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HHA 507

SQL Database Programming: Section 7-1: Oracle Equijoin and Cartesian Product

Vocabulary

CARTESIAN PRODUCT JOIN – Results from an invalid or omitted join condition; all combinations of rows are displayed

EQUIJOIN – Values in a column in one table are equal to a value in another table; also called an inner join or simple join

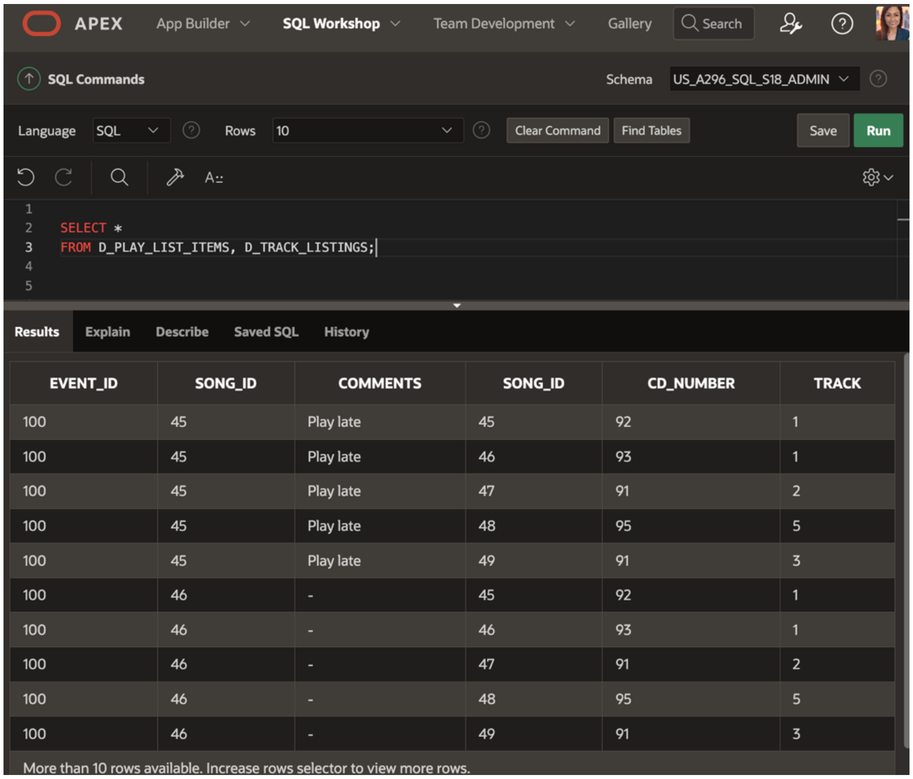
PROPRIETARY JOIN – Connection command exclusive to a specific company

TABLE ALIAS – Gives a table another name to simplify queries and improve performance

JOIN – Display data from two or more related tables

Try It / Solve It

1. Create a Cartesian product that displays the columns in the d_play_list_items and the d_track_listings in the DJs on Demand database.

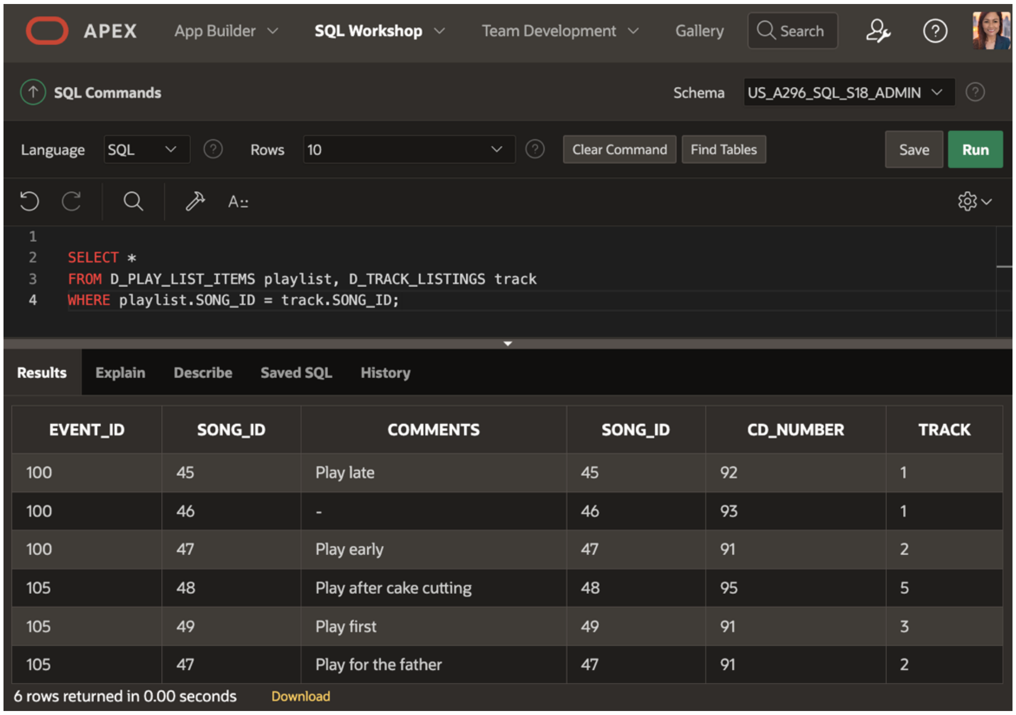


```
SELECT *
FROM D_PLAY_LIST_ITEMS, D_TRACK_LISTINGS;
```

EVENT_ID	SONG_ID	COMMENTS	SONG_ID	CD_NUMBER	TRACK
100	45	Play late	45	92	1
100	45	Play late	46	93	1
100	45	Play late	47	91	2
100	45	Play late	48	95	5
100	45	Play late	49	91	3
100	46	-	45	92	1
100	46	-	46	93	1
100	46	-	47	91	2
100	46	-	48	95	5
100	46	-	49	91	3

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

2. Correct the Cartesian product produced in question 1 by creating an equijoin using a common column.



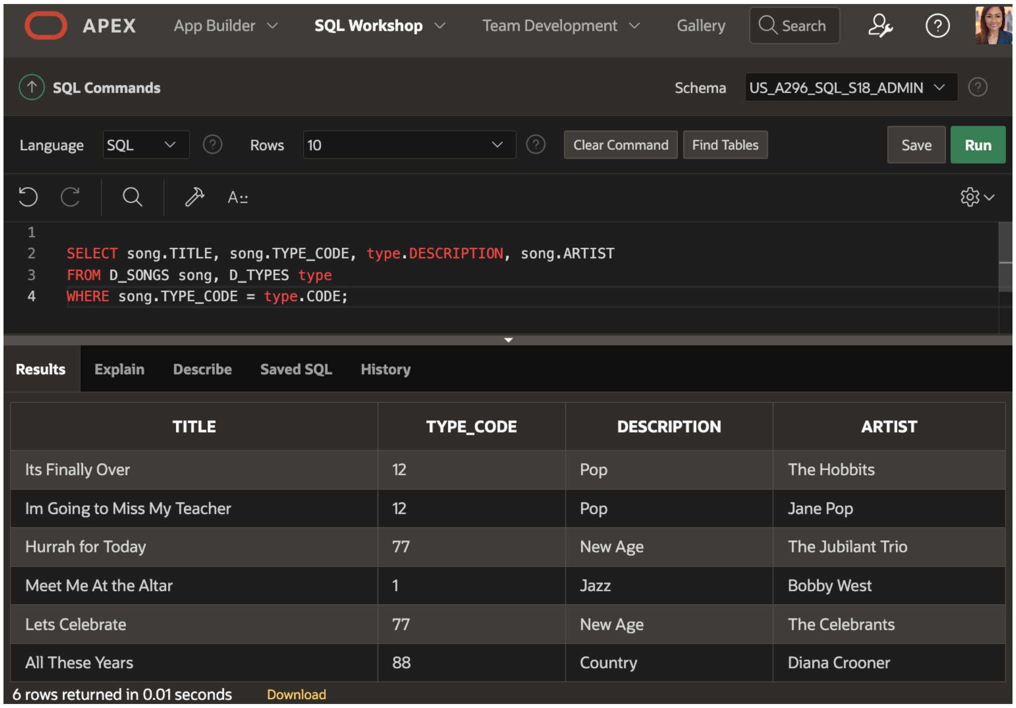
```sql

SELECT *
FROM D_PLAY_LIST_ITEMS playlist, D_TRACK_LISTINGS track
WHERE playlist.SONG_ID = track.SONG_ID;
```

EVENT_ID	SONG_ID	COMMENTS	SONG_ID	CD_NUMBER	TRACK
100	45	Play late	45	92	1
100	46	-	46	93	1
100	47	Play early	47	91	2
105	48	Play after cake cutting	48	95	5
105	49	Play first	49	91	3
105	47	Play for the father	47	91	2

6 rows returned in 0.00 seconds

3. Write a query to display the title, type, description, and artist from the DJs on Demand database.



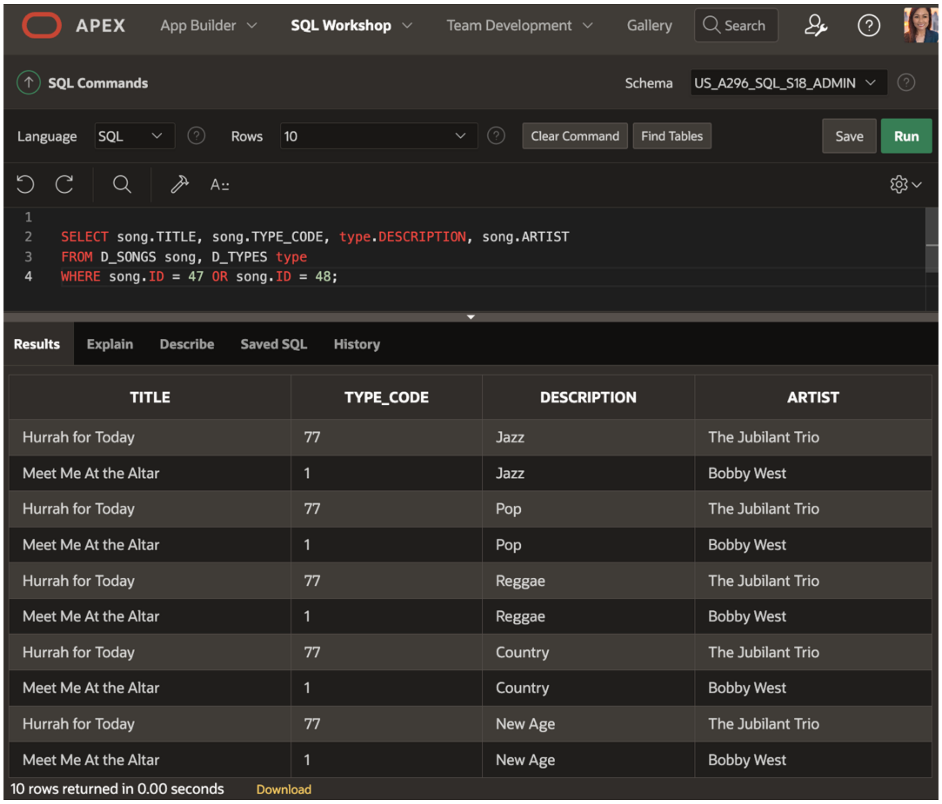
```sql

SELECT song.TITLE, song.TYPE_CODE, type.DESCRIPTION, song.ARTIST
FROM D_SONGS song, D_TYPES type
WHERE song.TYPE_CODE = type.CODE;
```

TITLE	TYPE_CODE	DESCRIPTION	ARTIST
Its Finally Over	12	Pop	The Hobbits
Im Going to Miss My Teacher	12	Pop	Jane Pop
Hurrah for Today	77	New Age	The Jubilant Trio
Meet Me At the Altar	1	Jazz	Bobby West
Lets Celebrate	77	New Age	The Celebrants
All These Years	88	Country	Diana Crooner

6 rows returned in 0.01 seconds

4. Rewrite the query in question 3 to select only those titles with an ID of 47 or 48.

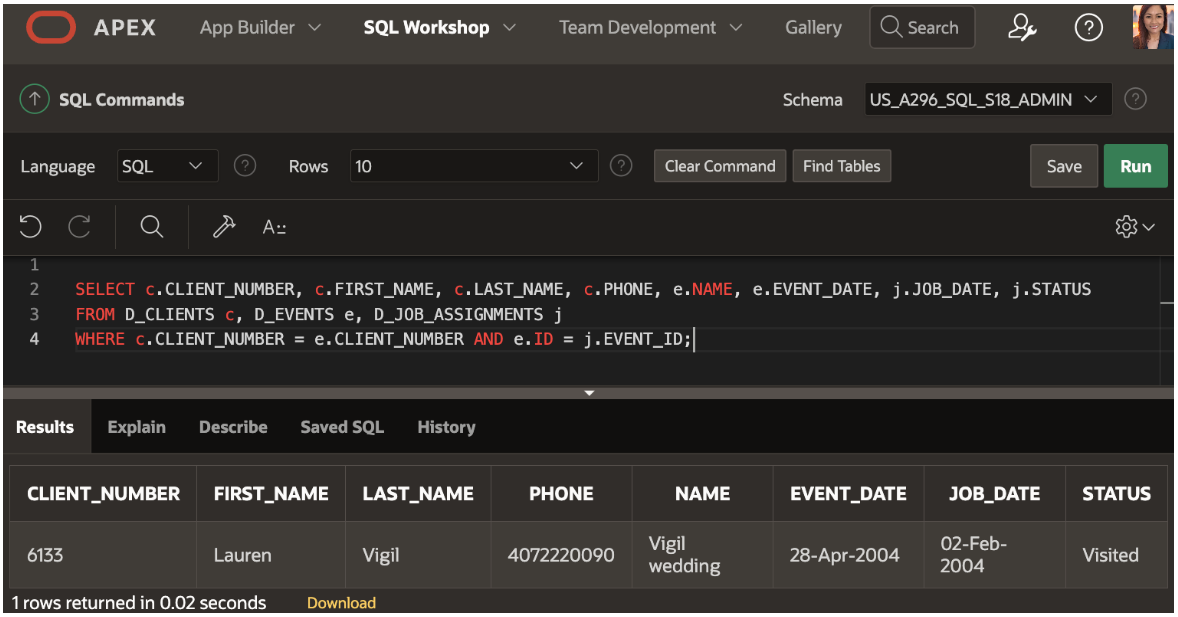


```
SELECT song.TITLE, song.TYPE_CODE, type.DESCRIPTION, song.ARTIST
FROM D_SONGS song, D_TYPES type
WHERE song.ID = 47 OR song.ID = 48;
```

TITLE	TYPE_CODE	DESCRIPTION	ARTIST
Hurrah for Today	77	Jazz	The Jubilant Trio
Meet Me At the Altar	1	Jazz	Bobby West
Hurrah for Today	77	Pop	The Jubilant Trio
Meet Me At the Altar	1	Pop	Bobby West
Hurrah for Today	77	Reggae	The Jubilant Trio
Meet Me At the Altar	1	Reggae	Bobby West
Hurrah for Today	77	Country	The Jubilant Trio
Meet Me At the Altar	1	Country	Bobby West
Hurrah for Today	77	New Age	The Jubilant Trio
Meet Me At the Altar	1	New Age	Bobby West

10 rows returned in 0.00 seconds

5. Write a query that extracts information from three tables in the DJs on Demand database, the d_clients table, the d_events table, and the d_job_assignments table.

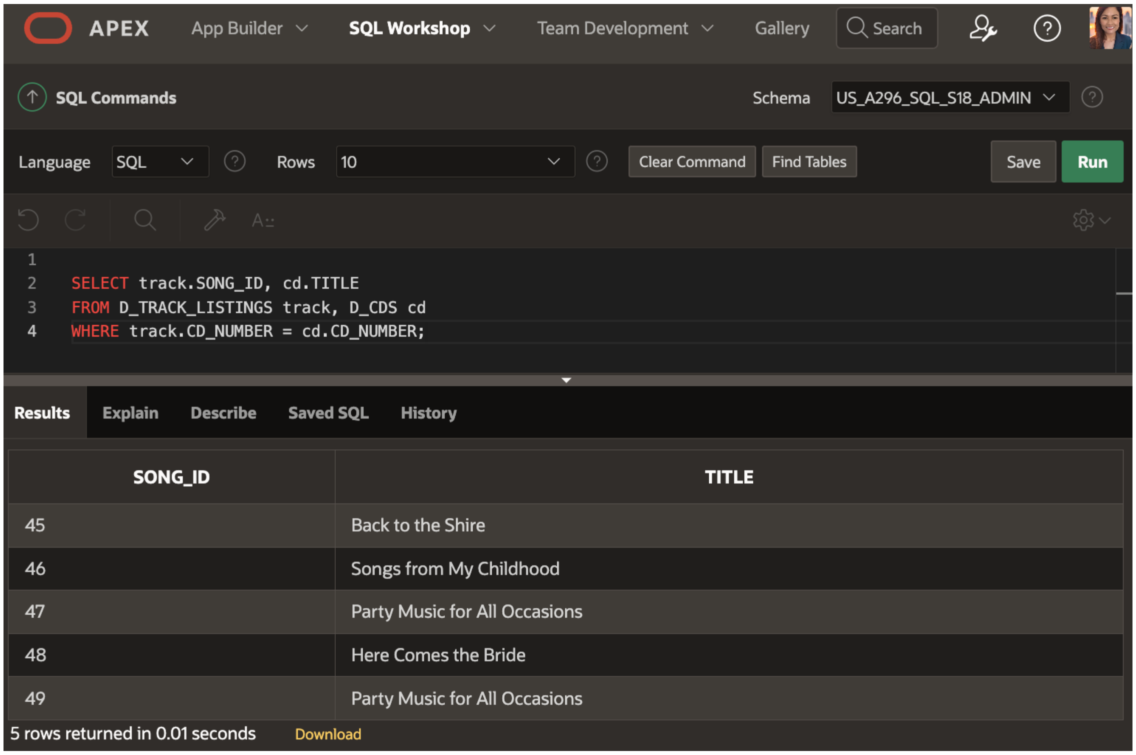


```
SELECT c.CLIENT_NUMBER, c.FIRST_NAME, c.LAST_NAME, c.PHONE, e.NAME, e.EVENT_DATE, j.JOB_DATE, j.STATUS
FROM D_CLIENTS c, D_EVENTS e, D_JOB_ASSIGNMENTS j
WHERE c.CLIENT_NUMBER = e.CLIENT_NUMBER AND e.ID = j.EVENT_ID;
```

CLIENT_NUMBER	FIRST_NAME	LAST_NAME	PHONE	NAME	EVENT_DATE	JOB_DATE	STATUS
6133	Lauren	Vigil	4072220090	Vigil wedding	28-Apr-2004	02-Feb-2004	Visited

1 rows returned in 0.02 seconds

6. Create and execute an equijoin between DJs on Demand tables d_track_listings and d_cds. Return the song_id and the title only.



Schema US_A296_SQL_S18_ADMIN

Language SQL

Rows 10

```

SELECT track.SONG_ID, cd.TITLE
FROM D_TRACK_LISTINGS track, D_CDS cd
WHERE track.CD_NUMBER = cd.CD_NUMBER;
```

SONG_ID	TITLE
45	Back to the Shire
46	Songs from My Childhood
47	Party Music for All Occasions
48	Here Comes the Bride
49	Party Music for All Occasions

5 rows returned in 0.01 seconds

7. Mark T for the statements that are true and F for the statements that are false.

___T__a. A join is a type of query that gets data from more than one table based on columns with the same name.

___T__b. To join tables using an equijoin, there must be a common column in both tables and that column is usually a primary key in one of the tables.

___F__c. A Cartesian product occurs because the query does not specify a WHERE clause.

___F__d. Table aliases are required to create a join condition.

___T__e. If a table alias is used for a table name in the FROM clause, it must be substituted for the table name throughout the SELECT statement.

___F__f. Table alias must be only one character in length.

___T__g. A simple join or inner join is the same as an equijoin.

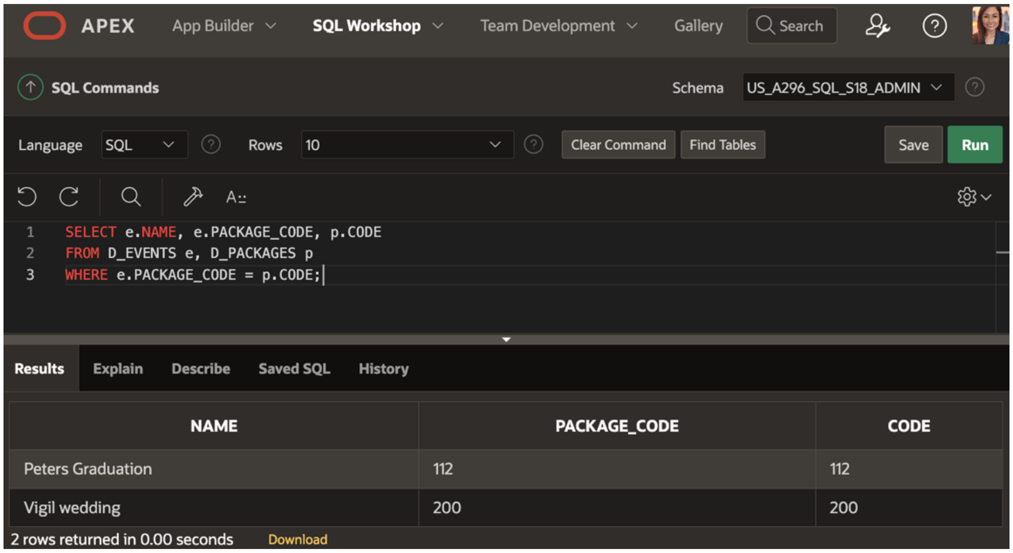
8. What advantage does being able to combine data from multiple tables have for a business?

Being able to combine data from multiple tables can improve business's efficiency in analyzing the trends and patterns, depending on the type of business. For instance, when it comes to shopping, it allows businesses to monitor and analyze their customers' purchasing history in a comprehensive way, helping them make informed decisions.

SQL Database Programming: Section 7-2: Oracle Nonequijoins and Outer Joins

Try It / Solve It

1. Create a join based on the cost of the event between the DJs on Demand tables D_EVENTS and D_PACKAGES. Show the name of the event and the code for each event.



Schema US_A296_SQL_S18_ADMIN

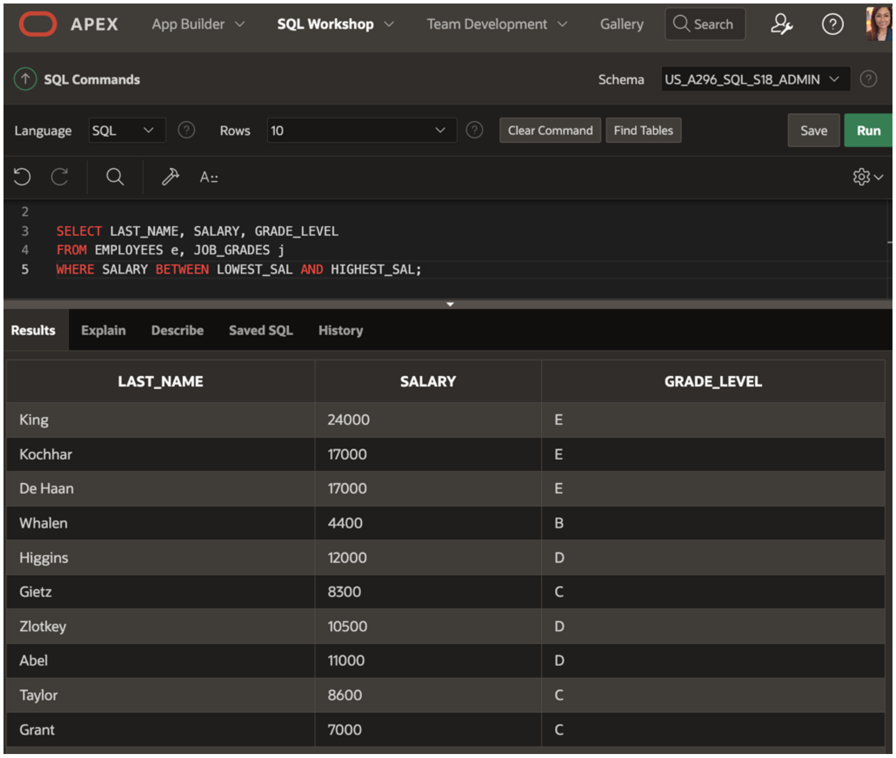
Language SQL Rows 10

```
SELECT e.NAME, e.PACKAGE_CODE, p.CODE
FROM D_EVENTS e, D_PACKAGES p
WHERE e.PACKAGE_CODE = p.CODE;
```

NAME	PACKAGE_CODE	CODE
Peters Graduation	112	112
Vigil wedding	200	200

2 rows returned in 0.00 seconds Download

2. Using the Oracle database, create a query that returns the employee last name, salary, and job-grade level based on the salary. Select the salary between the lowest and highest salaries.



Schema US_A296_SQL_S18_ADMIN

Language SQL Rows 10

```

SELECT LAST_NAME, SALARY, GRADE_LEVEL
FROM EMPLOYEES e, JOB_GRADES j
WHERE SALARY BETWEEN LOWEST_SAL AND HIGHEST_SAL;
```

LAST_NAME	SALARY	GRADE_LEVEL
King	24000	E
Kochhar	17000	E
De Haan	17000	E
Whalen	4400	B
Higgins	12000	D
Gietz	8300	C
Zlotkey	10500	D
Abel	11000	D
Taylor	8600	C
Grant	7000	C

3. What condition requires the creation of a nonequijoin?
A nonequijoin is equivalent to an ANSI JOIN ON (where the condition used is something other than equals)

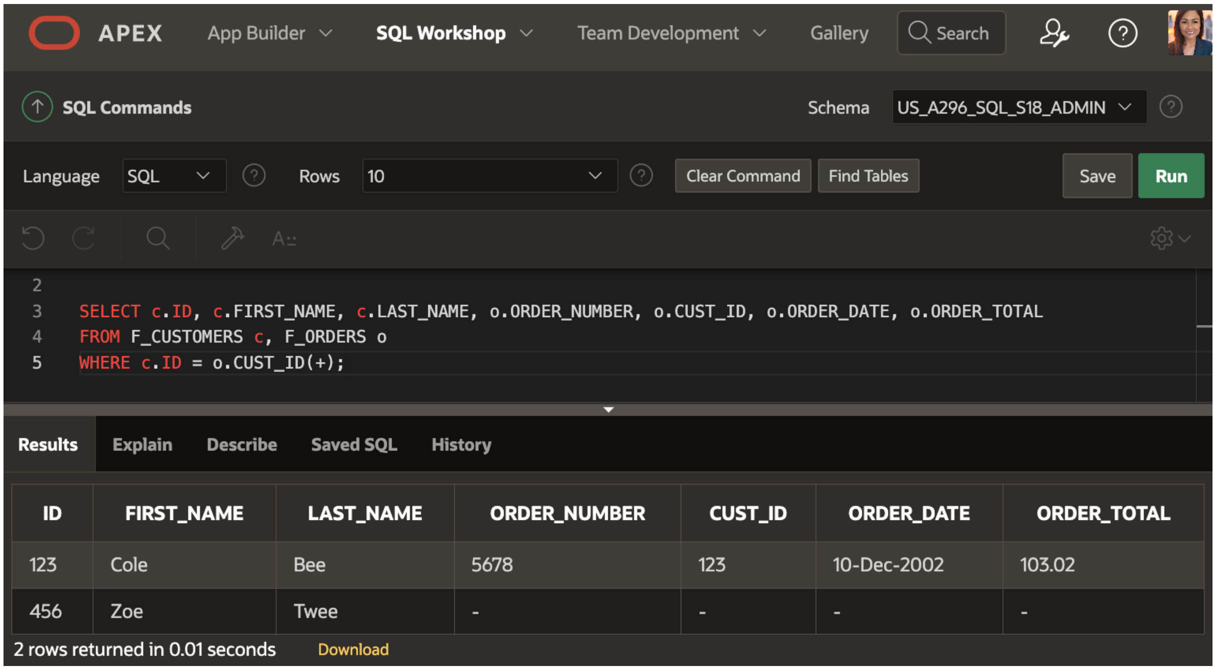
4. Rewrite the following nonequijoin statement using the logical condition operators (AND, OR, NOT):
WHERE a.ranking BETWEEN g.lowest_rank AND g.highest_rank

WHERE a.ranking >= g.lowest_rank AND a.ranking <= g,highest_rank

5. How do you know when to use a table alias and when not to use a table alias?
Use Table Alias – if table names have long names
Do not use Table Alias – if using simple queries that has only one table and few columns

6. What kind of join would you use if you wanted to find data between a range of numbers?
- Nonequijoin (using BETWEEN)

7. You need to produce a report for Global Fast Foods showing customers and orders. A customer must be included on the report even if the customer has had no orders.



Schema US_A296_SQL_S18_ADMIN

Language SQL

Rows 10

```
SELECT c.ID, c.FIRST_NAME, c.LAST_NAME, o.ORDER_NUMBER, o.CUST_ID, o.ORDER_DATE, o.ORDER_TOTAL
FROM F_CUSTOMERS c, F_ORDERS o
WHERE c.ID = o.CUST_ID(+);
```

ID	FIRST_NAME	LAST_NAME	ORDER_NUMBER	CUST_ID	ORDER_DATE	ORDER_TOTAL
123	Cole	Bee	5678	123	10-Dec-2002	103.02
456	Zoe	Twee	-	-	-	-

2 rows returned in 0.01 seconds