

Section 11 Lesson 1: Creating Views

Try It / Solve It

1. What are three uses for a view from a DBA's perspective?
 - a Views can be used to retrieve data from several tables, providing data independence for users.
 - b Views provide groups of users with access to data according to their particular permissions or criteria.
 - c Views restrict access to base table data because the view can display selective columns from the table.
2. Create a simple view called view_d_songs that contains the ID, title, and artist from the DJs on Demand table for each "New Age" type code. In the subquery, use the alias "Song Title" for the title column.

Rows

Save Run

```
create view view_d_songs
as select id as "ID",
title as "Song Title",
artist as "Artist"
from d_songs
where type_code =
(select code from d_types
where description = 'New Age');
```

Results Explain Describe Saved SQL History

View created.

0.00 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

3. SELECT * FROM view_d_songs. What was returned?

Rows

Save Run

```
select * from view_d_songs;
```

Results Explain Describe Saved SQL History

ID	Song Title	Artist
47	Hurrah for Today	The Jubilant Trio
49	Lets Celebrate	The Celebrants

2 rows returned in 0.01 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

4. REPLACE view_d_songs. Add type_code to the column list. Use aliases for all columns.

Rows

Save Run

```
create or replace view view_d_songs
as select id as "ID",
title as "Song Title",
artist as "Artist",
type_code as "Type Code"
from d_songs
where type_code =
(select code from d_types
where description = 'New Age');
```



Results Explain Describe Saved SQL History

View created.

0.01 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

5. Jason Tsang, the disk jockey for DJs on Demand, needs a list of the past events and those planned for the coming months so he can make arrangements for each event's equipment setup. As the company manager, you do not want him to have access to the price that clients paid for their events. Create a view for Jason to use that displays the name of the event, the event date, and the theme description. Use aliases for each column name.

Rows   Save Run



```
create view view_d_events
as select name as "Event Name",
event_date as "Event Date",
description as "Theme Description"
from d_events;
```

Results Explain Describe Saved SQL History

View created.

0.02 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

Rows   Save Run

```
select *
from view_d_events;
```

Results Explain Describe Saved SQL History

Event Name	Event Date	Theme Description
Peters Graduation	14/May/2004	Party for 200, red, white, blue motif
Vigil wedding	28/Apr/2004	Black tie at Four Season hotel

2 rows returned in 0.01 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

6. It is company policy that only upper-level management be allowed access to individual employee salaries. The department managers, however, need to know the minimum, maximum, and average salaries, grouped by department. Use the Oracle database to prepare a view that displays the needed information for department managers.

Rows
Save Run

```

create or replace view view_employee_salary_info
as select
nvl(to_char(department_id), 'No Dept') as "Dept No",
'$' || to_char(min(salary), '9999999.99') as "Min Salary",
'$' || to_char(max(salary), '9999999.99') as "Max Salary",
'$' || to_char(avg(salary), '9999999.99') as "Avg Salary"
from employees
group by department_id;

```

Results Explain Describe Saved SQL History

View created.

0.01 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

Rows
Save Run

```

select * from view_employee_salary_info;

```

Results Explain Describe Saved SQL History

Dept No	Min Salary	Max Salary	Avg Salary
No Dept	\$ 7000.00	\$ 7000.00	\$ 7000.00
90	\$ 17000.00	\$ 24000.00	\$ 19333.33
20	\$ 6000.00	\$ 13000.00	\$ 9500.00
110	\$ 8300.00	\$ 12000.00	\$ 10150.00
80	\$ 8600.00	\$ 11000.00	\$ 10033.33
50	\$ 2500.00	\$ 5800.00	\$ 3500.00
10	\$ 4400.00	\$ 4400.00	\$ 4400.00
60	\$ 4200.00	\$ 9000.00	\$ 6400.00

8 rows returned in 0.01 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

Section 11 Lesson 2: DML Operations and Views

Try It / Solve It

Use the DESCRIBE statement to verify that you have tables named copy_d_songs, copy_d_events, copy_d_cds, and copy_d_clients in your schema. If you don't, write a query to create a copy of each.

1. Query the data dictionary USER_UPDATABLE_COLUMNS to make sure the columns in the base tables will allow UPDATE, INSERT, or DELETE. Use a SELECT statement or the Browse Data Dictionary feature in HTML DB. All table names in the data dictionary are stored in uppercase.

Rows200

SaveRun

select * from user_updatable_columns where table_name = upper('copy_d_songs') or table_name = upper('copy_d_events') or table_name = upper('copy_d_cds') or table_name = upper('copy_d_clients');

Results

Explain

Describe

Saved SQL

History

OWNER	TABLE_NAME	COLUMN_NAME	UPDATABLE	INSERTABLE	DELETABLE
US_1350_SQL01_S25	COPY_D_CDS	CD_NUMBER	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CDS	TITLE	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CDS	PRODUCER	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CDS	YEAR	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CLIENTS	CLIENT_NUMBER	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CLIENTS	FIRST_NAME	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CLIENTS	LAST_NAME	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CLIENTS	PHONE	YES	YES	YES
US_1350_SQL01_S25	COPY_D_CLIENTS	EMAIL	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	ID	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	NAME	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	EVENT_DATE	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	DESCRIPTION	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	COST	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	VENUE_ID	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	PACKAGE_CODE	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	THEME_CODE	YES	YES	YES
US_1350_SQL01_S25	COPY_D_EVENTS	CLIENT_NUMBER	YES	YES	YES
US_1350_SQL01_S25	COPY_D_SONGS	ID	YES	YES	YES
US_1350_SQL01_S25	COPY_D_SONGS	TITLE	YES	YES	YES
US_1350_SQL01_S25	COPY_D_SONGS	DURATION	YES	YES	YES
US_1350_SQL01_S25	COPY_D_SONGS	ARTIST	YES	YES	YES
US_1350_SQL01_S25	COPY_D_SONGS	TYPE_CODE	YES	YES	YES

23 rows returned in 0.01 seconds

Download

Application Express 4.2.5.00.08

Workspace: US_1350 User: US_1350_SQL01_S25

Language: en | Copyright © 1999, 2014, Oracle. All rights reserved.

2. Use the CREATE or REPLACE option to create a view of *all* the columns in the copy_d_songs table called view_copy_d_songs.

Rows

Save Run

```
create or replace view view_copy_d_songs
as select * from copy_d_songs;
```

Results Explain Describe Saved SQL History


View created.

0.01 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

- Use view_copy_d_songs to INSERT the following data into the underlying copy_d_songs table. Execute a SELECT * from copy_d_songs to verify your DML command. See the graphic.

ID	TITLE	DURATION	ARTIST	TYPE_CODE
88	Mello Jello	2	The What	4

Rows 
Save Run

```
select * from copy_d_songs;
```

Results Explain Describe Saved SQL History

ID	TITLE	DURATION	ARTIST	TYPE_CODE
45	Its Finally Over	5 min	The Hobbits	12
46	Im Going to Miss My Teacher	2 min	Jane Pop	12
47	Hurrah for Today	3 min	The Jubilant Trio	77
48	Meet Me At the Altar	6 min	Bobby West	1
49	Lets Celebrate	8 min	The Celebrants	77
50	All These Years	10 min	Diana Crooner	88
52	surfing summer			12
53	victory victory	5min		12
88	Mello Jello	2	The What	4
52	Surfing Summer	-	-	12

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.01 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

4. Create a view based on the DJs on Demand COPY_D_CDS table. Name the view read_copy_d_cds. Select all columns to be included in the view. Add a WHERE clause to restrict the year to 2000. Add the WITH READ ONLY option.

Rows

Save Run

```
create or replace view read_copy_d_cds
as select *
from copy_d_cds
where year = 2000
with read only;
```

Results Explain Describe Saved SQL History

View created.

0.02 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

5. Using the read_copy_d_cds view, execute a DELETE FROM read_copy_d_cds WHERE cd_number = 90; **Action cannot be performed.**

Rows

Save Run

```
delete from read_copy_d_cds
where cd_number = 90;
```

Results Explain Describe Saved SQL History



ORA-42399: cannot perform a DML operation on a read-only view

0.00 seconds

Application Express 4.2.5.00.08

Workspace: US_1350 User: US_1350_SQL01_S25 Language: en | Copyright © 1999, 2014, Oracle. All rights reserved.

6. Use REPLACE to modify read_copy_d_cds. Replace the READ ONLY option with WITH CHECK OPTION CONSTRAINT ck_read_copy_d_cds. Execute a SELECT * statement to verify that the view exists.

Rows  

Save Run


```
create or replace view read_copy_d_cds
as select *
from copy_d_cds
where year = 2000
with check option constraint ck_read_copy_d_cds;
```

Results Explain Describe Saved SQL History

View created.

0.01 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

Rows  

Save Run

```
select * from read_copy_d_cds;
```


Results Explain Describe Saved SQL History

CD_NUMBER	TITLE	PRODUCER	YEAR
91	Party Music for All Occasions	The Music Man	2000
94	Carpe Diem	R & B Inc.	2000

2 rows returned in 0.01 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

7. Use the read_copy_d_cds view to delete any CD of year 2000 from the underlying copy_d_cds.

Rows  Save Run

```
delete from copy_d_cds
where year in
(select year from read_copy_d_cds);
```

[Results](#) [Explain](#) [Describe](#) [Saved SQL](#) [History](#)

2 row(s) deleted.

0.00 seconds



Workspace: US_1350 User: US_1350_SQL01_S25

8. Use the read_copy_d_cds view to delete cd_number 90 from the underlying copy_d_cds table.

Rows	100	Save	Run
<pre>create or replace view read_copy_d_cds as select * from copy_d_cds where cd_number = 90 with check option constraint ck_read_copy_d_cds;</pre>			
Results Explain Describe Saved SQL History			
View created.			
0.01 seconds			
Workspace: US_1350 User: US_1350_SQL01_S25			

Rows	100	Save	Run
<pre>delete from copy_d_cds where cd_number in (select cd_number from read_copy_d_cds);</pre>			
Results Explain Describe Saved SQL History			
1 row(s) deleted.			
0.01 seconds			
Workspace: US_1350 User: US_1350_SQL01_S25			

9. Use the read_copy_d_cds view to delete year 2001 records.

Rows   Save Run



```
delete from copy_d_cds
where year in
(select year from read_copy_d_cds);
```

Results Explain Describe Saved SQL History

1 row(s) deleted.

0.00 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

Rows   Save Run

```
create or replace view read_copy_d_cds
as select *
from copy_d_cds
where year = 2001
with check option constraint ck_read_copy_d_cds;
```

Results Explain Describe Saved SQL History

View created.

0.01 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

10. Execute a SELECT * statement for the base table copy_d_cds. What rows were deleted?

Rows


Save
Run

```
select * from copy_d_cds;
```

Results Explain Describe Saved SQL History

CD_NUMBER	TITLE	PRODUCER	YEAR
92	Back to the Shire	Middle Earth Records	2002
93	Songs from My Childhood	Old Town Records	1999
96	Graduation Songbook	Tunes Are Us	1998
98	Whirled Peas	Old Town Records	2004
97	Celerbrate the day	R & B	2003
99	party music	old town records	2004
100	best of rock and roll	old town records	2004
120	Hello World Here I Am	Middle Earth Records	1998

8 rows returned in 0.00 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

11. What are the restrictions on modifying data through a view?

You cannot modify data through a view if the view contains: Group functions, a GROUP BY clause, a DISTINCT keyword, or the pseudocolumn ROWNUM Keyword, or columns defined by expressions.

12. What is Moore's Law? Do you consider that it will continue to apply indefinitely?



Support your opinion with research from the internet. Moore's Law states that the number of transistors on a given chip can be doubled every two years. This has been relatively true in recent years, however given that it is not a straight line at a 45 degree angle and there appears to be an exponential curvature, this law is not an indefinite proposal.

13. What is the "singularity" in terms of computing? The singularity is a hypothetical future citing the creation of highly intelligent machines which are deemed as "superintelligent"- having an artificial capacity beyond human capabilities.

Section 11 Lesson 3: Managing Views

Try It / Solve It

1. Create a view from the copy_d_songs table called view_copy_d_songs that includes only the title and artist. Execute a SELECT * statement to verify that the view exists.

Rows   Save Run



```
create view view_copy_d_songs
as select title, artist
from copy_d_songs;
```

Results Explain Describe Saved SQL History

View created.

0.02 seconds

Workspace: US_1350 User: US_1350_SQL01_S25

Rows   Save Run

```
select *
from view_copy_d_songs;
```

Results Explain Describe Saved SQL History

TITLE	ARTIST
Its Finally Over	The Hobbits
Im Going to Miss My Teacher	Jane Pop
Hurrah for Today	The Jubilant Trio
Meet Me At the Altar	Bobby West
Lets Celebrate	The Celebrants
All These Years	Diana Crooner
surfing summer	
victory victory	
Mello Jello	The What
Surfing Summer	-
Victory Victory	-
Mello Jello	The What


12 rows returned in 0.00 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

2. Issue a DROP view_copy_d_songs. Execute a SELECT * statement to verify that the view has been deleted.

Rows

100



Save

Run

```
drop view view_copy_d_songs;
```

Results

Explain

Describe

Saved SQL

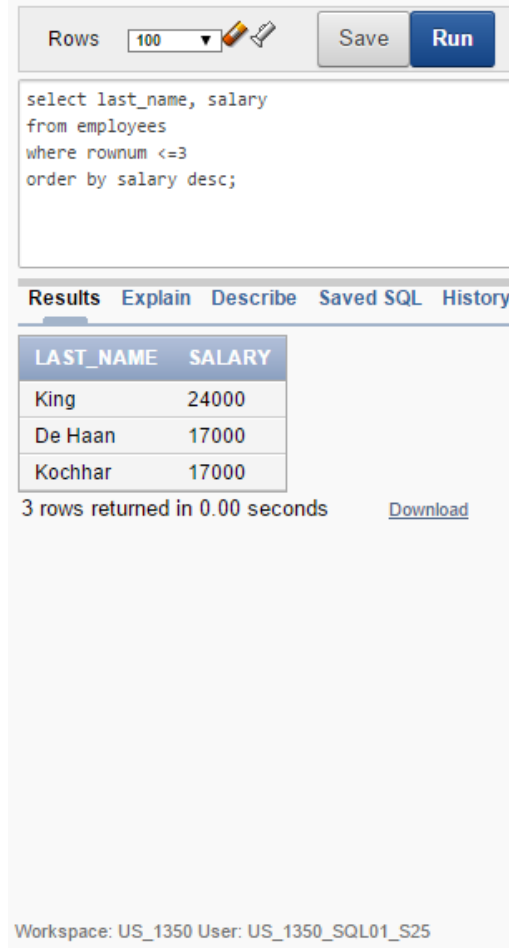
History

```
View dropped.
```

```
0.01 seconds
```

Workspace: US_1350 User: US_1350_SQL01_S25

3. Create a query that selects the last name and salary from the Oracle database. Rank the salaries from highest to lowest for the top three employees.



The screenshot shows the Oracle SQL Developer interface. At the top, there is a 'Rows' dropdown set to '100', a 'Save' button, and a 'Run' button. Below this is a text area containing the following SQL query:

```
select last_name, salary
from employees
where rownum <=3
order by salary desc;
```

Below the query editor, there are tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The 'Results' tab is active, displaying a table with the following data:

LAST_NAME	SALARY
King	24000
De Haan	17000
Kochhar	17000

Below the table, it states '3 rows returned in 0.00 seconds' and provides a 'Download' link. At the bottom of the interface, the workspace and user information are displayed: 'Workspace: US_1350 User: US_1350_SQL01_S25'.

4. Construct an inline view from the Oracle database that lists the last name, salary, department ID, and maximum salary for each department. Hint: One query will need to calculate maximum salary by department ID.

Rows
10

Save
Run

```

select e.employee_id, e.last_name,
m.maxsalary, e.department_id
from employees e join
(select department_id, max(salary) maxsalary
from employees
group by department_id) m
on m.department_id = e.department_id
order by m.maxsalary desc;

```

Results
Explain
Describe
Saved SQL
History

EMPLOYEE_ID	LAST_NAME	MAXSALARY	DEPARTMENT_ID
102	De Haan	24000	90
101	Kochhar	24000	90
100	King	24000	90
201	Hartstein	13000	20
202	Fay	13000	20
205	Higgins	12000	110
206	Gietz	12000	110
174	Abel	11000	80
176	Taylor	11000	80
149	Zlotkey	11000	80

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.02 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

5. Create a query that will return the staff members of Global Fast Foods ranked by salary from lowest to highest.

Rows

Save Run

```
select rownum as rank, id,
first_name || ' ' || last_name name, salary
from (select id, first_name, last_name, salary
      from f_staffs
      order by salary desc);
```

Results Explain Describe Saved SQL History

RANK	ID	NAME	SALARY
1	19	Monique Tuttle	60
2	12	Sue Doe	10
3	9	Bob Miller	10

3 rows returned in 0.01 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25