Πανεπιστημιο Ιωαννινων
Τμήμα Πληροφορικής

Θέματα Βάσεων Δεδομένων
Ακαδημαϊκό Έτος 2001-2002

4ο Σύνολο Ασκήσεων
Ημερομηνία Παράδοσης: 13/11/2001
Ποσοστό επί του τελικού βαθμού: 5%
Άριστα είναι το 100.

1. [35] Άσκηση 20.8 και 20.6

2. [15] A given transaction R updates database objects A and B in this order. At some point during or after the execution of T the system crashes. For each of the two objects, there are four possible cases:

   1. T' s update was not written to the log and it was not propagated to the database, (the update could have been reflected in the in-memory log-tail or could have been made to a copy of the object in the buffer pool, the changes did not make it to the disk.
   2. T's update was written to the log (on disk), but it was not propagated to the database.
   3. T's update was not written to the log but it was propagated to the databsae (on the disk)
   4. T's update was written to the log (on disk) and it was propagated to the database (on disk).

   Thus, we can represent the state of affairs (after the crash) by two numbers (one for each object) referring to the case above, For example, $A:1$, $B:2$ means that A's update was neither logged nor flushed to the database, while B's update was logged but not written to the database.

   - Assume that pure undo logging is used and that T did not commit before the crash. List all possible states using the $A:n$,$B:m$ notation.
   - Assume that pure undo logging is used and that T did commit before the crash. List all possible states using the $A:n$,$B:m$ notation.
   - Assume that pure redo logging is used and that T did not commit before the crash. List all possible states using the $A:n$,$B:m$ notation.
   - Assume that pure redo logging is used and that T did commit before the crash. List all possible states using the $A:n$,$B:m$ notation.

3. [35] Κάθε ομάδα θα παρουσιάσει τα παρακάτw:

   - Ομάδα 1: Παρουσίαση της 20.9
   - Ομάδα 2: Παρουσίαση της 20.8
   - Ομάδα 3: Παρουσίαση της 20.5
   - Ομάδα 4: Παρουσίαση της 20.6

4. [20] O recovery manager στο σύστημα ARIES υποθέτει ότι το πρωτόκολλο ελέγχου συνδρομικότητας είναι το 2PL με "in-place" εγγραφές. Σε ποια σημεία χρησιμοποείται αυτή η υπόθεση;