Part 2: Conflict Serializability (20 points)

Consider the following three transactions and schedule (time goes from top to bottom). Is this schedule conflict-serializable? Show why or why not.

Answer:

No, there is a cycle in the diagram as following:

1. W1(A) - R2(A) leads to a conflict from TXN1 to TXN2
2. W1(A) - W3(A) leads to a conflict from TXN1 to TXN3
3. R3(B) - W1(B) leads to a conflict from TXN3 to TXN1

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| R1(A) |  |  |
| W1(A) |  |  |
|  |  | R3(A) |
|  |  | W3(A) |
|  | R2(A) |  |
| R1(B) |  |  |
|  |  | R3(B) |
| W1(B) |  |  |
|  |  | W3(B) |
|  | R2(B) |  |
|  | commit |  |
| commit |  |  |
|  |  | commit |