

EXERCISE 13

Creating Views

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

Security, simplicity, data abstraction

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", artist from
d-songs where type_code = ('New Age')

3. SELECT * FROM view_d_songs. What was returned?

returns id, song title and artist of all songs
where type_code = ('New Age')

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 "Artist Name", type_code as "Type" from
d-songs

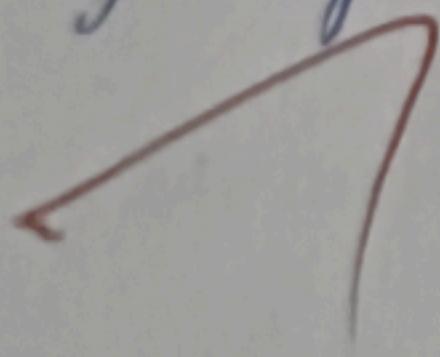
Or use alias after the CREATE statement as shown.

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.

Select * 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 view-dept-salary as
select dept-id as "Dept ID", MIN(salary) as
"Min Salary", MAX(salary) AS "Max-Salary",
AVG(salary) AS "Avg Salary" from employees
group by dept-id;



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, insertable,  
updateable-columns where table-name = 'Copy-d-  
songs';
```

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.

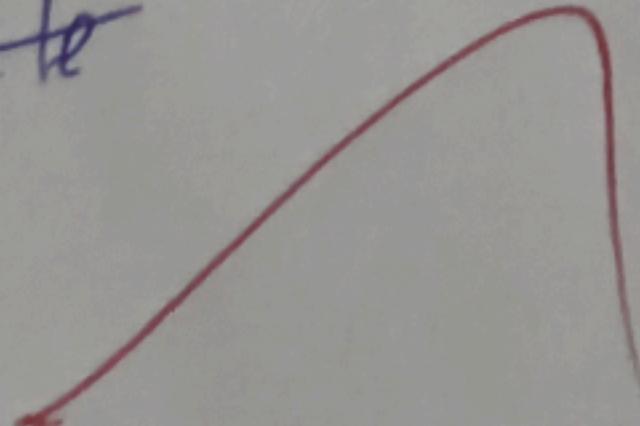
```
create or replace view view-copy-d-songs as  
select * from copy-d-songs;
```

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 What	4

```
insert into view-copy ((id, title, duration, artist,  
type_code) values (88, 'Mello Jello', 2, 'The What', 4);
```

feels



4. Create a view based on the DJ's 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 or replace 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.

select * from 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 read_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 read_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?

select * from copy_d_cds;

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

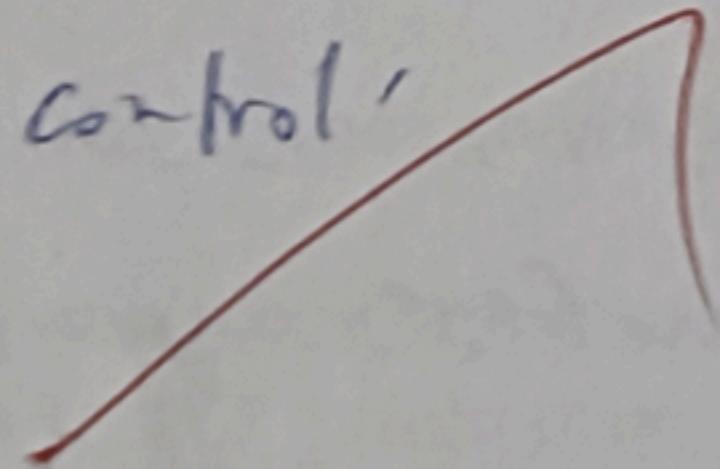
Based on multiple tables, no group by, read only, with check option

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 microchip doubles approximately every two years leading to exponential growth in computing power

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

The technological singularity refers to a future point where artificial intelligence surpasses human intelligence leading to rapid beyond human control.



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 or replace view view_copy_d as select title, artist from copy_d_songs;

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

Error - view no longer exists

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 l_name, salary from (select l_name, salary, rank() over (order by salary desc) as rank_no from emp) where rank_no <= 3;

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.dept-id, d.max-salary from employees e join (select dept-id, max(salary) as max-salary from emp group by dept-id) d on e.dept-id = d.dept-id;

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

select staff-id, staff-name, job-title, salary from staff where company-name = 'Global Fast Foods' order by salary ASC;

Indexes and Synonyms

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

It is a database object that improves the speed of data retrieval operations on a table.

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

ROWID is a unique identifier for every row in an Oracle database table. It represents the physical address of row

3. When will an index be created automatically?

Define a primary key constraint, define a unique constraint

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 dtrack_cdnum_idx 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 i-index-name, i-table-name, i-uniqueness, ic-column-name  
From user-indexes i join user-index-columns ic  
On i-index-name = ic-index-name where i-table-name  
= 'D-SONGS';
```

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 i-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 dpart_lastname_idx on d-partners  
(lower(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 track-listings-syn for d-track;

10. Drop the synonym that you created in question

drop synonym track-listings-syn;

Evaluation Procedure	Marks awarded
Query(5)	5
Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	BPL