

21.13) Dirty read: if our transaction uses an updated value of a data item from another transaction that has not been committed. if the transaction fails, our transaction would have used a non-existent value.

Nonrepeatable read: if read after a read of an item then updating that value, then when read again it's not the same as before

Phantoms: A Ghost record. where a list of records satisfies a condition & then a record that also satisfies the condition is added but not seen in the list.

21.14) Figure a) shows the lost update problem, where 2 transactions try to ~~not~~ ~~read~~ execute & read one item at the same time. and the new version doesn't change the final result but if it's more than 90 and after one writes into it then the second one will not write example ($X=89$) & 2 transactions of 1.

Figure b) shows temporary update (dirty read) & the new version will not change anything unless the X is 90

Subject

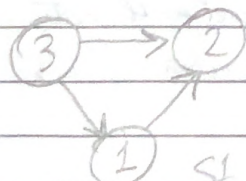
S1S2

Date

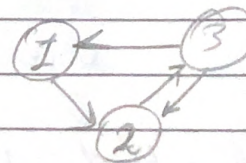
1 / 1

21.23)

	T_1	T_2	T_3		T_1	T_2	T_3
	$r_1(x)$				$r_1(x)$		
		$r_2(z)$				$r_2(z)$	
	$r_1(z)$						$r_3(x)$
			$r_3(x)$		$r_1(z)$	$r_2(y)$	
			$r_3(y)$				$r_3(y)$
	$w_1(x)$						
			$w_3(y)$		$w_1(x)$		
		$r_2(y)$				$w_2(z)$	
		$w_2(z)$					$w_3(y)$
		$w_2(y)$				$w_2(y)$	

Conflicts:- $r_3(x) \rightarrow w_1(x)$ $r_3(y) \rightarrow w_2(y)$ $r_1(z) \rightarrow w_2(z)$ $w_3(y) \rightarrow w_2(y)$ Conflicts:- $r_3(x) \rightarrow w_1(x)$ $r_1(z) \rightarrow w_2(z)$ $r_2(y) \rightarrow w_3(y)$ $r_3(y) \rightarrow w_2(y)$ S1 Serializable

	T_1	T_2	T_3
	$r_2(x)$		
	$r_1(z)$		
		$r_2(z)$	
			$r_3(x)$
	$w_1(x)$		
		$r_2(y)$	
			$r_3(y)$
		$w_2(z)$	$w_3(y)$
		$w_2(y)$	

Not Serializable

S3			S4			S5		
T ₁	T ₂	T ₃	T ₁	T ₂	T ₃	T ₁	T ₂	T ₃
r ₁ (x)			r ₁ (x)			r ₁ (x)		
	r ₂ (z)			r ₂ (z)			r ₂ (x)	
r ₁ (z)			r ₁ (z)					r ₃ (z)
		r ₃ (x)			r ₃ (x)	r ₁ (z)		
		r ₃ (y)			r ₃ (y)		r ₂ (y)	
w ₁ (x)			w ₁ (x)					r ₃ (y)
C ₁					w ₃ (y)	w ₁ (z)		
		w ₃ (y)		r ₂ (y)		C ₁		
		C ₃		w ₂ (z)			w ₂ (z)	
	r ₂ (y)			w ₂ (y)				w ₃ (y)
	w ₂ (z)		C ₁			w ₂ (y)		
	w ₃ (y)			C ₂				C ₃
	C ₂				C ₃		C ₂	

S3: recoverable, cascadeless, strict recoverable

S4: Dirty read between w₃(y) and R₂(y) then not
~~not~~ Cascadeable & not recoverable T₂ happens before T₃

S5: recoverable & Cascadeless but not strict
 WW between w₃(y) & w₂(y)