17/4/19

Recovery Systems

Catastophic

- → includs natural calamitis
- → regular backup in devices like magnetic tapes & safeguard
- → Immediate update to achieve maximum consistency.

Non-Catastrophic

- logical (no data found, bad inputs)
- system (system enters into undesirable states like deadlock)

Log T_i

A=1000
B=2000

A → 1000 − 50 → write (A)
B → 2000 + 50 → Before write (B) system fail

A = 950
B = 2000

Technique - on log based recovery

1) Deferred database modification

→ Delaying the uncommitted writes on the physical blocks till the the data transaction is actually committed

(Redo and no undo)

1) Immediate database modification

→ whenever we come out from failure if we have start of commit - redo the transaction

if there is start and no commit ⇒ undo the transaction

Redo/undo

1) No redo no undo - shadow paging concepts

→ Divide the database into equal no. of ~~[illegible]~~ blocks/pages.

→ Make directions corresponding to each block (in main memory) & copy in harddisk.

→ Changes in the blocks are written to some new location & then it will be brought to harddisk & shadow copy is discarded

$A = 1000$
$B = 2000$

T_0 read (A)

A = A - 50

write (A)

read (B)

B = B + 50

C = 700

write (B)

T_1 = read (C)

C = C - 100

failure

write (C)

log :

$\langle T_0, \text{start} \rangle$

$\langle T_0, A, 1000, 950 \rangle$

$\langle T_0, B, 2000, 2050 \rangle$

$\langle T_0, \text{commit} \rangle$

$\langle T_1, \text{start} \rangle$

$\langle T_1, C; 700, 100 \rangle$

X not there for and [illegible]

fuzzy