

Exam 3 - hashing, binary trees and B tree, error recovery

HW 4 Questions

Process Matrix - always square

Process	Resource
A	1
B	2
C	3
D	2
C	1
B	3
A	2

D is waiting on B to access resource 2.

B is waiting on no one.

Completion order is any combination of ABC

B is waiting on C.

C is waiting on A.

A is waiting on B.

Waiting on	A	B	C	D
A				
B				
C				
D				

Quick recovery - machine starts up, looks at SGA, and rolls back any jobs that did not complete

To undo:

Copies A into SGA DB buffer and names it A'

Same for B --> B'

Same for C --> C'

Another update to A is made, SGA DB buffer becomes A''

When D comes in, there is no more, so A'' is moved to the database and D is moved into SGA DB buffer and becomes D'. A stays in the undo file until a commit.

When A comes back around, B'' is written to disk and A'' is read in and becomes A''' in SGA DB buffer

Deferred Updating

Records are still pulled into SGA, but does not go into the Undo file until another record needs to be added into the SGA DB

Long Recovery

Restoring a dump of the database at a given point in time.

Roll forward.

Look at system file and then rollback to when things were last committed.

Example problem for Undo

B moves into SGA DB --> B', Undo file contains B

A into SGA --> A', undo file contains A

B again, becomes B''

F moves into SGA --> F', undo files contains F

G moves into SGA, cannot because out of room, B'' is written to database, G replaces B and G is added to undo file

Example problem for Deferred Updates

B moves into SGA --> B'

A moves into SGA --> A'

B becomes B''

F moves into SGA --> F'

G cannot go into SGA, B'' is moved to Redo file, G' is added to SGA

B cannot go into SGA, A' is moved to Redo file, B''' is now in SGA

F becomes F''

G becomes G''