Assignment 12

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-22, 23:59 IST.

1) **syncfs (external synchrony) is useless when used with a Journaling Filesystem like ext3.**
   True/False
   - True
   - False
   **No, the answer is incorrect.**
   **Score:** 0
   **Accepted Answers:**
   False

2) **What is dangling pointer in C language?**
   - If pointer is pointing to a memory location from where variable has been deleted
   - If pointer is assigned to more than one variable
   - If pointer is not defined properly
   - None of above
   **No, the answer is incorrect.**
   **Score:** 0
   **Accepted Answers:**
   If pointer is pointing to a memory location from where variable has been deleted

3) **Consider a simple checkpointing protocol and the following set of operations in the log.**
   (start, T4); (write, T4, y, 2, 3); (start, T1); (commit, T4); (write, T1, x, 5, 7);
   (checkpoint);
   (start, T2); (write, T2, x, 1, 9); (commit, T2); (start, T3); (write, T3, z, 7, 2);

   If a crash happens now and the system tries to recover using both undo and redo operations, what are the contents of the undo list and the redo list?
   - Undo: T3, T1; Redo: T2
   - Undo: T3, T1; Redo: T2, T4
   - Undo: none; Redo: T2, T4, T3, T1
   - Undo: T3, T1, T4; Redo: T2
   **No, the answer is incorrect.**
   **Score:** 0
   **Accepted Answers:**
   Undo: T3, T1; Redo: T2

4) **During crash recovery (e.g., fsck), we can be sure that the inconsistencies in the filesystem data structure can only be of certain types. How is this ensured in the following situations?**

   - Situation: Write-through buffer cache
     Solution: Ordering of writes. E.g., during create, the child should be created before updating parent pointer.
   - Situation: Write-back buffer cache
     Solution: Ordering of writes with soft updates. In this case, the cache is flushed to disk in update order as before. In case of cyclic dependency, one of the operations is rolled back to remove cycle and applied later.
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   - Situation: Write-back buffer cache
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     **No, the answer is incorrect.**
   **Score:** 0
   **Accepted Answers:**
   Solution: Write-back buffer cache
   Solution: Ordering of writes. E.g., during create, the child should be created before updating parent pointer.
   Solution: Write-back buffer cache
   Solution: Ordering of writes with soft updates. In this case, the cache is flushed to disk in update order as before. In case of cyclic dependency, one of the operations is rolled back to remove cycle and applied later.

5) **On x86, the TLB gets flushed on each context-switch between two distinct VMs (on a VMM).**
   True/False
   - True
   - False
   **No, the answer is incorrect.**
   **Score:** 0
   **Accepted Answers:**
   True