**Problem due to concurrency in DBMS?**

**1) Dirty read problem**

If a transaction reads an uncommitted temporary value written by some other transaction than it is called dirty read problem because this uncommitted transaction may be aborted and the read value disappears and the reading transaction end with incorrect results.

**Example**

T1 T2

R(A)

W(A)

R(A)

The values of item x which is read by T2 is called dirty read data because this data can be created by a transactions that has not been committed yet.

**2) Loss update problem/ write - write problem**

This problem occur when two transactions access the same data item and have their operations interleaved in a way that makes the value of some database items incorrect.

If there are two write operations of the different transaction on some data values and in between them there are no read operations then the second write over the first .consider the schedule below,

**Example**

T1 T2

R(A)

W(A)

W(A)

Here is a blind write that means write without a read. Here the changes made by transaction T1 are lost which is updated by a transaction T2.

**3) Unrepeatable and phantom read problem**

When a transaction cannot repeat the read instructions because the variable is deleted by some other transaction then this problem is called phantom read problem. In this problem at different instances of time a transaction read gives different values it is because data item might have been updated by another transaction.

This causes a problem while execution of some aggregate by a transaction and due to changes in the values of the data item by another transaction it leads to incorrect results. When a transaction read values of data item twice and another transaction's updates data item in between then the results of two read operations will differ.

**Example**

T1 T2

R(A)

R(A)

Delete(A)

R(A)

**4) Incorrect summary problem**

When one of the transactions is checking on aggregate summary function while other transactions are updating then this problem is called incorrect summary problem. The aggregate functions may calculate some values before they updated and others after they are updated.