

## EXERCISE 13

### Creating Views

1. What are three uses for a view from a DBA's perspective?

- ⇒ Enhance security
- ⇒ Simplify complex queries
- ⇒ Ensure data consistency

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.

⇒ Create or replace view view\_d\_songs as select id,  
title as "Song Title" at least from djs\_on\_demand;

3. SELECT \* FROM view\_d\_songs. What was returned?

ID	Song-title	Artist
'101'	Calm Waters	Enya
'102'	Ocean Dreams	SriRaam

4. REPLACE view\_d\_songs. Add type\_code to the column list. Use aliases for all columns.

Create or replace view view\_d\_songs as select id  
as "Song-ID", title as "Song-Title", artist as  
"performer", type\_code as "category".

Or use alias after the CREATE statement as shown.

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.

create or replace view view\_jason\_events as  
select event\_name as "Event-name", event\_date as  
Select from view\_jason\_events.

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.

create or replace view dept\_salaries as  
select dept\_id as "Dept ID", min(salary)  
as "Minimum Salary", avg(salary) as "Average  
Salary" from employees group by dept\_id  
Select from view\_dept\_salaries.



## DML Operations and Views

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. All table names in the data dictionary are stored in uppercase.

```
Select  
  table_name,  
  column_name,  
  updatable  
from  
  user_updatable_columns.
```

Use the same syntax but change table\_name of the other tables.

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.

```
Create or replace view view-copy-d-songs as  
Select * from copy-d-songs
```

3. 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 Who	4

```
Insert into view-copy-d-songs (ID, TITLE, DURATION,  
                                ARTIST, TYPE_CODE)  
values(88, 'Mello Jello', 2, ('The Who'), 4),
```

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.

```
create view read-copy-d-cds as  
select * from copy-d-cds  
where year = 2000  
with read only;
```

5. Using the read\_copy\_d\_cds view, execute a DELETE FROM read\_copy\_d\_cds WHERE cd\_number = 90;

```
delete from read-copy-d-cds  
where cd-number = 90;
```

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.

```
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
```

7. Use the read\_copy\_d\_cds view to delete any CD of year 2000 from the underlying copy\_d\_cds.

```
delete from ready-copy-d-cds  
where year = 2000;
```

8. Use the read\_copy\_d\_cds view to delete cd\_number 90 from the underlying copy\_d\_cds table.

~~```
delete from ready-copy-d-cds  
where cd-number = 90;
```~~

9. Use the read\_copy\_d\_cds view to delete year 2001 records.

~~```
delete from read-copy-d-cds  
where year = 2001;
```~~

10. Execute a SELECT \* statement for the base table copy\_d\_cds. What rows were deleted?

Cannot be determined with the provided information

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

Data modification through a view is subject to several restrictions

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 is an observation that the number of transistors on a microchip.

13. What is the "singularity" in terms of computing?

The singularity in computing is a hypothetical future point in time when technologies process, particularly in artificial intelligence.

## Managing Views

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.

create view view-copy-d-songs AS  
select title, artist  
FROM copy-d-songs;  
Drop view-copy-d-songs;

2. Issue a DROP view\_copy\_d\_songs. Execute a SELECT \* statement to verify that the view has been deleted.

Drop view view-copy-d-songs;

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.

Select last\_name, salary,  
rank() over(order by salary) as rank  
From employees

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.

Select e.last\_name, e.salary, e.dpt\_id  
from employees e  
on e.department\_id = d.dpt\_id;

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

Select \* from staff\_numbers  
order by salary ASC;

## Indexes and Synonyms

1. What is an index and what is it used for?

Index is a schema object that provides a faster access to data

2. What is a ROWID, and how is it used?

A ROWID is a pseudo-column in oracle that represent address of row in table

3. When will an index be created automatically?

PRIMARY\_KEY or UNIQUE constraint is defined.

4. Create a nonunique index (foreign key) for the DJs on Demand column (cd\_number) in the D\_TRACK\_LISTINGS table. Use the Oracle Application Express SQL Workshop Data Browser to confirm that the index was created.

create index dtl\_cd\_number\_in  
on d-track-listings(cd-number);

5. Use the join statement to display the indexes and uniqueness that exist in the data dictionary for the DJs on Demand D\_SONGS table.

Select ai.index\_name, ai.uniqueness, ac.column\_name  
from user\_indexes ai  
join user\_index\_columns ac ON ai.index\_name=ac.indexname

6. Use a SELECT statement to display the index\_name, table\_name, and uniqueness from the data dictionary USER\_INDEXES for the DJs on Demand D\_EVENTS table.

select index\_name, table\_name, uniqueness  
from user\_indexes  
where table\_name = 'D\_EVENTS'.

7. Write a query to create a synonym called dj\_tracks for the DJs on Demand d\_track\_listings table.

Create synonym dj\_tracks FOR d-track-listings

8. Create a function-based index for the last\_name column in DJs on Demand D\_PARTNERS table that makes it possible not to have to capitalize the table name for searches. Write a SELECT statement that would use this index.

Create index dp\_upper\_last\_name\_in  
on d-partners(UPPER(last\_name));

9. Create a synonym for the D\_TRACK\_LISTINGS table. Confirm that it has been created by querying the data dictionary.

~~Create synonym dtl-syn for dtrack-listings~~

10. Drop the synonym that you created in question

~~Drop synonym dtl-syn;~~

| Evaluation Procedure | Marks awarded |
|----------------------|---------------|
| Query(5)             | 5             |
| Execution (5)        | 5             |
| Viva(5)              | 5             |
| Total (15)           | 15            |
| Faculty Signature    | PJM           |