1. What is the difference between a process and a thread?

A process is a program that is in execution. A thread is a lightweight process that is usually controlled independently by a schedular.

1. Describe the features of Windows Operating System Services. Make sure to address all the aspects of the topic.

* **Program Development:** Helps provide users with the available computing resources in an efficient manner, provides users with an easier to use environment for program development by a file management system, device drivers, and access to computer memory.
* **Program Execution:** The OS loads the program into memory then executes. It also allocates CPU time and memory to programs.
* **Access I/O Devices:** Pieces of hardware that are used to interact with the computer.
* **Controlled access to files:** Prevents suspicious programs from tampering important folders/programs by define which user has the authority to view/read/edit.
* **System Access:** Security technique that reduces the risk of malware.
* **Error Detection and Response:** The OS checks for possible errors and will terminate or repair. These could be caused by memory failures, device failures, etc.
* **Accounting:** Keeps track of which users are on the system. Also keeps track of
* **Protection:** The operating system uses password protection to protect user data and similar other techniques. it also prevents unauthorized access to programs and user data.
* **Communication:**

1. Describe the architecture of the Windows operating system

Windows is comprised of two main components the user mode and kernel mode. Both user mode and kernel mode each have many modules contained within them. In kernel mode, executing code has unrestricted access to all hardware. These modules include the I/O manager, security reference monitor, IPC manager, VMM, process manager, PnP manager, power manager, and many more. In user mode, programs have limited access, and they cannot directly access hardware as the code being executed must receive authorization from system APIs to access hardware and memory. System failures in kernel mode can be much worse than user mode as crashes in kernel mode will break the entire PC whereas user mode crashes are always recoverable.

1. Install Windows 10 in VMware and paste your Windows 10 Desktop and user account Screenshots. 