

# LOST UPDATE PROBLEM

- TWO TRANSACTIONS ACCESS THE SAME DATABASE,  $T_1$ ,  $T_2$

$T_1$

read\_item(X)     $X=100$   
 $X := X - N$      $X = 100 - 30$

$T_2$

read\_item(X)     $X=100$   
 $X := X + M$      $X = 100 + 25$   
                     $= 125$

write\_item(X)     $X=70$   
read\_item(Y)     $Y=360$

$Y := Y + N$      $Y = 360 + 10$   
write\_item(Y)     $Y=370$

write\_item(X)     $X=125$

$X$  IS OVERWRITTEN

This change is lost!

LOST UPDATE!

# TEMPORARY UPDATE PROBLEM

- ONE TRANSACTION UPDATES THE DATABASE BUT IT FAILS FOR SOME REASON,  $T_1$
- ANOTHER TRANSACTION READS THE UPDATED VALUE BEFORE IT IS CHANGED BACK TO ITS ORIGINAL VALUE,  $T_2$

$T_1$

read\_item(X)  $x = 100$

$X := X - N$   $x = 100 - 30$

write\_item(X)  $x = 70$

$T_2$

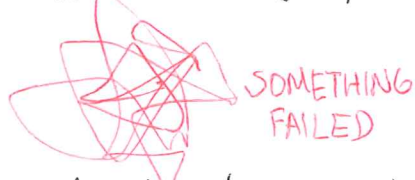
read\_item(X)  $x = 70$

$X := X + M$   $x = 70 + 5$

write\_item(X)  $x = 75$

this was a DIRTY READ!

read\_item(Y)



undo\_the\_changes  $x = 100$