1. Read chapters 15, 16, 17.

2. Exercise 15.11 Consider the following two transactions
   T1: read(A);
       read(B);
       if A = 0 then B = B + 1;
       write(B);
   T2: read(B);
       read(A);
       if B = 0 then A = A + 1;
       write(A);
   Let the consistency requirement be A=0 and B=0, with A=B=0 the initial values
   i. Show that every serial execution involving these two transactions preserves the consistency
      of the database;
   ii. Show a concurrent execution of T1 and T2 that produces a nonserializable schedule;
   iii. Is there a concurrent execution of T1 and T2 that produces a serializable schedule?

3. Exercise 16.2. Add lock and unlock instructions to the transactions from exercise 2. Can the
   execution of these transactions result in a deadlock?

4. Exercise 17.10. Explain the purpose of the checkpoint mechanism. How often should
   checkpoints be performed? How does the frequency of checkpoints affect:
   i. System performance when no failure occurs?
   ii. The time it takes to recover from a system crash?
   iii. The time it takes to recover from a disk crash?