

# 14

## SQL Workshop

## Workshop Overview

**This workshop covers:**

- **Creating tables and sequences**
- **Modifying data in the tables**
- **Modifying table definitions**
- **Creating views**
- **Writing scripts containing SQL and SQL\*Plus commands**
- **Generating a simple report**

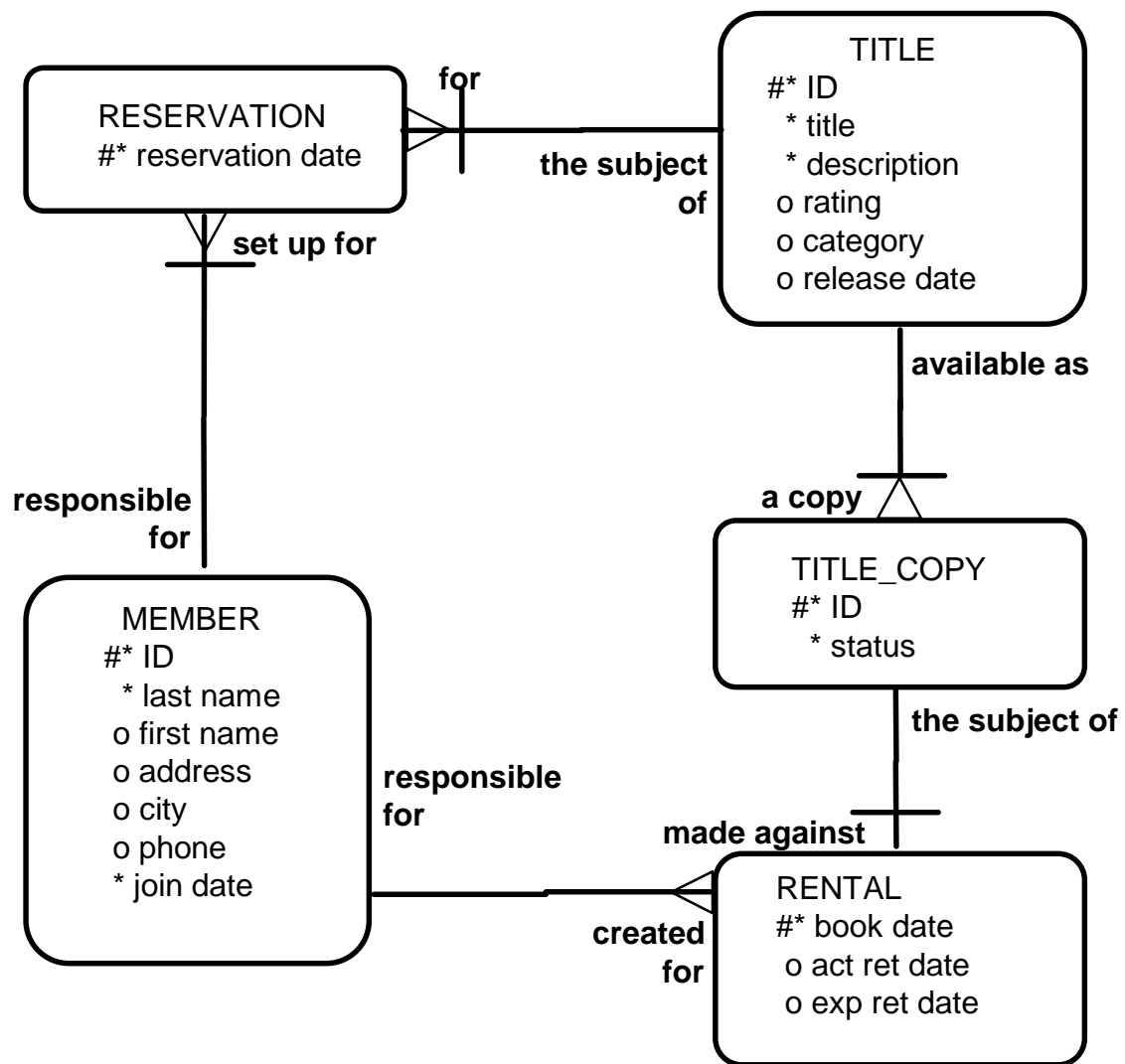
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### Workshop Overview

In this workshop you build a set of database tables for a video application. After you create the tables, you insert, update, and delete records in a video store database and generate a report. The database contains only the essential tables.

**Note:** If you want to build the tables, you can execute the commands in the `buildtab.sql` script in *Oracle SQL Developer*. If you want to drop the tables, you can execute the commands in `dropvid.sql` script in *Oracle SQL Developer*. Then you can execute the commands in `buildvid.sql` script in *Oracle SQL Developer* to create and populate the tables. If you use the `buildvid.sql` script to build and populate the tables, start with step 6b.

## Video Application Entity Relationship Diagram



## Practice 14

1. Create the tables based on the following table instance charts. Choose the appropriate data types and be sure to add integrity constraints.

a. Table name: MEMBER

Column_ Name	MEMBER_ ID	LAST_ NAME	FIRST_ NAME	ADDRESS	CITY	PHONE	JOIN DATE
Key Type	PK						
Null/ Unique	NN,U	NN					NN
Default Value							System Date
Data Type	NUMBER	VARCHAR2	VARCHAR2	VARCHAR2	VARCHAR2	VARCHAR2	DATE
Length	10	25	25	100	30	15	

b. Table name: TITLE

Column_ Name	TITLE_ID	TITLE	DESCRIPTION	RATING	CATEGORY	RELEASE_ DATE
Key Type	PK					
Null/ Unique	NN,U	NN	NN			
Check				G, PG, R, NC17, NR	DRAMA, COMEDY, ACTION, CHILD, SCIFI, DOCUMENTARY	
Data Type	NUMBER	VARCHAR2	VARCHAR2	VARCHAR2	VARCHAR2	DATE
Length	10	60	400	4	20	

### Practice 14 (continued)

c. Table name: TITLE\_COPY

<b>Column Name</b>	COPY_ID	TITLE_ID	STATUS
<b>Key Type</b>	PK	PK,FK	
<b>Null/Unique</b>	NN,U	NN,U	NN
<b>Check</b>			AVAILABLE, DESTROYED, RENTED, RESERVED
<b>FK Ref Table</b>		TITLE	
<b>FK Ref Col</b>		TITLE_ID	
<b>Data Type</b>	NUMBER	NUMBER	VARCHAR2
<b>Length</b>	10	10	15

d. Table name: RENTAL

<b>Column Name</b>	BOOK_DATE	MEMBER_ID	COPY_ID	ACT_RET_DATE	EXP_RET_DATE	TITLE_ID
<b>Key Type</b>	PK	PK,FK1	PK,FK2			PK,FK2
<b>Default Value</b>	System Date				System Date + 2 days	
<b>FK Ref Table</b>		MEMBER	TITLE_COPY			TITLE_COPY
<b>FK Ref Col</b>		MEMBER_ID	COPY_ID			TITLE_ID
<b>Data Type</b>	DATE	NUMBER	NUMBER	DATE	DATE	NUMBER
<b>Length</b>		10	10			10

## Practice 14 (continued)

e. Table name: RESERVATION

Column Name	RES_ DATE	MEMBER_ ID	TITLE_ ID
Key Type	PK	PK,FK1	PK,FK2
Null/Unique	NN,U	NN,U	NN
FK Ref Table		MEMBER	TITLE
FK Ref Column		MEMBER_ID	TITLE_ID
Data Type	DATE	NUMBER	NUMBER
Length		10	10

- Verify that the tables and constraints were created properly by checking the data dictionary.

TABLE_NAME
MEMBER
RENTAL
RESERVATION
TITLE
TITLE_COPY

CONSTRAINT_NAME	C	TABLE_NAME
MEMBER_LAST_NAME_NN	C	MEMBER
MEMBER_JOIN_DATE_NN	C	MEMBER
MEMBER_MEMBER_ID_PK	P	MEMBER
RENTAL_BOOK_DATE_COPY_TITLE_PK	P	RENTAL
RENTAL_MEMBER_ID_FK	R	RENTAL
RENTAL_COPY_ID_TITLE_ID_FK	R	RENTAL
RESERVATION_RESDATE_MEM_TIT_PK	P	RESERVATION
RESERVATION MEMBER ID	R	RESERVATION
TITLE_COPY_COPY_ID_TITLE_ID_PK	P	TITLE_COPY

18 rows selected.

### Practice 14 (continued)

3. Create sequences to uniquely identify each row in the `MEMBER` table and the `TITLE` table.
  - a. Member number for the `MEMBER` table: Start with 101; do not allow caching of the values. Name the sequence `MEMBER_ID_SEQ`.
  - b. Title number for the `TITLE` table: Start with 92; no caching. Name the sequence `TITLE_ID_SEQ`.
  - c. Verify the existence of the sequences in the data dictionary.

SEQUENCE_NAME
MEMBER_ID_SEQ
TITLE_ID_SEQ

4. Add data to the tables. Create a script for each set of data to add.
  - a. Add movie titles to the `TITLE` table. Write a script to enter the movie information. Save the statements in a script named `lab14_4a.sql`. Use the sequences to uniquely identify each title. Enter the release dates in the `DD-MON-YYYY` format. Remember that single quotation marks in a character field must be specially handled. Verify your additions.

TITLE
Willie and Christmas Too
Alien Again
The Glob
My Day Off
Miracles on Ice
Soda Gang

6 rows selected.

**Practice 14 (continued)**

<b>Title</b>	<b>Description</b>	<b>Rating</b>	<b>Category</b>	<b>Release_date</b>
Willie and Christmas Too	All of Willie's friends make a Christmas list for Santa, but Willie has yet to add his own wish list.	G	CHILD	05-OCT-1995
Alien Again	Yet another installation of science fiction history. Can the heroine save the planet from the alien life form?	R	SCIFI	19-MAY-1995
The Glob	A meteor crashes near a small American town and unleashes carnivorous goo in this classic.	NR	SCIFI	12-AUG-1995
My Day Off	With a little luck and a lot of ingenuity, a teenager skips school for a day in New York	PG	COMEDY	12-JUL-1995
Miracles on Ice	A six-year-old has doubts about Santa Claus, but she discovers that miracles really do exist.	PG	DRAMA	12-SEP-1995
Soda Gang	After discovering a cache of drugs, a young couple find themselves pitted against a vicious gang.	NR	ACTION	01-JUN-1995



### Practice 14 (continued)

- b. Add data to the `MEMBER` table. Place the insert statements in a script named `lab14_4b.sql`. Execute commands in the script. Be sure to use the sequence to add the member numbers.

<b>First_Name</b>	<b>Last_Name</b>	<b>Address</b>	<b>City</b>	<b>Phone</b>	<b>Join_Date</b>
Carmen	Velasquez	283 King Street	Seattle	206-899-6666	08-MAR-1990
LaDoris	Ngao	5 Modrany	Bratislava	586-355-8882	08-MAR-1990
Midori	Nagayama	68 Via Centrale	Sao Paolo	254-852-5764	17-JUN-1991
Mark	Quick-to-See	6921 King Way	Lagos	63-559-7777	07-APR-1990
Audry	Ropeburn	86 Chu Street	Hong Kong	41-559-87	18-JAN-1991
Molly	Urguhart	3035 Laurier	Quebec	418-542-9988	18-JAN-1991

**Practice 14 (continued)**

- c. Add the following movie copies in the `TITLE_COPY` table:

**Note:** Have the `TITLE_ID` numbers available for this exercise.

<b>Title</b>	<b>Copy_Id</b>	<b>Status</b>
Willie and Christmas Too	1	AVAILABLE
Alien Again	1	AVAILABLE
	2	RENTED
The Glob	1	AVAILABLE
My Day Off	1	AVAILABLE
	2	AVAILABLE
	3	RENTED
Miracles on Ice	1	AVAILABLE
Soda Gang	1	AVAILABLE

- d. Add the following rentals to the `RENTAL` table:

**Note:** Title number may be different depending on sequence number.

<b>Title_ Id</b>	<b>Copy_ Id</b>	<b>Member_ Id</b>	<b>Book_date</b>	<b>Exp_Ret_Date</b>	<b>Act_Ret_Date</b>
92	1	101	3 days ago	1 day ago	2 days ago
93	2	101	1 day ago	1 day from now	
95	3	102	2 days ago	Today	
97	1	106	4 days ago	2 days ago	2 days ago

### Practice 14 (continued)

5. Create a view named `TITLE_AVAIL` to show the movie titles and the availability of each copy and its expected return date if rented. Query all rows from the view. Order the results by title.

**Note:** Your results may be different.

TITLE	COPY_ID	STATUS	EXP_RET_D
Alien Again	1	AVAILABLE	
Alien Again	2	RENTED	15-MAR-01
Miracles on Ice	1	AVAILABLE	
My Day Off	1	AVAILABLE	
My Day Off	2	AVAILABLE	
My Day Off	3	RENTED	16-MAR-01
Soda Gang	1	AVAILABLE	14-MAR-01
The Glob	1	AVAILABLE	
Willie and Christmas Too	1	AVAILABLE	15-MAR-01

9 rows selected.

6. Make changes to data in the tables.
  - a. Add a new title. The movie is “Interstellar Wars,” which is rated PG and classified as a sci-fi movie. The release date is 07-JUL-77. The description is “Futuristic interstellar action movie. Can the rebels save the humans from the evil empire?” Be sure to add a title copy record for two copies.
  - b. Enter two reservations. One reservation is for Carmen Velasquez, who wants to rent “Interstellar Wars.” The other is for Mark Quick-to-See, who wants to rent “Soda Gang.”

### Practice 14 (continued)

- c. Customer Carmen Velasquez rents the movie “Interstellar Wars,” copy 1. Remove her reservation for the movie. Record the information about the rental. Allow the default value for the expected return date to be used. Verify that the rental was recorded by using the view you created.

**Note:** Your results may be different.

TITLE	COPY_ID	STATUS	EXP_RET_D
Alien Again	1	AVAILABLE	
Alien Again	2	RENTED	15-MAR-01
Interstellar Wars	1	RENTED	18-MAR-01
Interstellar Wars	2	AVAILABLE	
Miracles on Ice	1	AVAILABLE	
My Day Off	1	AVAILABLE	
My Day Off	2	AVAILABLE	
My Day Off	3	RENTED	16-MAR-01
Soda Gang	1	AVAILABLE	14-MAR-01
The Glob	1	AVAILABLE	
Willie and Christmas Too	1	AVAILABLE	15-MAR-01

11 rows selected.

7. Make a modification to one of the tables.
- a. Add a PRICE column to the TITLE table to record the purchase price of the video. The column should have a total length of eight digits and two decimal places. Verify your modifications.

Name	Null?	Type
TITLE_ID	NOT NULL	NUMBER(10)
TITLE	NOT NULL	VARCHAR2(60)
DESCRIPTION	NOT NULL	VARCHAR2(400)
RATING		VARCHAR2(4)
CATEGORY		VARCHAR2(20)
RELEASE_DATE		DATE
PRICE		NUMBER(8,2)

### Practice 14 (continued)

- b. Create a script named `lab14_7b.sql` that contains update statements that update each video with a price according to the following list. Run the commands in the script.

**Note:** Have the `TITLE_ID` numbers available for this exercise.

Title	Price
Willie and Christmas Too	25
Alien Again	35
The Glob	35
My Day Off	35
Miracles on Ice	30
Soda Gang	35
Interstellar Wars	29

- c. Ensure that in the future all titles contain a price value. Verify the constraint.

CONSTRAINT_NAME	C	SEARCH_CONDITION
TITLE_PRICE_NN	C	"PRICE" IS NOT NULL

8. Create a report titled Customer History Report. This report contains each customer's history of renting videos. Be sure to include the customer name, movie rented, dates of the rental, and duration of rentals. Total the number of rentals for all customers for the reporting period. Save the commands that generate the report in a script file named `lab14_8.sql`.

**Note:** Your results may be different.

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Customer History Report

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MEMBER	TITLE	BOOK_DATE	DURATION
Carmen Velasquez	Willie and Christmas Too	13-MAR-01	1
	Alien Again	15-MAR-01	
	Interstellar Wars	16-MAR-01	
LaDoris Ngao	My Day Off	14-MAR-01	
Molly Urguhart	Soda Gang	12-MAR-01	2

