**Homework for Chapter 4**

1. The following relation schema R, functional dependency set F and decomposition set ρ are given.

R(S,A,I,P), F={S→A,SI→P}, ρ={R1(SA), R2(SIP)},

Please check if ρ keeps Lossless-join property

1. Given the following relation schema R, where U={A，B，C，D, E, G},

F={AB→C, C→A, BC→D, ACD→B, D→EG, BE→C, CG→BD, CE→AG}, Please calculate the Canonical Cover of F.

1. Please tell the level of the highest normal form, then decompose it to BCNF if it is not in BCNF.
2. R={SNO,SNAME,PNO,QTY}   
   F={SNO→SNAME，SNAME→SNO，(SNO,PNO)→QTY, (SNAME,PNO)→QTY}

* 1. SP={ SNO,SNAME,CITY,STATUS },

F={ SNO→SNAME,SNO→CITY, CITY→STATUS }

1. R(A,B,C,D)，F={A→B,C→D}, R∈2NF？

ρ={R1(AB)，R2(CD)} , is ρ with Dependency Preservation and Lossless-join properties?

1. Given R(A,B,C,D)，F={D→B,C→A,A→C},please give the candidate keys, and determine whether R is in 2NF，if not, decompose R into 2NF.

**Homework for Chapter 6**

1. **What is a Transaction?** and **What are the four properties of Transactions?**
2. **What Potential Problems would be Caused by Concurrency?**
3. **What is Serial Schedules? What is non-serial Schedule?**
4. **What is serializable schedule?**
5. **What is the** **Two-Phase Locking protocol?**
6. **What are the four Levels of Isolation specified by SQL-92?**
7. **What is Checkpoint ?**