

Name 1:

Date:

Name 2:

We have two transactions:

Transaction T1 moves 100 dollars from account A to account B (it first subtracts from A, then adds to B).

Transaction T2 multiplies the value of A and B by 1.2.

1. What are the resulting values of A and B for every potential serial schedule.
2. Give an example of a serializable schedule.
3. Give an example of a non-serializable schedule. What are the resulting values of A and B for this schedule?

1) There are the following potential serial schedules:
 T_1, T_2 or $T_2 T_1$

Assume account A has x dollars, B y dollars:

a) T_1, T_2 . after T_1 : $x' = x - 100$, $y' = y + 100$
after T_2 : $x'' = (x - 100) \cdot 1.2$, $y'' = (y + 100) \cdot 1.2$

So account A has $1.2 \cdot (x - 100)$

B has $1.2 \cdot (y + 100)$

b) T_2, T_1 after T_2 : $x' = 1.2x$, $y' = 1.2y$
after T_1 : $x'' = 1.2x - 100$, $y'' = 1.2y + 100$
So A has $1.2x - 100$, B has $1.2y + 100$

2) Both previous scheduler are serializable by definition.

Here is another one:

T_1	T_2	A	B
$R(x, A)$		x	y
$x -= 100$			
$W(x, A)$		$x - 100$	
	$R(x, A)$		
	$x *= 1.2$		
	$W(x, A)$	$1.2(x - 100)$	
$R(y, B)$			
$y += 100$			$y + 100$
$W(y, B)$			
COMMIT			
	$R(y, B)$		
	$y += 1.2$		
	$W(y, B)$		$1.2 \cdot (y + 100)$
	commit		

3)

T_1	T_2	A	B
$R(x, A)$		x	y
$x -= 100$			
$W(x, A)$		$x - 100$	
	$R(x, A)$		
	$x *= 1.2$		
	$W(x, A)$	$1.2(x - 100)$	
$R(y, B)$			
	$R(y, B)$		
	$y += 1.2$		
	$W(y, B)$		$1.2y$
	commit		
$y += 100$			
$W(y, B)$			$y + 100$
COMMIT			

Final values of $x \Rightarrow 1.2(x - 100)$ ok ✓
 $y \Rightarrow \underline{y + 100}$ NOT OK.

Not Serializable