice-versa easier.

**\* Red Hat Enterprise:** This has a specification targeted for commercial purposes. It's is known to give stable server and security. It can be set up with virtual environments like Vim Ware, Hype V etc.

**\* Fedora:** This known to be one of the most User friendly distribution. This User-friendliness, enable users to get accustomed to it's Operating System easily. It works well with most Laptops and desktops due to it's flexibility.

**others include**

\* Kali Linux

\* Gentoo.

\* Linux Mint.

\* Centos.

\* Open Linux

**2) WRITE A SHOT NOTE ON SOFTWARE FUNCTIONALITY REQUIREMENT**

**SOLUTION**

These are features or functions which are product based which must be integrated into the product or implemented to enable users accomplish their goals or aim. It defines the component or the system as a whole where it's function is described as a specification between inputs and output.

**3) WHY IS LINUX OFTEN PREFFERED AT SOME POINT**

**SOLUTION**

Linux is often preferred to because of some many reason

**\* Flexibility:** Linux is quite flexible because it enables support for many applications(which may be third party), features and hardware.

**\* Less Costly:** Linux and it's entire library system is entirely free, unlike other Operating System like windows which requires you to get the Pro version to get access to some important features.

**\* Easier to use:** This may sound alien and since most system has Windows Operating system pre-installed on the computer, making many users to be familiar with the interface, many don't even know that Linux is easier to use. Due to constant Modernization of the Linux with the release of Distributions like LINUX MINS, it requires little or no Technical Know-How in order to set-up and use.

**\* Large Online Community:** Linux has a large online following of Geeks and nerds who are very familiar with the use. And they are die-hard faithful fans.

**\* Privacy:** Linux is known to make privacy Paramount to their users. And they have a state of the art ENCRYPTION SYSTEM that protects data and ensures privacy.

**\* Security:** Because It's a free and Open Source Software, people have the liberty to check for Vulnerability or Bugs and report them. And to this day many bugs and vulnerability are discovered because anyone can review it.

**\* Speed:** Linux is know to be very fast, and the interface is Quite smooth.

**\* Updates**.

**\* Dependability**.

**4) WHY LINUX IS PREFFERED AS A SCIENTIST**

Linux is often preferred by scientist because it has a variety of scientific, engineering and mathematical utilities as well as repositories that can be used for many research and computing purposes. Also most Super Computers run on Linux. Furthermore, most data science companies use Linux because it provides Analytical Data.

**5) WHAT TYPE OF LANGUAGE IS C**

**Solution**

C is a structured and procedural programming language which can be divided into small functional structure. It produces codes that run as fast as that was written in assembly Language but it's regarded as a high level language. It was made to build the Unix operating system.

**6)GIVE THWE DETAILED STRUCTURE OF A COMPLETE C PROGRAMMING LANGUAGE**

**\* Documentation:** This is usually a statement that explains what the entire code or program is all about. It's usually commented out. it gives the overviews of the page.

e.g. //Program to add two numbers together.

//Program to make a simple calculator.

**\* Pre-processor Command:** This section contains all the header files that is to be used in a program which informs the system to link to the C library.

e.g. #include <stdio.h>

#include <string.h>

**\* Global Declaration:** This comprises of all the variable name that are to be declared.

e.g. int Num=1;

char name[]= "David";

**\* Main Function**: This is the function where all the codes are run. it is the first function to be executed by the computer. it could return a value(int or string) or can be declared as void(not return any value).

e.g. int main(){}

e.g. string main(){}

**7) HOW CAN I CREATED A C PROGRAMMING FILE ON THE OS**

**SOLUTION**

To create a C file

\* Download an IDE(integrated Development Environment) like Visual studio code, Code Blocks etc

\* Download a compiler(G CC compiler)

\* Download the extension(C extension) which comprises of the name space that will enable debugging and intellisense

\*Lauch the editor

\* Give the file format a ".c" extension

\* Save the file in a desired memory location

\*start coding