



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Serializability

A schedule is serialized if it is equivalent to a serial schedule. A concurrent schedule must ensure it is the same as if executed serially means one after another. It refers to the sequence of actions such as read, write, abort, commit are performed in a serial manner.

Example

Let's take two transactions T1 and T2,

If both transactions are performed without interfering each other then it is called as serial schedule, it can be represented as follows –

T1	T2
READ1(A)	
WRITE1(A)	
READ1(B)	
C1	
	READ2(B)
	WRITE2(B)
	READ2(B)
	C2

Non serial schedule – When a transaction is overlapped between the transaction T1 and T2.

Example

Consider the following example –

T1	T2
READ1(A)	
WRITE1(A)	
	READ2(B)
	WRITE2(B)
READ1(B)	
WRITE1(B)	



T1	T2
READ1(B)	

Types of serializability

There are two types of serializability –

View serializability

A schedule is view-serializability if it is viewed equivalent to a serial schedule.

The rules it follows are as follows –

- T1 is reading the initial value of A, then T2 also reads the initial value of A.
- T1 is the reading value written by T2, then T2 also reads the value written by T1.
- T1 is writing the final value, and then T2 also has the write operation as the final value.

Conflict serializability

It orders any conflicting operations in the same way as some serial execution. A pair of operations is said to conflict if they operate on the same data item and one of them is a write operation.

That means

- $Read_i(x) \text{ read}_j(x)$ - non conflict read-read operation
- $Read_i(x) \text{ write}_j(x)$ - conflict read-write operation.
- $Write_i(x) \text{ read}_j(x)$ - conflict write-read operation.
- $Write_i(x) \text{ write}_j(x)$ - conflict write-write operation.



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