The following table shows the schedule for transactions T1 and T2 with T1 having an “older” time-stamp than T2.

|  |  |
| --- | --- |
| T1 | T2 |
| Read(a) |  |
|  | Read(a) |
| Write(a) |  |
|  | Write(a) |

(1) Add lock and unlock operations to the schedule if Conservative 2PL is adopted. (Show the mode of the lock operation and also include the lock operations that are unsuccessful.)

*Enter your answer using a two-column table.*

*(2)*Add lock and unlock operations to the schedule if Strict 2PL is adopted. (Show the mode of the lock operation and also include the lock operations that are unsuccessful.)

*Enter your answer using a two-column table.*

Your Answer:

|  |  |
| --- | --- |
| T1 | T2 |
| ReadLock(a), WriteLock(a) |  |
| Read(a) |  |
|  | Read(a) Blocked |
| Write(a) |  |
| ReleaseLock(a) |  |
|  | ReadLock(a), WriteLock(a) |
|  | Read(a) |
|  | Write(a) |
|  | Release |

|  |  |
| --- | --- |
| T1 | T2 |
| ReadLock(a) |  |
| Read(a) |  |
| ReleaseLock(a) |  |
|  | ReadLock(a) |
|  | Read(a) |
|  | ReleaseLock(a) |
| WriteLock(a) |  |
| Write(a) |  |
| ReleaseLock(a) |  |
|  | WriteLock(a) |
|  | Write(a) |
|  | ReleaseLock(a) |
|  |  |

(1)

|  |  |
| --- | --- |
| T1 | T2 |
| WriteLock(a) success |  |
| Read(a) |  |
|  | WriteLock(a) reject blocked |
| Write(a) |  |
| commit |  |
| Unlock(a) |  |
|  | WriteLock(a) success |
|  | Read(a) |
|  | Write(a) |
|  | commit |
|  | Unlock(a) |

(2)

|  |  |
| --- | --- |
| T1 | T2 |
| ReadLock(a) success |  |
| Read(a) |  |
|  | ReadLock(a) success |
|  | Read(a) |
| WriteLock(a) reject blocked |  |
|  | WriteLock(a) reject blocked |