Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

What is a file control block?

Answer (Please click here to Add Answer)

File Control Block

A file control block is a memory data structure that contains most of the attributes of a file.

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Under what conditions can you use the Wait-for graph to detect deadlock?

Answer (Please click here to Add Answer)

If all resources have only a single instance, then we can define a deadlock detection algorithm that uses a variant of the resource allocation graph, called a **wait-for graph**.

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

Name any two schemes that allows efficient implementation of page table?

Answer (Please click here to Add Answer)

In the CPU registers

In the main memory

Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

"Critical section means the section of code in two processes or more than two processes that is used to update a resource (e.g. a shred variable) which is shared between these processes."
Do you agree with the statement or not? If not, then give reason to support your answer.

Answer (Please click here to Add Answer)

we write that line

Critical Section: A piece of code in a cooperating process in which the process may updates shared data (variable, file, database, etc.).

Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

How can you differentiate between external and internal fragmentation.

Answer (Please click here to Add Answer)

Internal Fragmentation is the area in a region or a page that is not used by the job occupying that region or page.
This space is unavailable for use by the system until that job is finished and the page or region is released.

External fragmentation

As processes come and go, *holes* of free space are created in the main memory

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

Write down the type of bits associated with each entry of segment table for protection?

Answer (Please click here to Add Answer)

The bits associated with each entry in the segment table, for the purpose of protection are:

- Validation bit : if the validation bit is 0, it indicates an illegal segment
- Read, write, execute bits

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

Different type of threads work in operating system, one of them is process threads and other one is kernel threads. If the kernel of the operating system does not know about these threads and the operating systems is fully aware of them and operating system does not know that these threads use either M:1 or M:N mapping. These threads are scheduled by the thread library and are not associated with any process but every thread belongs to a process and these threads are very easily managed. You need identify the type of these threads.

Answer (Please click here to Add Answer)

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Let us consider an example of frame allocation:
Number of free frames = 64
Number of processes = 3
Process sizes: P1 = 10 pages; P2 = 40 pages; P3 = 127 pages
Discuss how many free frames will be put in the free frames list by using Proportional Allocation?

Answer (Please click here to Add Answer)

Number of free frames = 64
Number of processes = 3
Process sizes: P1 = 10 pages; P2 = 40 pages; P3 = 127 pages

- **Fixed allocation**

64/3 = 21 frames per process and one put in the free frames list

- **Proportional Allocation**
- si = Size of process Pi
- S = Σ si
- m = Number of free frames
- ai = Allocation for Pi = (si / S) * m
- a1 = (10 / 177) * 64 = 3 frames
- a2 = (40 / 177) * 64 = 14 frames
- a3 = (127 / 177) * 64 = 45 frames
- Two free frames are put in the list of free frames

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

What is the command for mounting in UNIX, describe mounting in UNIX.

Answer (Please click here to Add Answer)

Mounting in UNIX

All files accessible in a Unix system are arranged in one big tree, the file hierarchy, rooted at /. These files can be spread out over several devices. The mount command serves to attach the file system found on some device to the big file tree. Conversely, the umount command will detach it again. Here is the syntax of the mount command

mount -t *type device dir*

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

What are the possible criteria to decide that which process should be terminated while deadlock detection and recovery?

Answer (Please click here to Add Answer)

When a deadlock detection algorithm determines that a deadlock exists, several alternatives exist. One possibility is to inform the operator that a deadlock has occurred, and to let the operator deal with the deadlock manually. The other possibility is to let the system recover from the deadlock automatically. There are two options for breaking a deadlock. One solution is simply to abort one or more processes to break the circular wait. The second option is to preempt some resources from one or more of the deadlocked processes

Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Three jobs (times: A=100, B=1, C=2) arrive in the order A, B, C.
Calculate the average waiting time and average turnaround time using First come, First serve algorithm. Also draw the gantt chart for the problem.

Answer (Please click here to Add Answer)

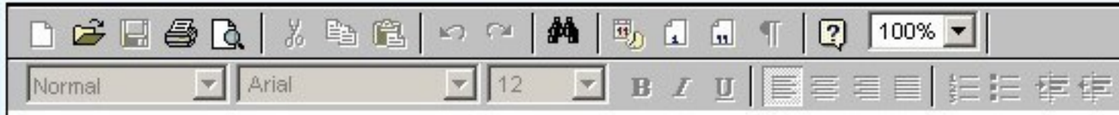
Waiting times P1 = 0; P2 = 24; P3 = 27
Average waiting time: (0+24+27)/3 = 17

Turnaround time: The interval from the time of submission to the time of completion is the **turnaround time.** Turnaround time is the sum of the periods spent waiting to get into memory, waiting in the ready queue, executing on the CPU and doing I/O. We want to minimize the turnaround time

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Do you feel that is there any main concern about time constraint in real time operating system that a programmer must keep that in mind while writing an Operating System for a real-time environment? If not then give reason to support your answer and if yes then mention that main concern?

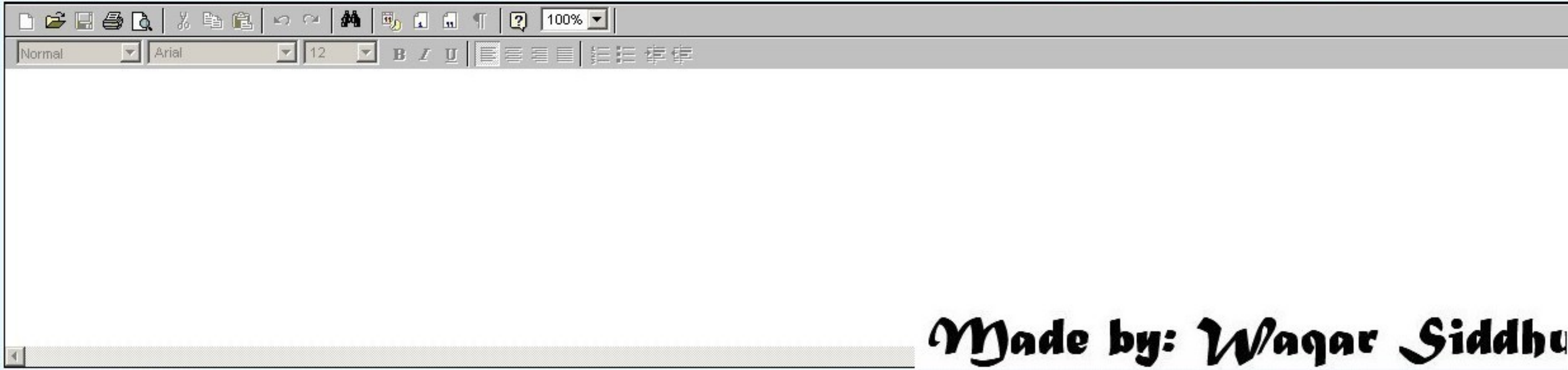
Answer (Please click here to Add Answer)



Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

Give one disadvantage of Dynamic Loading? Give your answer with respect to Main memory Management

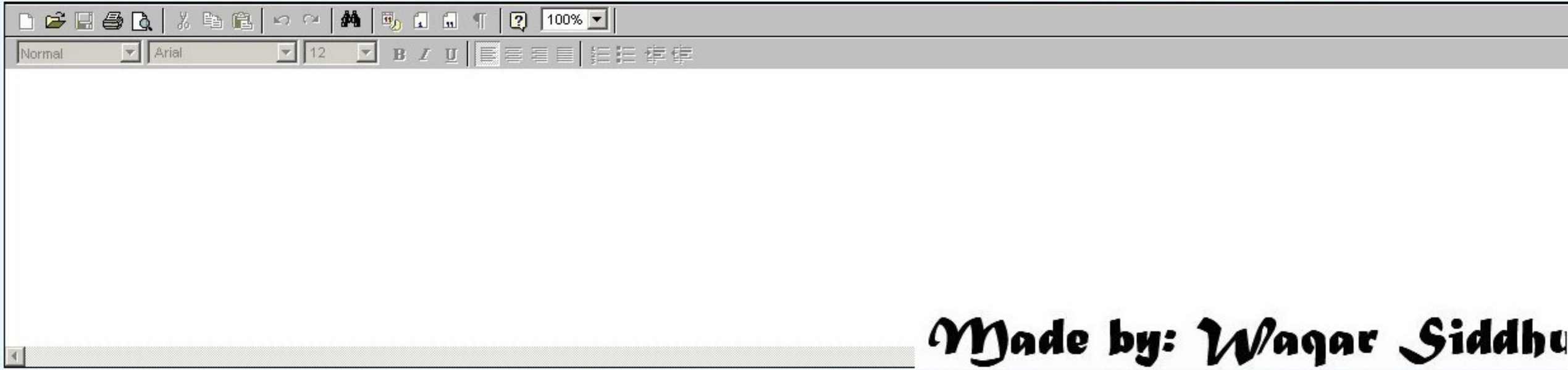
Answer (Please click here to Add Answer)



Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

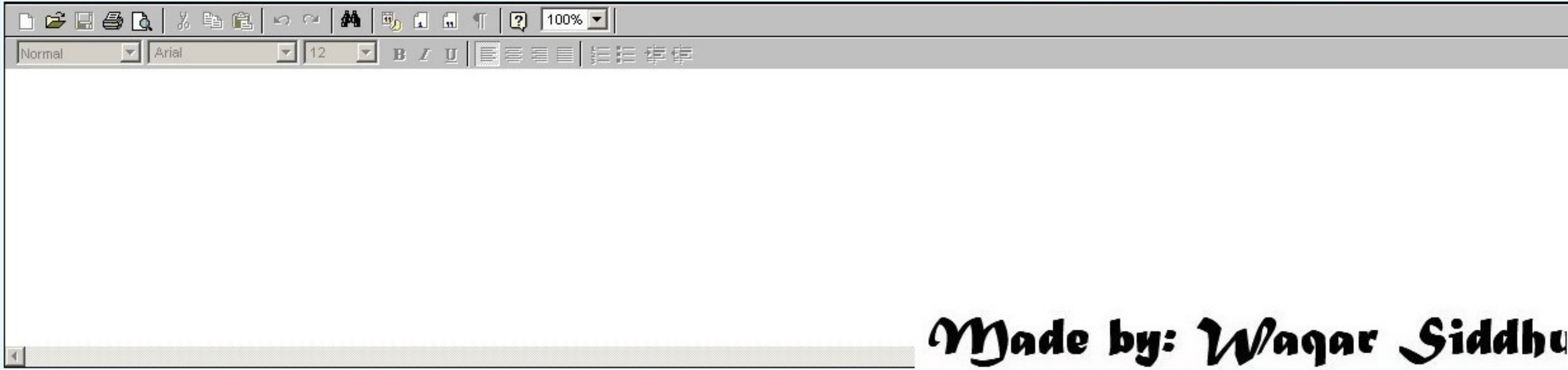
There are two dependent processes in Linux \Unix operating system on same machine. How can these processes communicate among themselves?

Answer (Please click here to Add Answer)



Let us consider an example of frame allocation:
Number of free frames = 64
Number of processes = 3
Process sizes: P1 = 10 pages; P2 = 40 pages; P3 = 127 pages
Discuss how many free frames will be put in the free frames list by using Fixed Allocation?

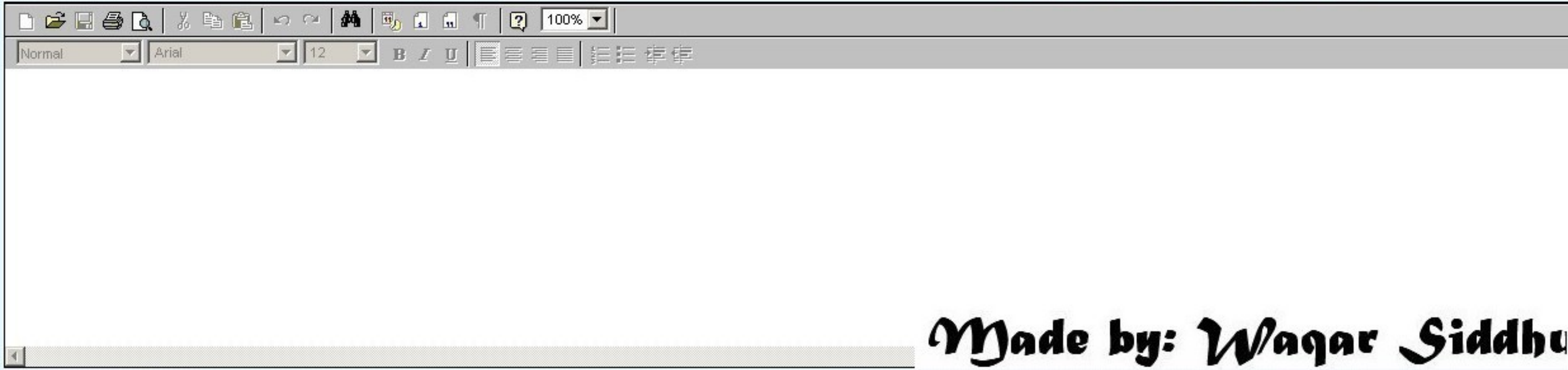
Answer (Please click here to Add Answer)



Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

Virtual Memory is the separation of user logical memory from physical memory. State **Virtual Memory** makes programming either easy or difficult?

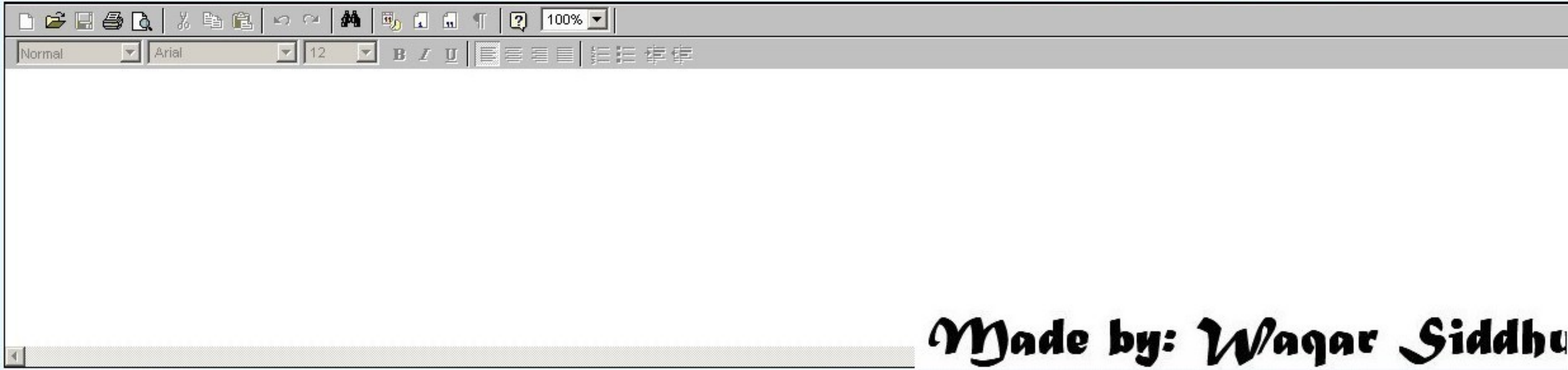
Answer (Please click here to Add Answer)



Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

List one advantage and one disadvantage of using a large block size to store file data.

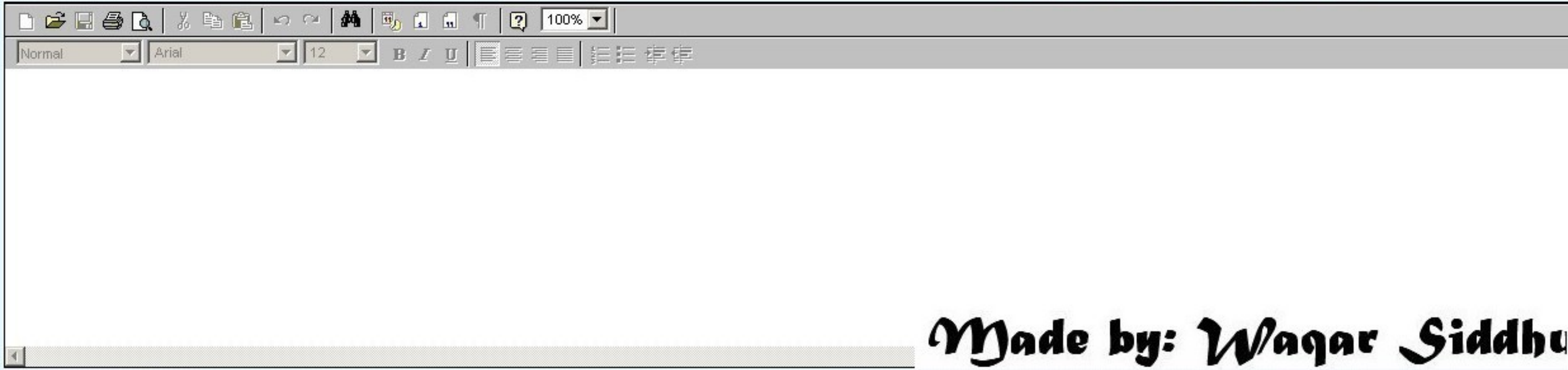
Answer (Please click here to Add Answer)



Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

What is Mounting? Name two types of mounting. Give your answer with respect to File System?

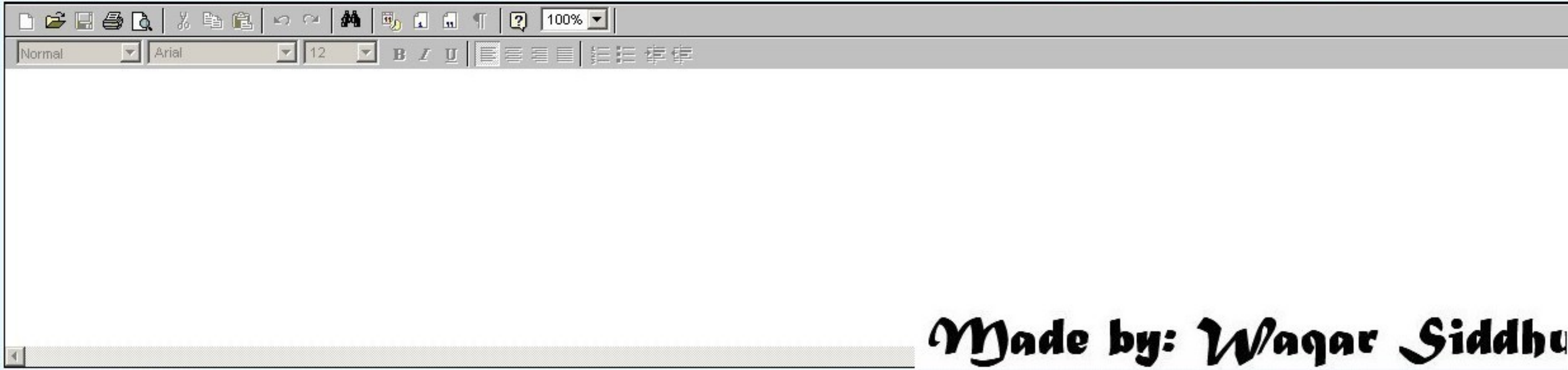
Answer (Please click here to Add Answer)



Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

How does a "system call" help the operating system?

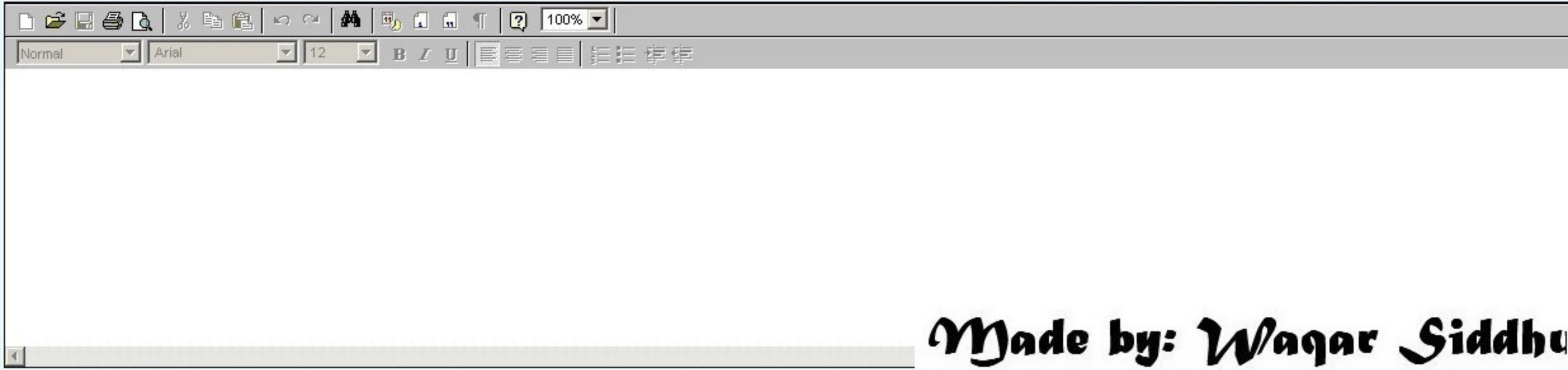
Answer (Please click here to Add Answer)



Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

If a proccess takes an average page fault service time of 20 milliseconds and a memory access time of 100 nanoseconds, then the effective access time in nanoseconds is?

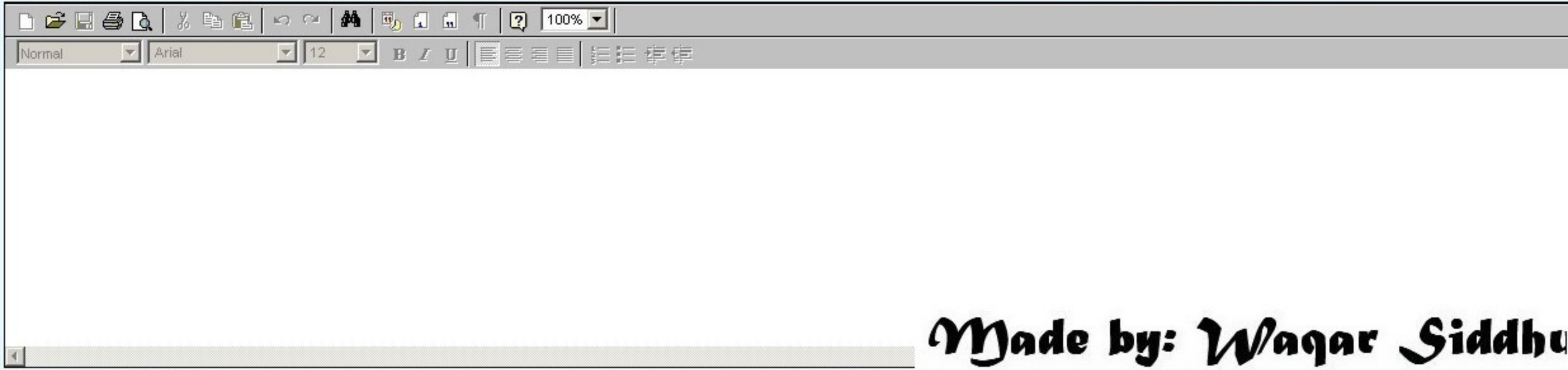
Answer (Please click here to Add Answer)



Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

What is the advantage of Dynamic Loading? Give your answer with respect to Main Memory Management.

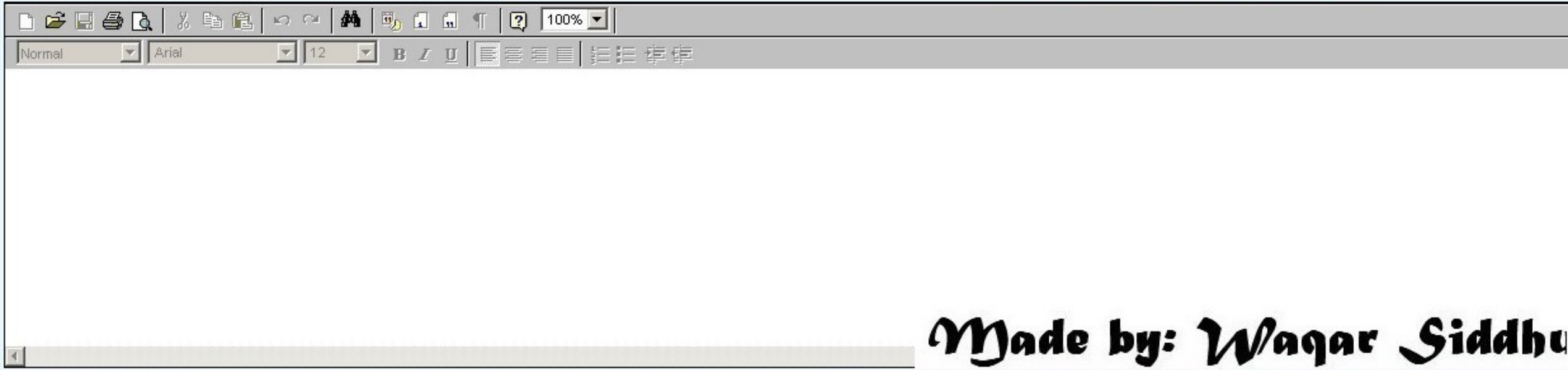
Answer (Please click here to Add Answer)



Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

What is the command for mounting in UNIX, describe mounting in UNIX.

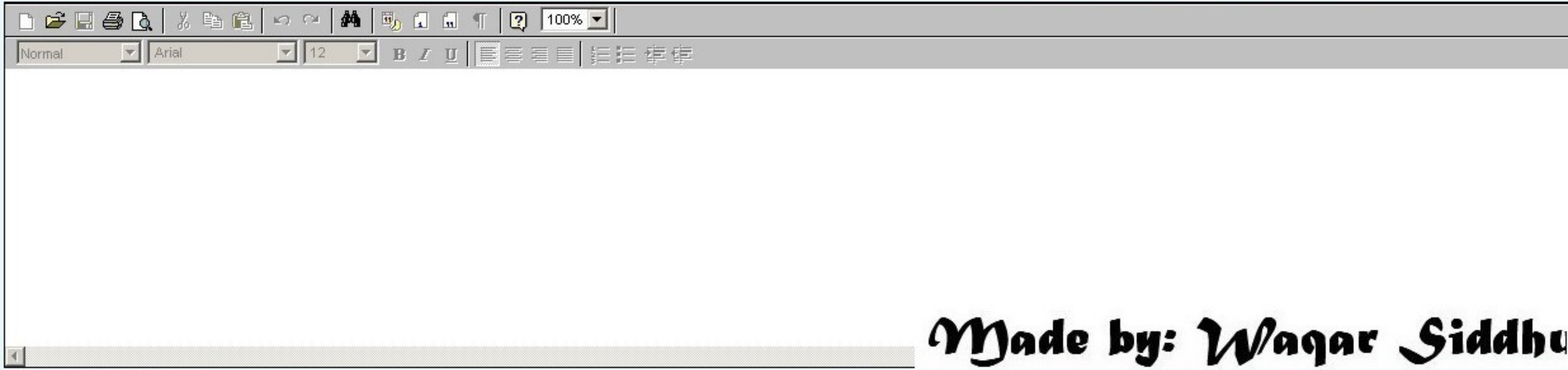
Answer (Please click here to Add Answer)



Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Do you think that layered approach in operating system is better than monolithic approach? Give reasons to support your answer.

Answer (Please click here to Add Answer)



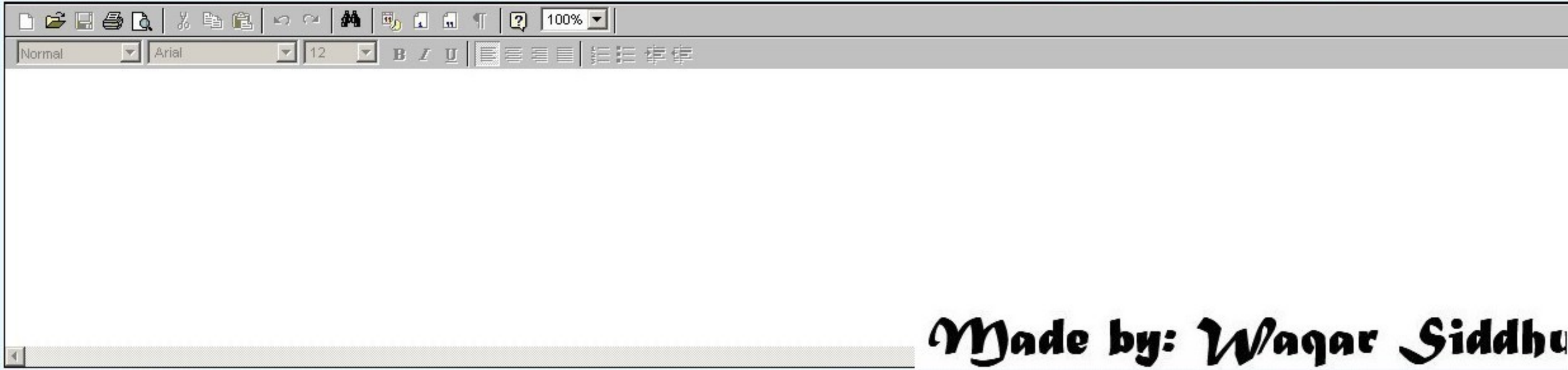
Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Write a code or pseudo code by using monitor

i) To deposit money in a bank account

ii) To withdraw money from a bank account.

Answer (Please click here to Add Answer)



Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

When a process is rolled out of memory, it loses its ability to use the CPU (at least for a while). Describe another situation where a process loses its ability to use the CPU, but where the process does not get rolled out.

Answer (Please click here to Add Answer)

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Define Indexed Allocation as a Space Allocation Method.

Answer (Please click here to Add Answer)

Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

Consider a process with its segment 15 having 5096 bytes. The process generates a logical address (15,3921). What page does the logical address refer to?

Answer (Please click here to Add Answer)

Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

Preemptive Shortest Job First scheduling algorithm is best algorithm for minimizing the waiting time for the processes. How can you calculate the average waiting time in preemptive Shortest Job First scheduling algorithm?

Answer (Please click here to Add Answer)

Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

What does a Page Table entry contain?

Answer (Please click here to Add Answer)

Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

Write the names of three commonly used methods for file space allocation?

Answer (Please click here to Add Answer)

Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

List any three criterion when the fork( ) system call fails to complete its task?

Answer (Please click here to Add Answer)

Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Do overlays increase a burden on a programmer as compare to virtual memory? Give reason to support your answer.

Answer (Please click here to Add Answer)

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

What steps needed for page replacement?

Answer (Please click here to Add Answer)

Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

If a process does not have "enough" pages, the page-fault rate is very high. This leads to low CPU utilization. The operating system needs to increase the degree of multiprogramming because it monitors the CPU utilization. When another process added, will it increase the throughput of the system?

Answer (Please click here to Add Answer)

Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Do you feel that is there any preemptive version of Shortest-Job-First (SJF) available? If yes then elaborate the working and performance (in terms of average waiting time) of that preemptive version as compare to non preemptive version, if not, then give reason to support your answer?

Answer (Please click here to Add Answer)

Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

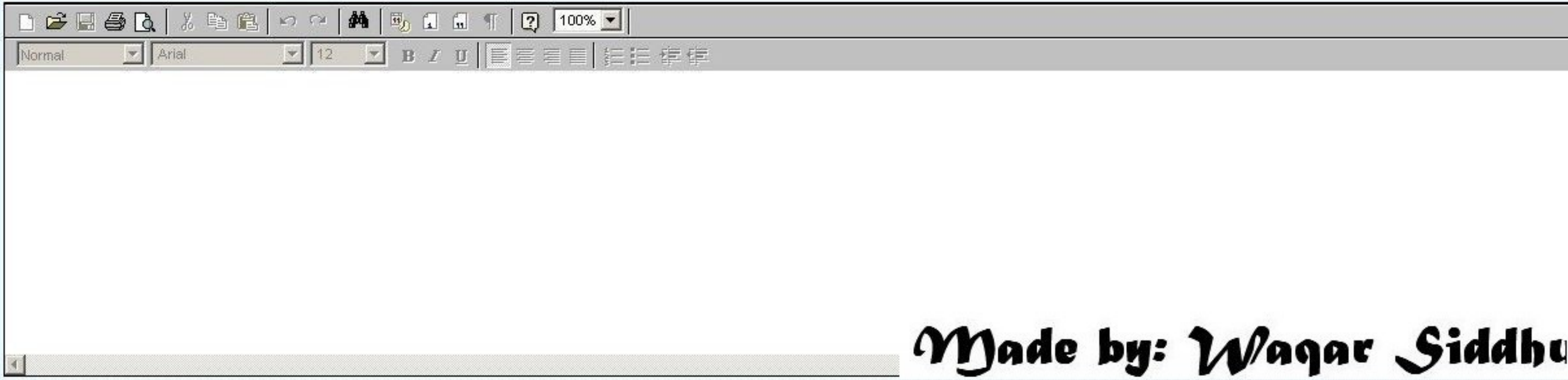
Out of MVT (Multiprogramming with Variable Tasks) and MFT (Multiprogramming with Fixed Tasks), which one do you think is best suited to cause internal fragmentation and which one is best suited to cause external fragmentation?
Also differentiate briefly between MVT and MFT.

Answer (Please click here to Add Answer)

Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

What do we name to an address that is generated by the CPU?

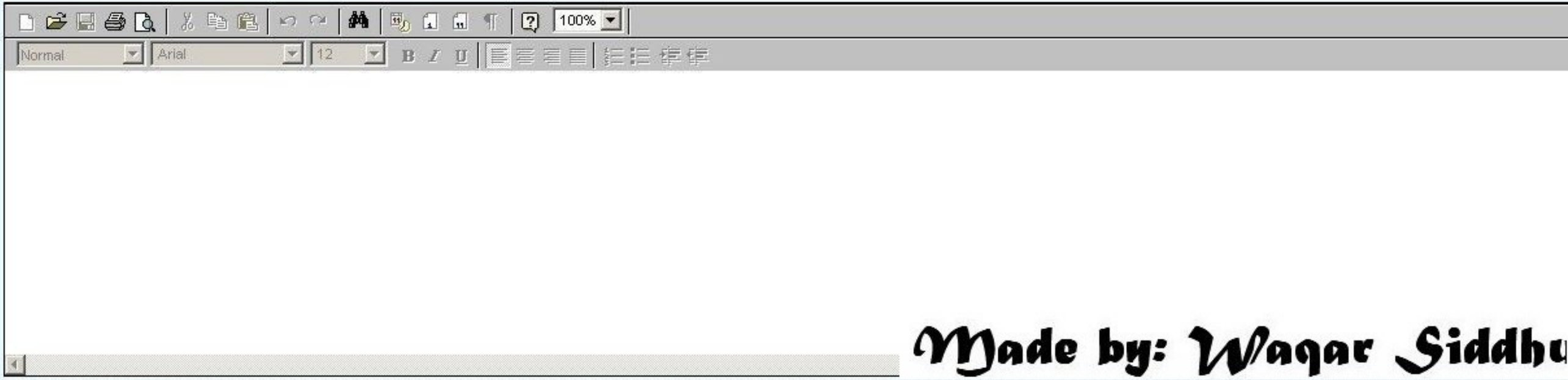
Answer (Please click here to Add Answer)



Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

Which anamoly is involved in FIFO page replacement?

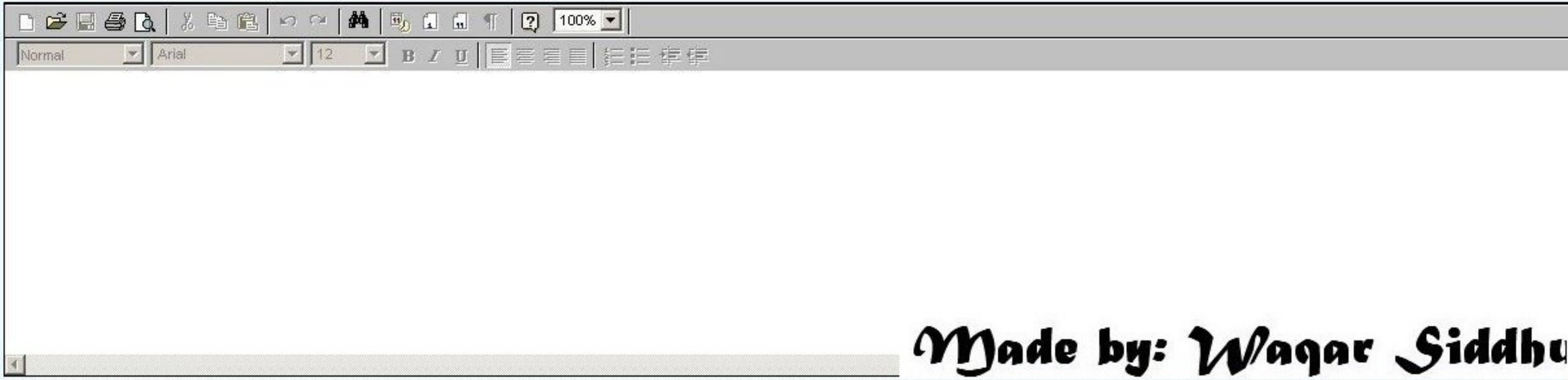
Answer (Please click here to Add Answer)



Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

The problem with using an acyclic-graph structure is ensuring that there are no cycles. What is the solution?

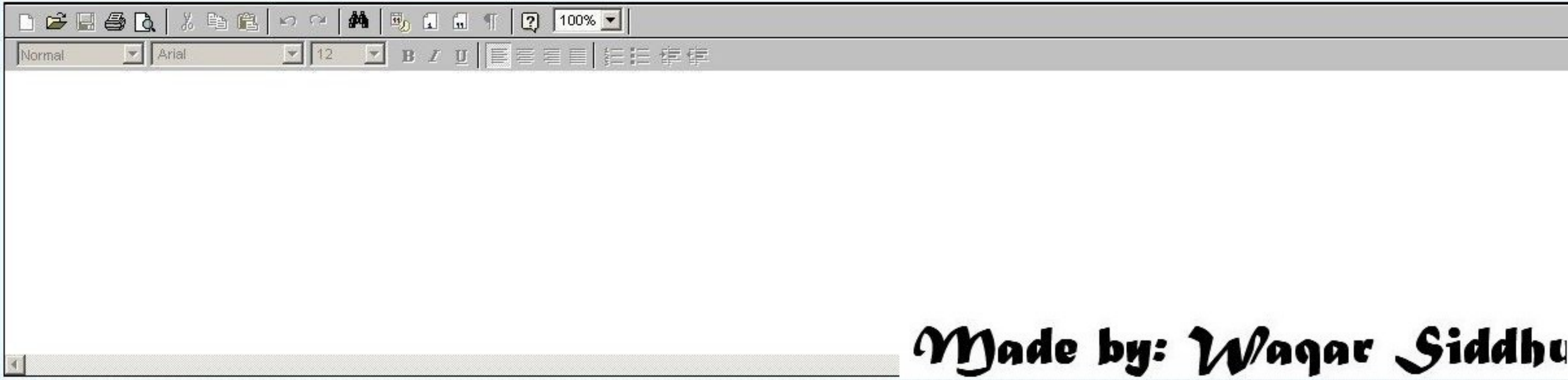
Answer (Please click here to Add Answer)



Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

The main purpose of the computer system is to run different programs, why we run these programs?

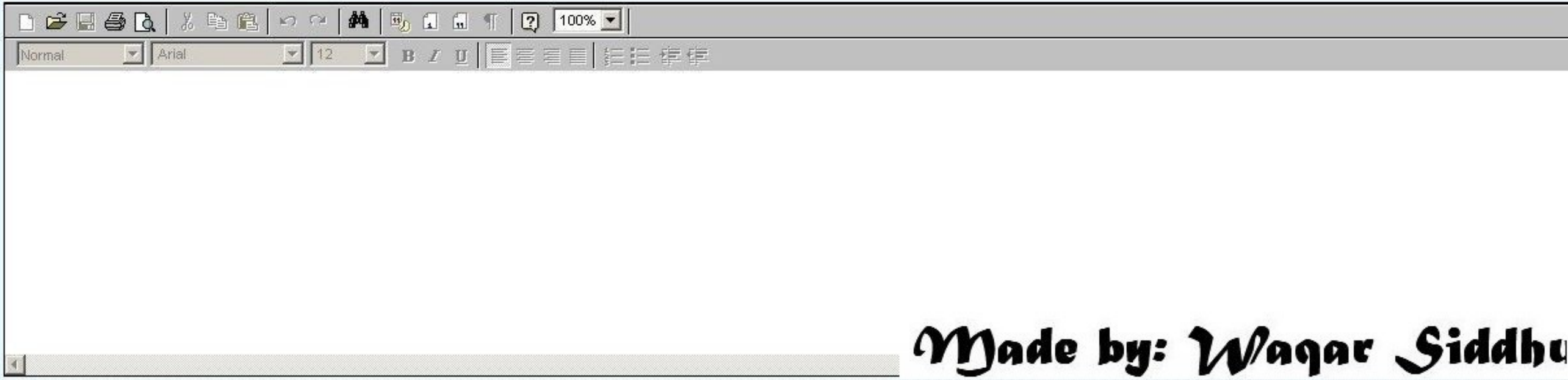
Answer (Please click here to Add Answer)



Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

What is the difference between a physical address and a virtual address?

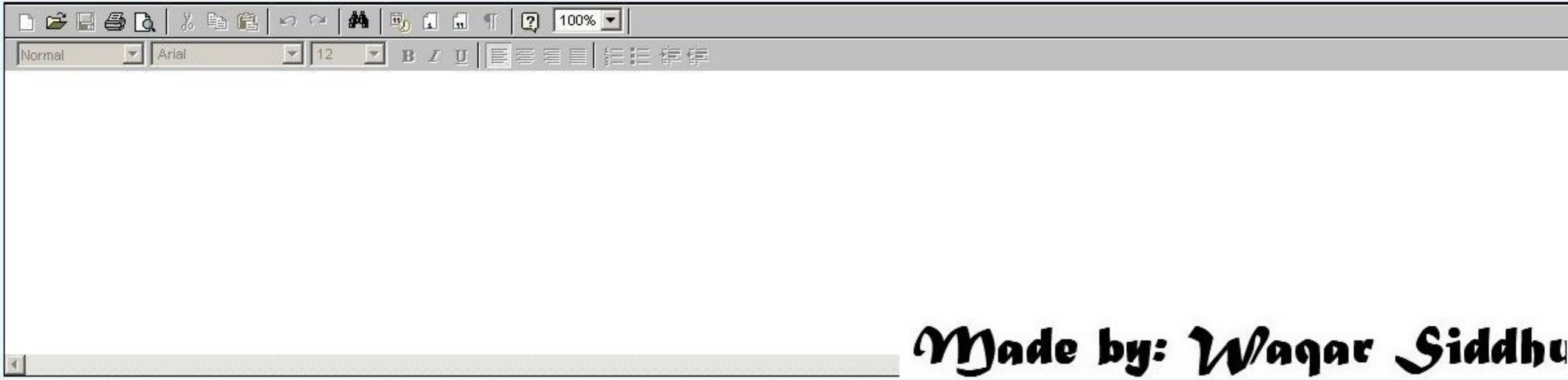
Answer (Please click here to Add Answer)



Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

What is Mounting? Name two types of mounting. Give your answer with respect to File System?

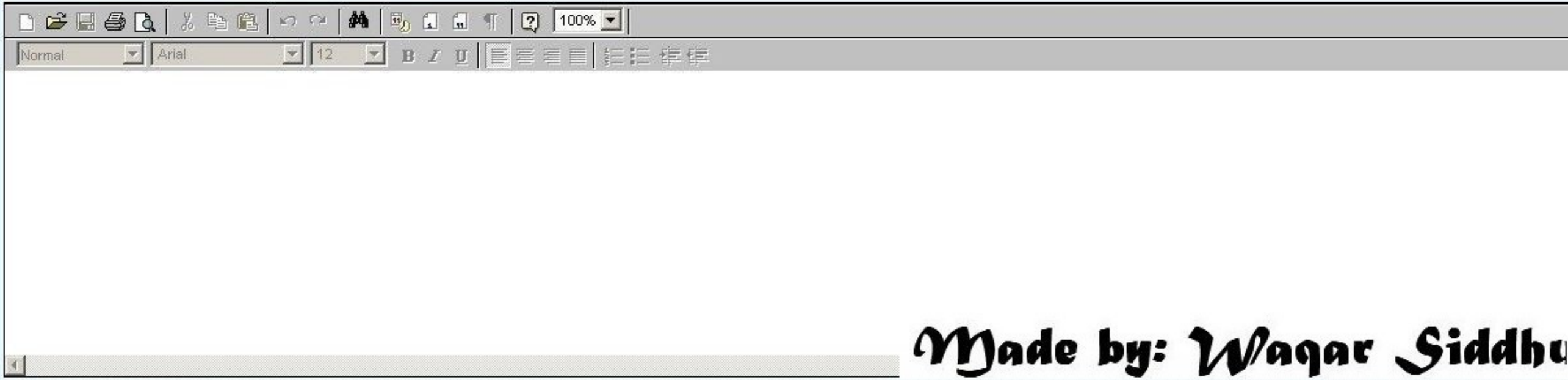
Answer (Please click here to Add Answer)



Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

How vfork system call differes from fork system call?

Answer (Please click here to Add Answer)



Consider this algorithm for mutual exclusion.

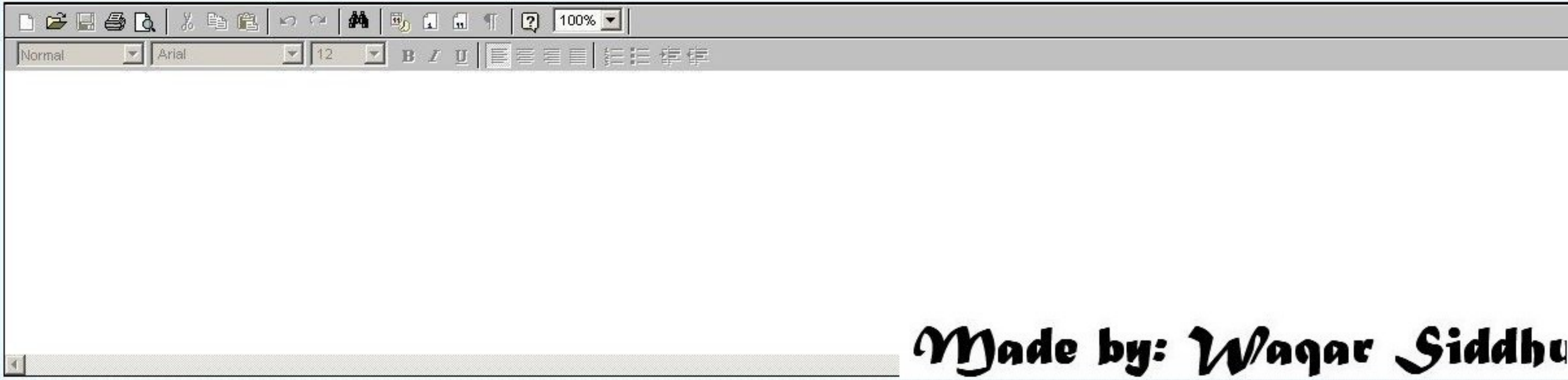
```
Process 1{                          Process 2 {
while true {                        while true {
    while (turn == 1)                   while (turn == 2)
        ; /* do nothing */                 ; /* do nothing */
```

Answer (Please click here to Add Answer)

Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

Briefly explain that how a Page Fault occurs and who is resoponsible to handle Page Fault?

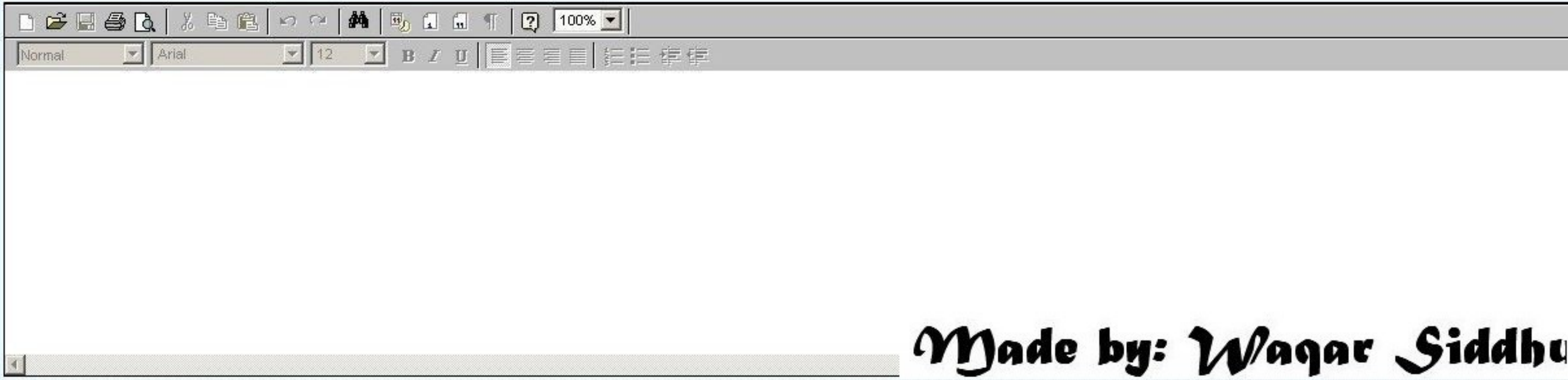
Answer (Please click here to Add Answer)



Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

In case of file protection, what should the file owner/creator be able to control? And what operations need to be controlled?

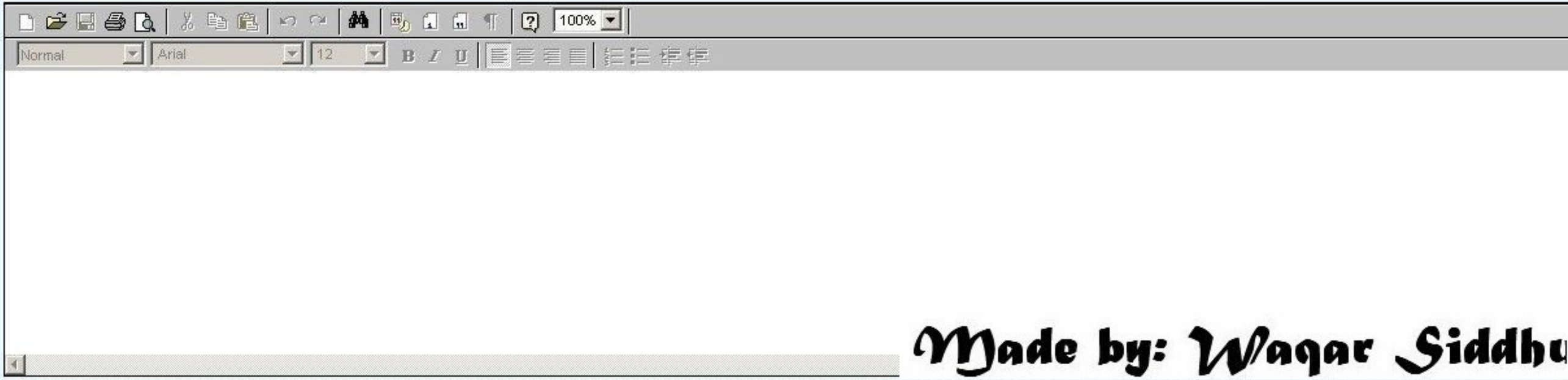
Answer (Please click here to Add Answer)



Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

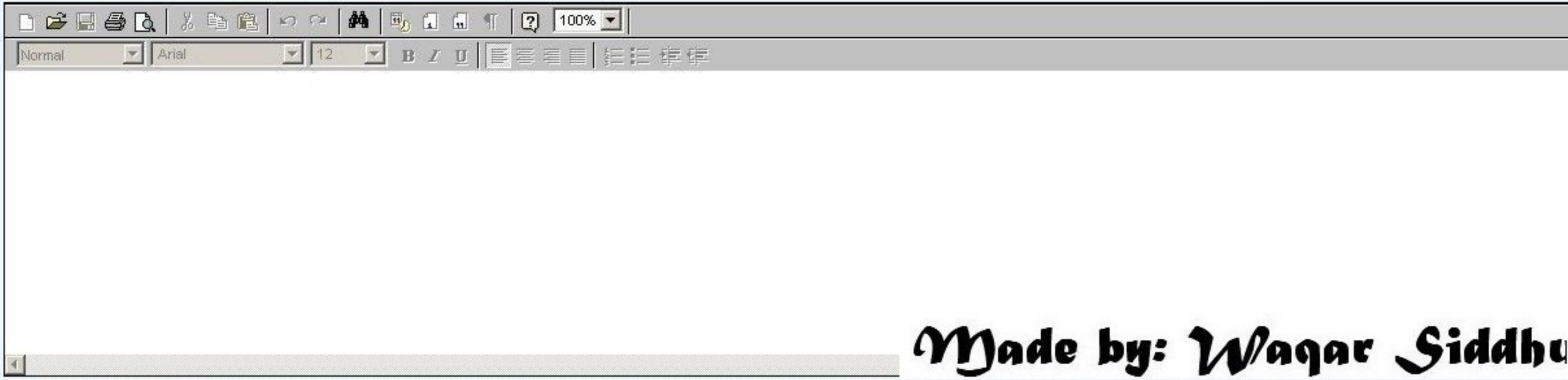
Analyze that how an operating system protects the CPU.

Answer (Please click here to Add Answer)



Let us consider a page size of 16 bytes and process address space of 32 pages and physical address space of 64 frames. Calculate the following.
a) Size of logical address i.e. Number of bits needed to uniquely identify a page in this address space of 16 pages.
b) Logical address in bits for (18, 10). Where 'p' and 'd' are 18 and 10 respectively.

Answer (Please click here to Add Answer)



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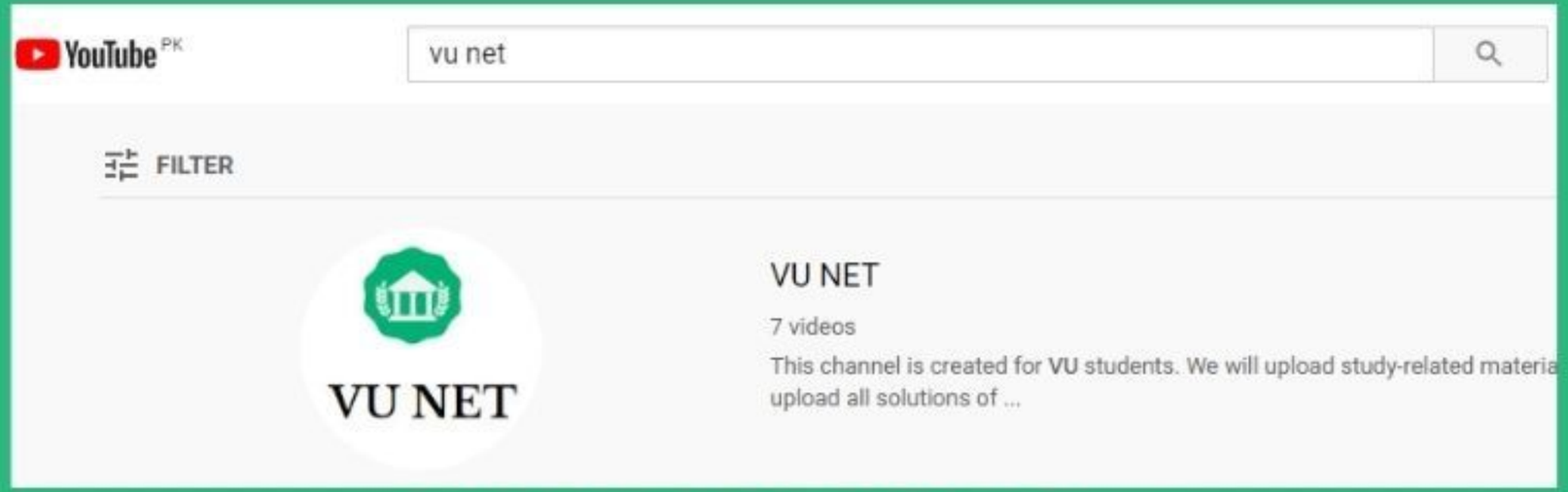

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