

Solution 3

Wangzhihui Mei
2019124044 6603385

Task 3

The isolation level of the procedure INSERT_ORDER Should be set as **SERIALIZABLE**.

T1	T2
INSERT INTO ORDERS VALUES(63, 1023, 78, ...);	
	INSERT INTO ORDERS VALUES(64, 1023, 83, ...);
SELECT TOTAL_ORDERS INTO total FROM CUSTOMER WHERE CUSTOMER.CUSTOMER_CODE = 1023;	
15	
	SELECT TOTAL_ORDERS INTO total FROM CUSTOMER WHERE CUSTOMER.CUSTOMER_CODE = 1023;
	15
total = 16;	
	total=16;
UPDATE CUSTOMER SET TOTAL_ORDERS = total WHERE CUSTOMER.CUSTOMER_CODE = 16;	
	UPDATE CUSTOMER SET TOTAL_ORDERS = total WHERE CUSTOMER.CUSTOMER_CODE = 16;
COMMIT;	

We can see from the concurrent transactions T_1 and T_2 , The total orders maybe set as 16 which should be 17. The Serializable level prevent this by commit transactions serializably, so the next transaction can read the latest total order number.