

Ques 36 Correlate different views of operating system.

There are various views of operating system that can help us to know the functionality of different operating systems -

1. User View: It is the view in which user interacts with the OS.
2. System View: It is the view of system which tells how an OS works internally to provide their user service.
3. Architectural View: This view tells us about the structure of an Operating System.
4. Hardware View: This view tells us ~~about~~ how an OS handles the devices and take input and give output.
5. Conceptual View: This view tells about the principles and theories.

Ques 37. Sketch Readers and Writers synchronization problem w.r.t banking system.

The readers and writers synchronization problem deals with the process of updating multiple data simultaneously and give it to readers

Readers: It includes operations that only read the information of an account.

Writers: It includes operations that changes account information.

Sketch:

```
reader () {  
    wait (mutex)  
    read_count ++;  
    if (read_count == 1) {  
        wait (mutex);  
    }  
}
```

signal (mutex);

read_account_info();

wait (mutex);

read_count --

```
if (read_count == 0) {  
    signal (mutex);  
}
```

```
signal (mutex);  
}
```

```
write () {  
    wait (mutex);  
    write_info() //write info
```

```
    signal (mutex)
```

```
}
```


Ques 38 Define ~~What~~ virtual memory.

Virtual memory is a memory management technique by operating system which temporarily increases the capacity of RAM (Random Access Memory) by utilizing the secondary memory such as hard disk, SSD (Solid-state Drive). This technique allows the operating system to perform various large tasks simultaneously ~~also~~ thus increasing the speed and efficiency.

Ques 39 State common form of security attacks.

Nowadays there are number of forms of attacks. Some common security attacks are -

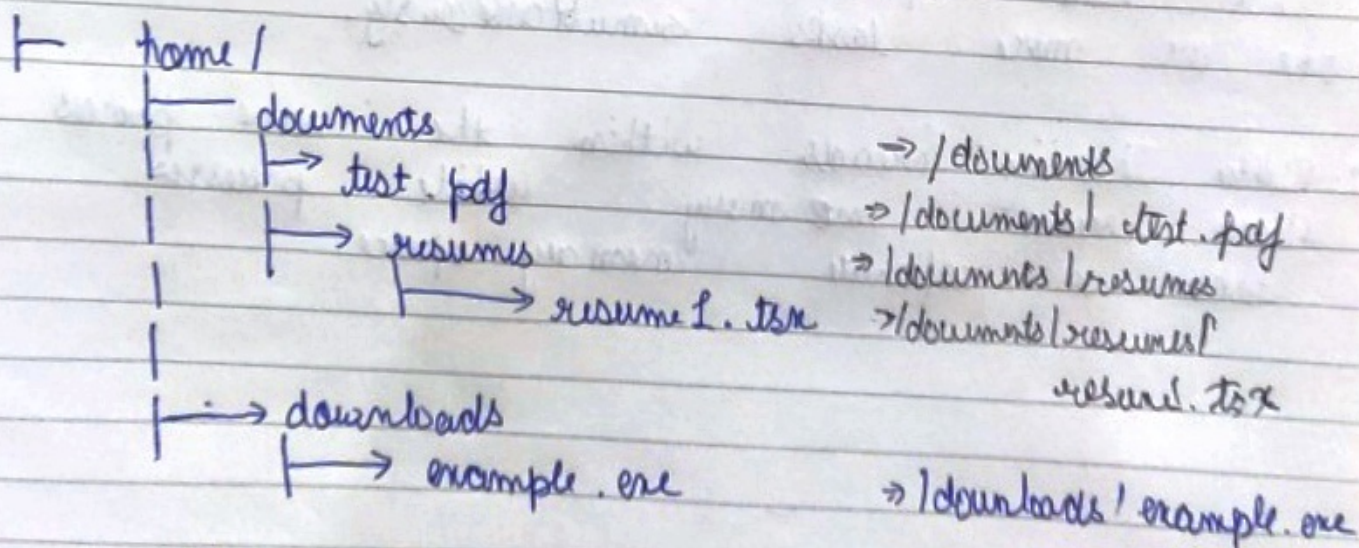
1. Phishing: An attempt to take sensitive information disguising self as a trustworthy entity.
2. Malware: It is a harmful software designed to destroy information from system.
3. Brute Force Attack: It is a technique to crack passwords.
4. DOS: It exploits the resources or services by sending excessive requests, which leads to crash the server.

Ques 40 Illustrate Hierarchical view of the file System.

The hierarchical view of the file system is a tree like structure, where each branch is a file or folder. Sometimes in large projects this folder structure can be very complex. The basic illustration of hierarchy as follows-

1. Root Directory: It is the top level directory which contains basically the whole tree with subfolders. It is denoted as '/'.
2. Sub-Directory: Directories that are inside other directories, these can contain files or folders.

Graphical Representation:



Root ⇒ home

Sub folder ⇒ documents and downloads

Ques 1. Define the advantages of threads over processes.

A: Threads and processes both are execution unit of OS. But thread have several advantages over processes -

1. Resource Efficiency: Threads are lighter than processes as it takes much less memory whereas processes takes a significant amount of memory.

2. Context Switching: The context switching of thread is much faster than processes.

3. Performance: On a multiprocessor system, threads can run parallel allowing to execute one or more tasks simultaneously.

4. Data Sharing: Threads within the same process share same memory while processes takes a separate memory space.