Assignment 2

Preliminaries

a. If you haven't picked a project (C# or Java) and partner, please do it *by tomorrow*.

b. Visit www.tpc.org and spend 15 minutes browsing the site to get a feel for how the Transaction Processing Council describes the TPC-C and TPC-E benchmarks and how it presents benchmark results. For TPC-E, read Clause 0 (3 pages) of the specification and the beginning of other sections to see what's covered. Also, skim one of the full disclosure reports to see the system configuration.

c. Read Section 6 of Chapter 2, on Scalability.

d. Read the description of the course project. Think about applying shadowing to the course project. Read Section 6 of Chapter 7.

e. Since this week's homework is not very time-consuming, this is a great time to start working on your project.

Problems

For each of the following histories, answer the following:
   a.   List all serial histories that are equivalent to it
   b.   Is it recoverable? Does it avoid cascading aborts? Is it strict?
        For each, if not, why?

1. $w_0[x,y,z]$ c_0 $r_1[x]$ $r_2[y]$ $w_2[y]$ $r_3[z]$ $w_3[z]$ $r_2[z]$ $w_2[y]$ $w_1[z]$ $w_1[y]$ c_1 c_2 c_3

2. $w_0[x,y,z]$ c_0 $r_1[x]$ $r_2[y]$ $w_2[y]$ $r_3[z]$ $r_2[z]$ $w_2[y]$ $w_1[z]$ $w_1[y]$ c_1 c_2 c_3
     (same as (1), except delete $w_3[z]$)

3. $w_0[x,y,z]$ c_0 $r_1[x]$ $r_2[y]$ $w_2[y]$ $r_3[z]$ $w_3[z]$ $r_2[z]$ $w_2[y]$ $w_1[z]$ $w_1[y]$ c_1 **c_3 c_2**
     (same as (1), except that c_2 is moved after c_3)

4. $w_0[x,y,z]$ c_0 $r_1[x]$ $r_2[y]$ **$w_2[x]$** $r_3[z]$ $w_3[z]$ $r_2[z]$ $w_2[y]$ $w_1[z]$ $w_1[y]$ c_1 c_2 c_3
     (same as (1), except the first $w_2[y]$ becomes $w_2[x]$)

5. $w_0[x,y,z]$ c_0 $r_1[x]$ $r_2[y]$ $w_2[y]$ $r_3[z]$ $w_3[z]$ $r_2[z]$ $w_2[y]$ **c_2 c_3** $w_1[z]$ $w_1[y]$ c_1
     (same as (1), except **c_2** and c_3 are moved before $w_1[z]$)