Operating System

Assignments

SUBMITTED BY:

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Roll # **MCSM-F18-074**

Class: **MCS-4A**

Submitted to:

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Date : 25-01-2020

ASSIGNEMENT 1

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Submit To :

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Virtualization:-

Virtualization is a process of running a virtual instance of a computer system in a layer abstracted from the actual hardware. Most commonly, it refers to running multiple operating system on a computer system simultaneously.

Virtual machine.

Virtual machine is the emulated equivalent of a computer system that runs on top of another system. Virtual machine may have access to any number of resources like computing power, one or more physical or virtual device for storage, a virtual or real network interface, as well as any device such as video card, USB devices, or

Other hardware that are shared with the virtual machine.

Advantages :-

1. Coexistance of o.s on same machine.
2. Protection.
3. Software testing.
4. Job migration.
5. Virtual storage
6. Backup.

Levels :-

1. Application level.
2. Library level.
3. Operating system level.
4. Hardware abstraction layer
5. Instruction set architecture

Kernel:-

Kernel is a computer program at the core of the computer's operating system with complete control over everything in the system.
It is the portion of operating system code which always resident in memory. It facilitates between hardware and software for interaction.
It is one of the first program loaded on startup (after bootloader). It handles rest startup as well as input/output requests from software, translating them into data-processing instructions. It handles memory and peripheral devices.

Monothalic Kernel.

In monothalic kernel, all OS services run along with the main kernel thread, thus also residing in same memory area. This approach provides rich and powerful hardware

Microkernel :-

Microkernel is the term describing an approach to operating system design which functionality of the system is moved out of traditional kernel into a set set of Servers. that communicate through a minimal kernel, leaving as little as possible in system space. and as much as possible in user space.

Advantages :-

- Easier to maintain
- Patches can be tested in a seprate instence, and then swaped in to take over a production instence.
- Rapid development in genral.

Disadvantages :-

- Large number of System Calls and context switches slow down the System

access. Some developers, such as UNIX developer ken Thompson, maintain that it is easier to implement a monolithic kernel then microkernels.

Disadvantages:-

- Monolithic kernels are the dependent between System Component
- A large kernel Can become very difficult to maintain.

Advantages:-

- Since there is less Software involve, so it is fast.
- less code, generally means fewer bugs which can translate to fewer security problems.

Date.....

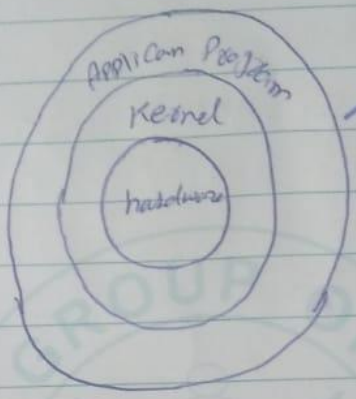
Unix Operating System

Unix is an operating system which was first developed in 1900's and has been under constant development ever since. Unix operating system have command line interface which make the computer work. UNIX System also have graphical user interface similar to microsoft windows.

Features of unix.

- Multi-users capability
- Multi-tasking
- Portability
- Security
- Communication
- Hierachical File structure.

How Application Executed in unix



→ Architecture

- Application Program
- Kernel
- hardware

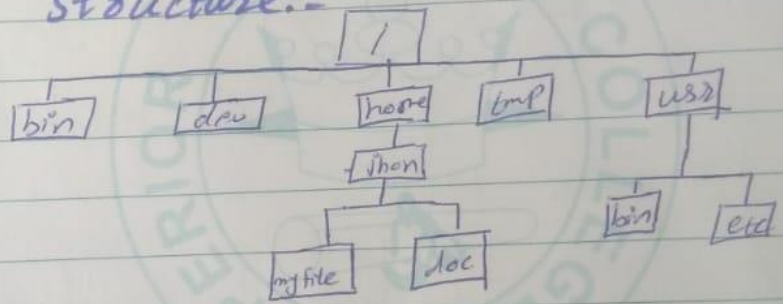
Types of files:-

There are three basic types of files:-

- Ordinary - holds users data
- Directories - user files in a folder.
- Special files - Control access to certain hardware

On all unix System user data is organized and Stored in files. These files are Subsequently organized into a management structure, directories and Sub-directories. These directories are organized into a tree like structure called filesystem.

Tree Structure:-



How Application executed in unix