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 \(w_1[z]\))