数据库技术 作业11

***Steven***

**9.**

(1) 最终结果有可能有2、4、8、16。执行顺序与结果如下表

|  |  |
| --- | --- |
| 执行顺序 | A的结果 |
|  | 16 |
|  | 8 |
|  | 4 |
|  | 2 |
|  | 4 |
|  | 2 |

(2)

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Slock A |  |  |
| Y=A=0 |  |  |
| Unlock A Xlock A |  |  |
|  | Slock A |  |
| A=Y+2 | 等待 |  |
| 写回A(=2) | 等待 |  |
| Unlock A | 等待 |  |
|  | Y=A=2 |  |
|  | Unlock A |  |
|  | Xlock A |  |
|  |  | Slock A |
|  | A=Y\*2 | 等待 |
|  | 写回A(=4) | 等待 |
|  | Unlock A | 等待 |
|  |  | Y=A=4 |
|  |  | Unlock A |
|  |  | Xlock A |
|  |  | A=Y\*Y |
|  |  | 写回A(=16) |
|  |  | Unlock A |

最后结果A为16，是可串行化的调度

(3)

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Slock A |  |  |
| Y=A=0 |  |  |
| Unlock A |  |  |
|  | Slock A |  |
|  | Y=A=0 |  |
| Xlock A |  |  |
| 等待 | Unlock A |  |
| A=Y+2 |  |  |
| 写回A(=2) |  | Slock A |
| Unlock A |  | 等待 |
|  |  | Y=A=2 |
|  |  | Unlock A |
|  |  | Xlock A |
|  | Xlock A |  |
|  | 等待 | Y=Y\*\*2 |
|  | 等待 | 写回A(=4) |
|  | 等待 | Unlock A |
|  | A=Y\*2 |  |
|  | 写回A(=0) |  |
|  | Unlock A |  |

最后结果A为0，为非串行化的调度

(4)

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Slock A |  |  |
| Y=A=0 |  |  |
| Xlock A |  |  |
| A=Y+2 | Slock A |  |
| 写回A(=2) | 等待 |  |
| Unlock A | 等待 |  |
|  | Y=A=2 |  |
|  | Xlock A |  |
| Unlock A | 等待 | Slock A |
|  | A=Y\*2 | 等待 |
|  | 写回A(=4) | 等待 |
|  | Unlock A | 等待 |
|  |  | Y=A=4 |
|  | Unlock A |  |
|  |  | Xlock A |
|  |  | A=Y\*\*2 |
|  |  | 写回A(=16) |
|  |  | Unlock A |
|  |  | Unlock A |

(5)

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Slock A |  |  |
| Y=A=0 |  |  |
|  | Slock A |  |
| A=Y+2 | Y=A=0 |  |
| Xlock A |  |  |
| 等待 |  |  |
|  | Xlock A |  |
|  | 等待 |  |
|  |  | Slock A |
|  |  | Y=A=0 |
|  |  | Xlock A |
|  |  | 等待 |

**10.**

，交换和，得到。

再交换和，得到。

由于Sc2是串行的，且两次交换都是基于不冲突操作的，所以Sc1是冲突可串行化的调度。

**12.**

|  |  |
| --- | --- |
|  |  |
| Slock B |  |
| 读B=2 |  |
| Y=B |  |
| Unlock B |  |
| Xlock A |  |
|  | Slock A |
|  | 等待 |
| A=Y+1 | 等待 |
| 写回A=3 | 等待 |
| Unlock A | 等待 |
|  | Slock A |
|  | 读A=3 |
|  | X=A |
|  | Unlock A |
|  | Xlock B |
|  | B=X+1 |
|  | 写回B=4 |
|  | Unlock B |