CSE411 SUM2024

Some Sample Questions on Transactions

Q1: Explain serializability with an example.

Q2. Find possible serial schedule by swapping of instructions

Schedule 1

|  |  |
| --- | --- |
| T1 | T2 |
| READ(P) |  |
|  | WRITE(Q) |
| READ(Q) |  |
|  | WRITE(R) |
| WRITE(Q) |  |
| WRITE(R) |  |

Schedule 2

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| READ(A) |  |  |
|  | READ(A) |  |
| READ(B) |  |  |
|  | READ(B) |  |
|  |  | WRITE (D) |

Schedule 3

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| READ(P) |  |  |
|  | WRITE(Q) |  |
|  | WRITE(R) |  |
| READ(Q) |  |  |
| WRITE(Q) |  |  |
|  |  | READ(R) |
| WRITE(R) |  |  |

Schedule 4

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| READ(P) |  |  |
|  | WRITE(P) |  |
|  | WRITE(R) |  |
| READ(Q) |  |  |
| WRITE(Q) |  |  |
|  |  | READ(R) |
| WRITE(R) |  |  |

Q2: Explain ACID properties

Q3: Explain transaction states.

Q4: Explain conflict serializability using an example of a schedule of two transactions T1 and T2 with different combinations of READ and WRITE on accounts A and B.

Q5: Draw precedence graph and prove that whether the schedule is conflict serializable or not. If serializable, find the equivalent serial schedule

Schedule 1

|  |  |
| --- | --- |
| T1 | T2 |
| READ(P) |  |
|  | READ(Q) |
| READ(Q) |  |
|  | WRITE(P) |
| WRITE(Q) |  |
| WRITE(R) |  |

Schedule 2

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| READ(A) |  |  |
|  | READ(A) |  |
| READ(B) |  |  |
|  | READ(B) |  |
|  |  | WRITE (D) |

Schedule 3

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| READ(P) |  |  |
|  | WRITE(P) |  |
|  | WRITE(R) |  |
| READ(Q) |  |  |
| WRITE(Q) |  |  |
|  |  | READ(R) |
| WRITE(R) |  |  |

Schedule 4

|  |  |  |
| --- | --- | --- |
| T1 | T2 | T3 |
| READ(P) |  |  |
|  | WRITE(P) |  |
|  | WRITE(R) |  |
| READ(Q) |  |  |
| WRITE(Q) |  |  |
|  |  | READ(R) |
| WRITE(R) |  |  |