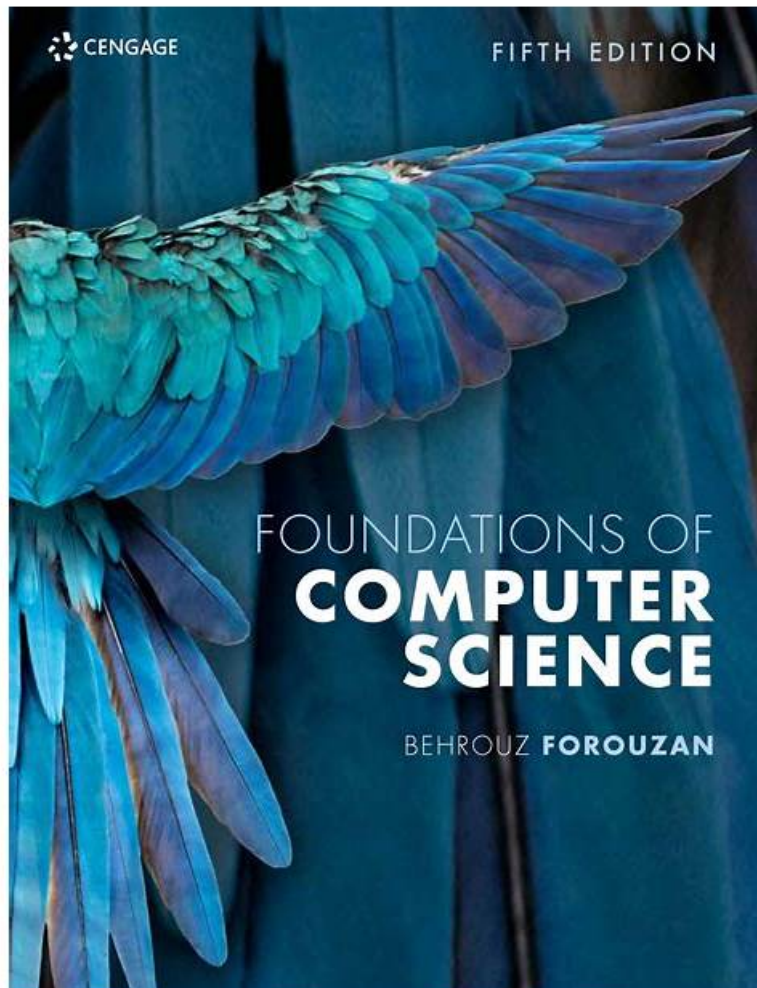


Foundations-of-Computer-Science Schulungsunterlagen, Foundations-of-Computer-Science Testantworten



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>> Foundations-of-Computer-Science Schulungsunterlagen <<

WGU Foundations-of-Computer-Science Fragen und Antworten, WGU Foundations of Computer Science Prüfungsfragen

Es gibt viele Methoden, die WGU Foundations-of-Computer-Science Zertifizierungsprüfung zu bestehen. Einerseits kann man viel Zeit und Energie auf die WGU Foundations-of-Computer-Science Zertifizierungsprüfung aufwenden, um die Fachkenntnisse zu konsolidieren. Andererseits kann man mit weniger Zeit und Geld die zielgerichteten WGU Foundations-of-Computer-Science Prüfungsfragen von ITZert benutzen.

WGU Foundations of Computer Science Foundations-of-Computer-Science Prüfungsfragen mit Lösungen (Q67-Q72):

67. Frage

What is the component of the operating system that manages core system resources but allows no user access?

- A. Device driver manager
- **B. The kernel**
- C. The File Explorer
- D. User interface layer

Antwort: B

Begründung:

The kernel is the central component of an operating system responsible for managing core system resources. It controls CPU scheduling, memory management, process creation and termination, device I/O coordination, and system calls—the controlled interface through which user programs request services. In operating systems textbooks, the kernel is described as running in a privileged mode (often called kernel mode or supervisor mode), which restricts direct user access for security and stability. User programs typically run in user mode and cannot directly manipulate hardware or critical OS structures; instead, they must request operations via system calls, which the kernel validates and executes.

This separation prevents accidental or malicious actions from crashing the entire system or compromising other processes. For example, a user application cannot directly write to arbitrary memory addresses or reprogram devices; the kernel mediates access and enforces protection boundaries. This model is foundational to modern OS design and underpins features like virtual memory, access control, and multitasking.

File Explorer and the user interface layer are user-facing components that provide interaction and file browsing; they are not the privileged core resource manager. "Device driver manager" is not typically the name of a single OS component; while drivers and driver subsystems exist, they operate under kernel control and are part of the kernel or closely integrated with it.

Therefore, the OS component that manages core resources while disallowing direct user access is the kernel.

68. Frage

What type of encryption is provided by encryption utilities built into the file system?

- A. Encryption steganography
- B. Encryption authentication
- **C. Encryption at rest**
- D. Encryption in motion

Antwort: C

Begründung:

File system encryption utilities are designed to protect data stored on a disk—for example, files on an SSD, HDD, or other persistent storage. This protection is called encryption at rest. The key idea is that if an attacker steals the physical drive, gains access to a powered-off machine, or otherwise reads storage directly, the raw bytes on disk remain unreadable without the correct cryptographic key. Common textbook examples include full-disk encryption and per-file encryption supported by operating systems and file systems.

This differs from encryption in motion (also called encryption in transit), which protects data while it is being transmitted over networks, such as via TLS/HTTPS, VPNs, or secure messaging protocols. File system utilities do not primarily address network transmission; they address stored data confidentiality. Option B,

"encryption authentication," is not a standard category; authentication is a security goal often achieved using mechanisms like digital signatures, MACs, certificates, and protocol handshakes, not a type of file system encryption. Option D, steganography, is the practice of hiding information within other data (like images or audio) rather than encrypting it for confidentiality.

In short, file system encryption utilities aim to ensure that stored files remain confidential if storage is accessed without authorization, which is precisely the definition of encryption at rest.

69. Frage

What is the time complexity of a quicksort algorithm?

- A. $O(\log n)$

- B. $O(n)$
- C. $O(n \log n)$
- D. $O(1)$

Antwort: C

Begründung:

Quicksort is a divide-and-conquer sorting algorithm. It works by selecting a pivot element, partitioning the array into two subarrays (elements less than the pivot and elements greater than the pivot), and then recursively sorting those subarrays. In the average case, the partition step splits the array into roughly equal halves, so the recurrence is commonly written as $T(n) = T(n/2) + T(n/2) + O(n)$, where $O(n)$ is the cost of partitioning. This solves to $O(n \log n)$, which is why quicksort is widely taught as an efficient general-purpose sorting method.

However, textbooks also emphasize that quicksort has a worst-case time complexity of $O(n^2)$.