Solutions for the First Quiz

COSC 6360

Fall 2015

First question

- Which feature of the UNIX file system allows it to implement random file access?

Answer

- Which feature of the UNIX file system allows it to implement random file access?

  ☐ **lseek()**

Second question

- UNIX uses separate **fork( )** and **exec( )** system calls to create and initialize processes.
  - ☐ What is the main *disadvantage* of this approach?

  - ☐ Which is the *best way* to address this problem?

Answer

- UNIX uses separate **fork( )** and **exec( )** system calls to create and initialize processes.
  - What is the main *disadvantage* of this approach?
    - Its *high cost* because **fork()** has to make a complete copy of the parent process' address space

Answer

- UNIX uses separate **fork( )** and **exec( )** system calls to create and initialize processes.
    - What is the main ***disadvantage*** of this approach?
        - Its ***high cost*** …
    - Which is the ***best way*** to address this problem?
        - Use ***copy-on-write*** and let parent and child share the same address space until the **exec()**

Third question

- Unlike the older UNIX file system, the Fast File System specifies a minimum block size.
  - What was that *minimum block size*?

  - What is the *main advantage* of that *specific value*?

Answer

- Unlike the older UNIX file system, the Fast File System specifies a minimum block size.
  - What was that *minimum block size*?
    - **4KB**
  - What is the *main advantage* of that *specific value*?

Answer

- Unlike the older UNIX file system, the Fast File System specifies a minimum block size.
  - What was that *minimum block size*?
    - **4KB**
  - What is the *main advantage* of that *specific value*?
    - It is the smallest block size that allows to access all files with at most two levels of indirection.

Fourth question

- What is the main advantage of **mapped files**?

- Which **memory object** is associated with each mapped file?

- What should be the **inheritance** attribute of a mapped file?

Answer

- What is the main advantage of *mapped files*?

  - They eliminate context switches by bringing file blocks directly into the address space of the process accessing them

Answer

- Which **memory object** is associated with each mapped file?

    □ The **accessed file**

Answer

- What should be the **inheritance** attribute of a mapped file?

    - ☐ ***Share***

Sixth question

- In the two-handed version of the BSD Clock policy,

  - What is the *main advantage* of keeping these two hands *close together*?

  - What is the *main disadvantage* of keeping these two hands *too close* together?

Answer

- In the two-handed version of the BSD Clock policy,
  - What is the ***main advantage*** of keeping these two hands ***close together***?
    - Fewer context switches as pages that are not currently accessed are expelled faster
  - What is the ***main disadvantage*** of keeping these two hands ***too close*** together?

Answer

- In the two-handed version of the BSD Clock policy,
  - What is the *main advantage* of keeping these two hands *close together*?
    - Fewer context switches as pages that are not currently accessed are expelled faster
  - What is the *main disadvantage* of keeping these two hands *too close* together?
    - Some pages might be expelled too quickly

Sixth question

- What is the main advantage of the VMS page replacement policy over that of UNIX?

Answer

- What is the main advantage of the VMS page replacement policy over that of UNIX?

  - ☐ It supports **real-time processes**