

# **Oracle Academy**

## **Database Programming with SQL**

### **Instructor Resource Guide**

#### **Notes From PowerPoint Slides:**

#### **SECTION 14 LESSON 1 – Database Transactions**

##### **Slide 1: Database Transactions**

###### **What to Watch For**

Students may not remember which statements are DML, DDL, DCL. Relate the names to the processes such as:

DDL - defines a table and changes to the table

DML - manipulates the data in a table

DCL - controls who can use the table

##### **Slide 2: What Will I Learn?**

Oracle Application Express does not allow ROLLBACKS and SAVEPOINTS, and implements an automatic COMMIT. Any time you send a transaction across Oracle Application Express, an implicit COMMIT happens. Because the COMMIT happens, there is no way for a ROLLBACK occur. The connection from HTTP is not a persistent connection to the database. Therefore, there is no concept of doing COMMIT or ROLLBACK of DML statements. Students can learn about COMMIT and ROLLBACK concepts in this class, but using Oracle Application Express to demonstrate a ROLLBACK, COMMIT, or SAVEPOINT is not an option.

##### **Slide 3: Why Learn It?**

**No instructor notes for this slide**

##### **Slide 4: Tell Me / Show Me – TRANSACTIONS**

**No instructor notes for this slide**

##### **Slide 5: Tell Me / Show Me – TRANSACTION ANALOGY**

**No instructor notes for this slide**

##### **Slide 6: Tell Me / Show Me – TRANSACTIONS**

**No instructor notes for this slide**

##### **Slide 7: Tell Me / Show Me – Transactions (continued)**

Explain the graphic to students. Ask them for reasons the user might want to rollback this statement. Possible responses include: User may have made a mistake, a more current cd was purchased.

##### **Slide 8: Tell Me / Show Me – When does a transaction start or end?**

iSQL\*plus and SQL\*plus are tools used to access the Oracle database.

##### **Slide 9: Tell Me / Show Me – DATA CONSISTENCY**

**No instructor notes for this slide**

**Slide 10: Tell Me / Show Me – Read consistency is an automatic**

When you commit a transaction, the Oracle server releases the rollback information but does not immediately destroy it. The information remains in the undo segment to create read-consistent views of relevant data for queries that started before the transaction committed.

**Slide 11: Tell Me / Show Me – When a DML statement is committed**

**No instructor notes for this slide**

**Slide 12: Tell Me / Show Me – COMMIT, ROLLBACK AND SAVEPOINT**

**No instructor notes for this slide**

**Slide 13: Tell Me / Show Me – COMMIT, ROLLBACK AND SAVEPOINT (continued) In the transaction shown in the graphic...**

SAVEPOINTS are not schema objects and cannot be referenced in the data dictionary. When a transaction completes (by COMMIT or ROLLBACK) all SAVEPOINTS defined within the transaction are lost.

**Slide 14: Tell Me / Show Me – COMMIT, ROLLBACK AND SAVEPOINT (continued) In the example, following SAVEPOINT A...**

**No instructor notes for this slide**

**Slide 15: Tell Me / Show Me – COMMIT, ROLLBACK AND SAVEPOINT (continued)**

**Adding other SAVEPOINTS creates additional markers...**

**No instructor notes for this slide**

**Slide 16: Tell Me / Show Me – IMPLICIT TRANSACTION PROCESSING**

**No instructor notes for this slide**

**Slide 17: Tell Me / Show Me – LOCKING**

**No instructor notes for this slide**

**Slide 18: Tell Me / Show Me – How the Oracle Database Locks Data**

The last point means that all locks are released at the end of the transaction.

**Slide 19: Tell Me / Show Me - Terminology**

Rollback-Enables the user to discard changes made to the database

Transaction-a collection of DML statements that form a logical unit of work.

Read consistency-guarantees a consistent view of the data by all users at all times

Commit-Ends the current transaction by discarding all pending data changes

Savepoint-Creates a marker in a transaction, which divides the transaction into smaller pieces

Locks-Mechanisms that prevent destructive interaction between transactions accessing the same resource that can be granted to the user

**Slide 20: Summary – In this lesson you have learned to:**

**No instructor notes for this slide**

**Slide 21: Summary - Practice Guide**

**No instructor notes for this slide**

## **SECTION 14 LESSON 2 – Certification Exam Preparation and iSQL \*Plus**

### **Slide 1: Certification Exam Preparation and iSQL \*Plus Lesson Preparation**

Becoming an Oracle Certified Professional (OCP) provides opportunities for students to compete in an intensely competitive marketplace. This credential is a sign of a proven performer. This section is designed to help instructors prepare students to take the Oracle Certified Professional Exam, "Introduction to Oracle 9i SQL Exam #1Z0-007."

As a member of the Oracle Academy, students are provided the opportunity to take the exam. All students receive a 40% discount on the cost of the exam. This is part of your school's membership in the Oracle Academy program.

The OCP exam has a higher level of difficulty than the Academy SQL Final Exam. Therefore, good candidates for the certification exam are those who have passed the Academy Database Programming Final Exam and are ready to take the extra steps necessary.

### **Slide 2: What Will I Learn?**

**No instructor notes for this slide**

### **Slide 3: Why Learn It?**

**No instructor notes for this slide**

### **Slide 4: Tell Me / Show Me – Oracle Certified Professional**

**No instructor notes for this slide**

### **Slide 5: Tell Me / Show Me – Basic and Mastery Sections**

**No instructor notes for this slide**

### **Slide 6: Tell Me / Show Me – OCR Exam Passing Scores**

**No instructor notes for this slide**

### **Slide 7: Tell Me / Show Me – HINTS FOR TAKING THE EXAM**

**No instructor notes for this slide**

### **Slide 8: Tell Me / Show Me – Producing Readable Output with iSQL \*Plus**

**No instructor notes for this slide**

### **Slide 9: Tell Me / Show Me – Producing Readable Output with iSQL \*Plus (continued)**

**No instructor notes for this slide**

### **Slide 10: Tell Me / Show Me – Defining Substitution Variables**

**No instructor notes for this slide**

### **Slide 11: Tell Me / Show Me – Using the DEFINE command**

**No instructor notes for this slide**

### **Slide 12: Tell Me / Show Me – Defining Substitution Variables**

**No instructor notes for this slide**

### **Slide 13: Tell Me / Show Me – Defining Substitution Variables (continued)**

**No instructor notes for this slide**

**Slide 14: Tell Me / Show Me – Customizing the iSQL \*Plus Environment**  
**No instructor notes for this slide**

**Slide 15: Tell Me / Show Me – Format Commands**  
**No instructor notes for this slide**

**Slide 16: Tell Me / Show Me – Format Commands – cont.**  
**No instructor notes for this slide**

**Slide 17: Summary – In this lesson you have learned to:**  
**No instructor notes for this slide**

**Slide 18: Summary - Practice Guide**  
**No instructor notes for this slide**

## Notes For Practice Activities:

### Database Transactions S14 L01

#### *Try It / Solve It*

1. COMMIT – changes written to database  
ROLLBACK – undoes changes that have not been committed to the database  
SAVEPOINT – a marker in a transaction, which breaks the transaction into smaller parts.
2. Only (5,6) and (11,12) are committed.
3. SAVEPOINT one ;  
DELETE FROM d\_songs  
WHERE title = 'All These Years' ;  
INSERT INTO D\_SONGS(id, title, duration, artist, type\_code)  
VALUES(60, 'Happy Birthday Sunshine', '4 min', 'The Sunsets', 88);
4. Any DDL or DCL statement or if the system fails.
5. Grocery stores and department stores constantly make updates to items in inventory. They also delete items that don't sell and add new items. These processes require many DML statements. It would be essential for the database entry personnel to be able to quickly correct mistakes or to be able to withdraw entries if merchandise was not available as anticipated.  
Online businesses such as EBay use a delayed pay system to guarantee buyer satisfaction before payments are made. With millions of transactions, it would be essential to be able to control each transaction.

### Certification Exam Prep & iSQL\*Plus S14 L02

#### *Try It / Solve It*

- a. Substitution variables are used to prompt the user for values to be used in a SQL statement.
- b. In iSQL\*Plus, you can use single ampersand (&) substitution variables to temporarily store values. You can use the double-ampersand (&&) substitution variable if you want to reuse the variable value without prompting the user each time.
- c. In iSQL\*Plus, you can use single ampersand (&) substitution variables to temporarily store values. You can use the double-ampersand (&&) substitution variable if you want to reuse the variable value without prompting the user each time. You can predefine user variables before executing a SELECT statement. iSQL\*Plus provides the DEFINE command for defining and setting substitution variables.
- d. If the variable is created using the iSQL\*Plus DEFINE command, the user is not prompted to enter a value for the variable. Instead, the defined variable value is automatically substituted in the SELECT statement.

When iSQL\*Plus detects that the SQL statement contains an &, the user is prompted to enter a value for the substitution variable named in the SQL statement. Once the value has been entered and the Submit for Execution button has been clicked, the results are displayed in the output area of the iSQL\*Plus session.

You can use the double-ampersand (&&) substitution variable if you want to reuse the variable value without prompting the user each time. The user will see the prompt for the value only once.

e. Answers will vary:

```
SELECT employee_id, last_name, job_id, &&column_name
FROM employees
ORDER BY &column_name;
```

f. See Student Content Tell Me / Show Me for list.

g. Answers will vary.

```
COLUMN salary FORMAT $99,999.00
COLUMN manager FORMAT 999999 NULL 'No Manager'
COLUMN sal HEADING 'Salary'
```

h. Use the BREAK command to divide rows into sections and suppress duplicate values. To ensure that the BREAK command works effectively, use the ORDER BY clause to order the columns that you are breaking on.

Syntax

```
BREAK on column[|alias|row]
```

i. You can control the environment in which iSQL\*Plus is currently operating by using the SET and SHOW commands. See the list of commands in the Student Content Tell Me / Show Me section.

j. Answers will vary. See Graphic in Tell Me / Show Me section.

k. Oracle Application Express can format the output column headings, currency and date displays and use concatenate. The output is in the Oracle Application Express format. Using iSQL\*Plus formatting it is possible to format the display other than the Oracle Application Express default returned format.