

COMP9315 Sample Exam, Q8 Sample Solution

(a)

Critical point: no U precedes an L

T1: Lw(X) R(X) Lw(Y) R(Y) W(X) W(Y) U(Y) U(X)
 T2: Lw(X) W(X) Lr(Y) R(Y) U(Y) U(X)
 T3: Lw(Y) R(Y) Lr(X) R(X) W(Y) U(X) U(Y)

(b)

Many different orders are possible.

Critical point: consistent with locks from (a)

T1: Lw(X) R(X) Lw(Y) R(Y) W(X) W(Y) (cont)
 T2: Lw(X) (cont)
 T3: Lw(Y) (cont)

T1: U(Y) U(X) <end>
 T2:W(X) (cont)
 T3:R(Y) Lr(X) R(X) W(Y) U(X) (cont)

T1: <finished>
 T2: Lr(Y)....R(Y) U(Y) U(X) <end>
 T3: U(Y) <end>

(c)

Critical point: some U precedes an L

T1: Lw(X) R(X) Lw(Y) R(Y) W(X) W(Y) U(Y) U(X)
 T2: Lw(X) W(X) U(X) Lr(Y) R(Y) U(Y)
 T3: Lw(Y) R(Y) Lr(X) R(X) U(X) W(Y) U(Y)

(d)

Many different orders are possible.

Critical point: consistent with locks from (c)

T1: Lw(X) R(X) Lw(Y) R(Y) W(X) W(Y) (cont)
 T2: Lw(X) (cont)
 T3: Lw(Y) (cont)

T1: U(Y) U(X) <end>
 T2:W(X) (cont)
 T3:R(Y) Lr(X) R(X) U(X) W(Y) (cont)

T1: <finished>

T2: U(X) Lr(Y).....R(Y) U(Y) <end>

T3: U(Y) <end>