# CS 500: Fundamentals of Databases

*Assignment #3*

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**Q1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 | W(B) |  |  |  | R(A) | W(A) |  |  |
| T2 |  | W(B) | R(B) | W(A) |  |  | R(A) |  |

Ans.) Conflicts:

RW - unrepeatable reads: none

WR – dirty reads: 0,2 on B 3,4 on A 5,6 on A

WW – lost writes: 0,1 on B 3,5 on A

Is conflict serializable? No

**Q2**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 | W(B) | R(A) |  |  |  |  | W(A) |  |
| T2 |  |  | W(A) | W(B) | W(B) | W(A) |  |  |

Ans.) Conflicts:

RW - unrepeatable reads: none

WR – dirty reads: 1,2 on A 1,5 on A

WW – lost writes: 0,3 on B 0,4 on B 2,6 on A 5,6 on A

Is conflict serializable? No

**Q3**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 | W(A) | R(A) |  | R(B) |  |  |  |  |
| T2 |  |  | R(B) |  | R(B) | W(A) | R(A) |  |

Ans.) Conflicts:

RW - unrepeatable reads: none

WR – dirty reads: 0,6 on A 1,5 on A

WW – lost writes: 0,5 on A

Is conflict serializable? Yes

Equivalent serial schedule: T1, T2

**Q4**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 |  | R(A) | R(A) | R(A) |  |  |  |  |
| T2 | R(A) |  |  |  | W(A) | R(A) | W(A) |  |

Ans.) Conflicts:

RW - unrepeatable reads: none

WR – dirty reads: 1,4 on A 1,6 on A 2,4 on A 2,6 on A 3,4 on A 3,6 on A

WW – lost writes: none

Is conflict serializable? Yes

Equivalent serial schedule: T1, T2

**Q5**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 | W(B) | R(A) |  | R(A) |  |  |  |  |
| T2 |  |  | W(A) |  | R(A) | R(A) |  |  |

Ans.) Conflicts:

RW - unrepeatable reads: 1,2,3 on A

WR – dirty reads: 1,2 on A 2,3 on A

WW – lost writes: none

Is conflict serializable? No

**Q6**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 | R(A) |  | W(A) | R(A) | W(B) |  |  |  |
| T2 |  | W(A) |  |  |  | W(B) | R(A) |  |

Ans.) Conflicts:

RW - unrepeatable reads: 0,1,3 on A

WR – dirty reads: 0,1 on A 1,3 on As 2,6 on A

WW – lost writes: 1,2 on A 4,5 on B

Is conflict serializable? No

**Q7**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 | W(A) | R(B) | W(A) |  |  |  |  |  |
| T2 |  |  |  | W(A) | R(A) | W(A) |  |  |

Ans.) Conflicts:

RW - unrepeatable reads: none

WR – dirty reads: 0,4 on A 2,4 on A

WW – lost writes: 0,3 on A 0,5 on A 2,3 on A 2,5 on A

Is conflict serializable? Yes

Equivalent serial schedule: T1, T2

**Q8**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| T1 |  | R(B) |  |  | W(A) |  | R(B) | W(A) |
| T2 | R(B) |  | W(B) | W(B) |  | W(A) |  |  |

Ans.) Conflicts:

RW - unrepeatable reads: 1,2,6 on B 1,3,6 on B

WR – dirty reads: 1,2 on B 1,3 on B 2,6 on B 3,6 on B

WW – lost writes: 4,5 on A 5,7 on A

Is conflict serializable? No