

IT3223 – Advanced Database Management Systems

Lab 08: SQL Transactions – Exercise Sheet

Task 1: Transactional Batch Operation

Create a table called ORDERS with the following structure:

```
CREATE TABLE ORDERS (  
    ORDER_ID INT PRIMARY KEY,  
    CUSTOMER_NAME VARCHAR(50),  
    PRODUCT_NAME VARCHAR(50),  
    QUANTITY INT,  
    PRICE DECIMAL(10,2)  
);
```

Insert the following records within a transaction:

```
(101, 'John', 'Mouse', 2, 500.00)  
(102, 'Emily', 'Keyboard', 1, 1500.00)  
(103, 'Raj', 'Monitor', 1, 7500.00)  
(104, 'Ali', 'Laptop', 1, 55000.00)
```

After insertion, use COMMIT to save the transaction.

Verify with: SELECT * FROM ORDERS;

Task 2: Mistaken Deletion and Recovery

Start a transaction and delete orders where PRICE > 5000. However, suppose this was a mistake. Use ROLLBACK to undo the deletion.

Display the table again and verify the records are intact.

Task 3: Using Savepoints in Complex Updates

You are asked to reduce the price of all products as part of a clearance sale:

1. Start a transaction.
2. Create a SAVEPOINT before each update:
 - Reduce price of all items by 10%.

- Further reduce price of products with QUANTITY = 1 by an additional 5%.
- 3. After executing all updates, realize the second reduction was too much.
- 4. Use ROLLBACK TO SAVEPOINT to undo only the second change.
- 5. Use COMMIT to finalize the first update.

Show the final result of the ORDERS table.

Task 4: Read-Only Transaction Check

Try the following using SET TRANSACTION READ ONLY:

1. Start a read-only transaction.
2. Attempt to DELETE or UPDATE a record from ORDERS.
3. Observe and explain the result.
4. End the transaction.