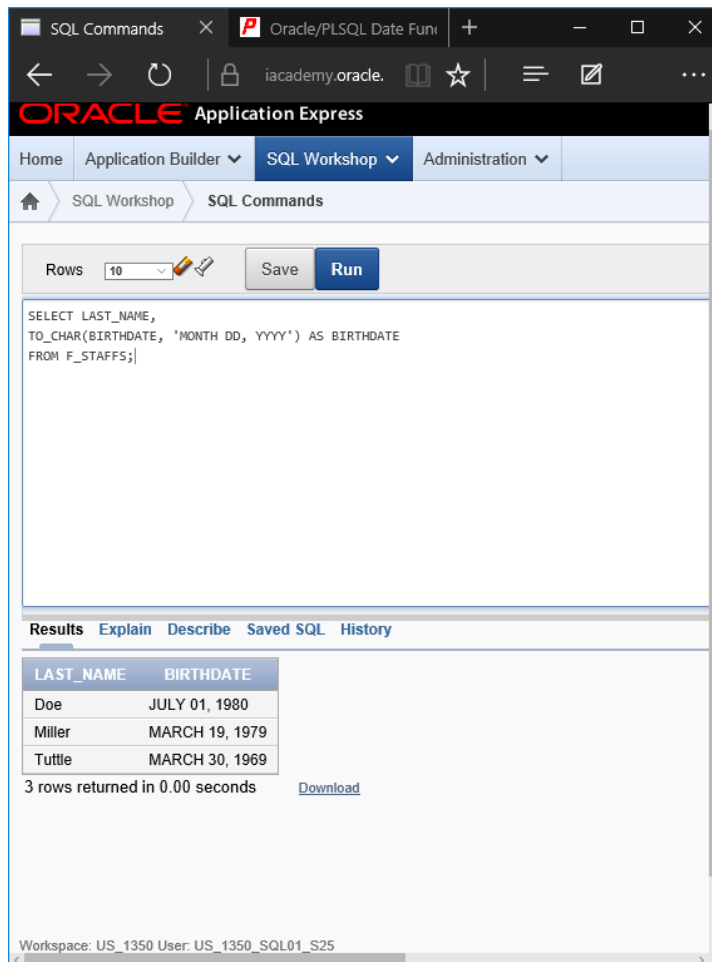


Section 2 Lesson 1: Conversion Functions

Try It / Solve It

In each of the following exercises, feel free to use labels for the converted column to make the output more readable.

1. List the last names and birthdays of Global Fast Food Employees. Convert the birth dates to character data in the Month DD, YYYY format. Suppress any leading zeros.



The screenshot shows the Oracle Application Express SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. The 'Rows' dropdown is set to 10. The 'Run' button is highlighted. The SQL command entered is:

```
SELECT LAST_NAME,  
       TO_CHAR(BIRTHDATE, 'MONTH DD, YYYY') AS BIRTHDATE  
FROM F_STAFFS;
```

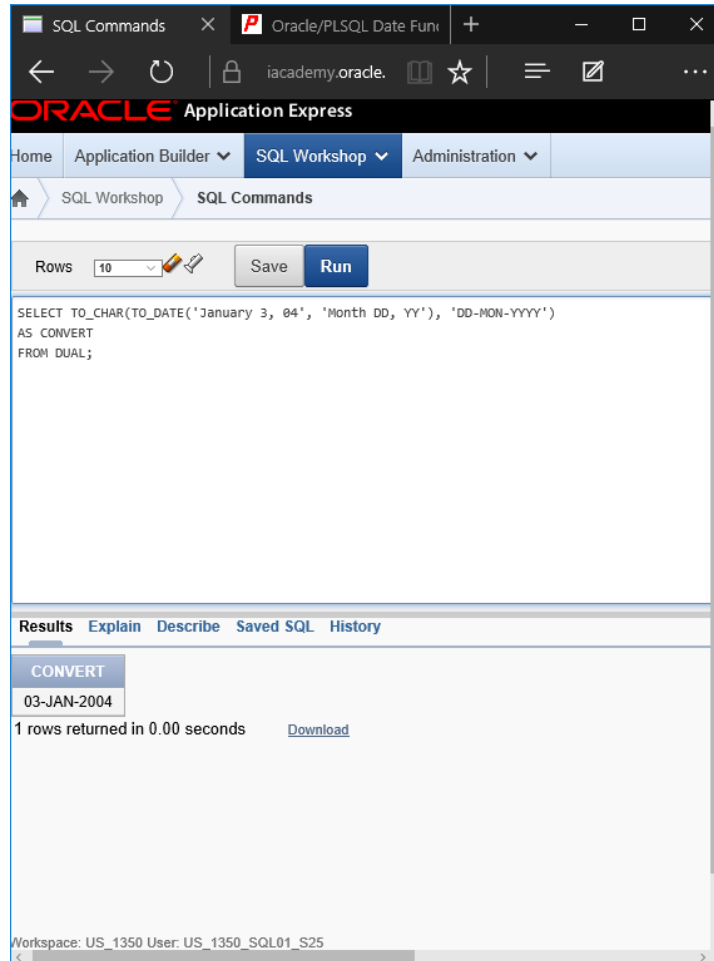
The 'Results' tab is active, displaying the following data:

LAST_NAME	BIRTHDATE
Doe	JULY 01, 1980
Miller	MARCH 19, 1979
Tuttle	MARCH 30, 1969

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

Workspace: US_1350 User: US_1350_SQL01_S25

2. Convert January 3, 04, to the default date format 03-JAN-2004.



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. Below the navigation bar, there is a 'Rows' dropdown set to '10', a 'Save' button, and a 'Run' button. The SQL command area contains the following text:

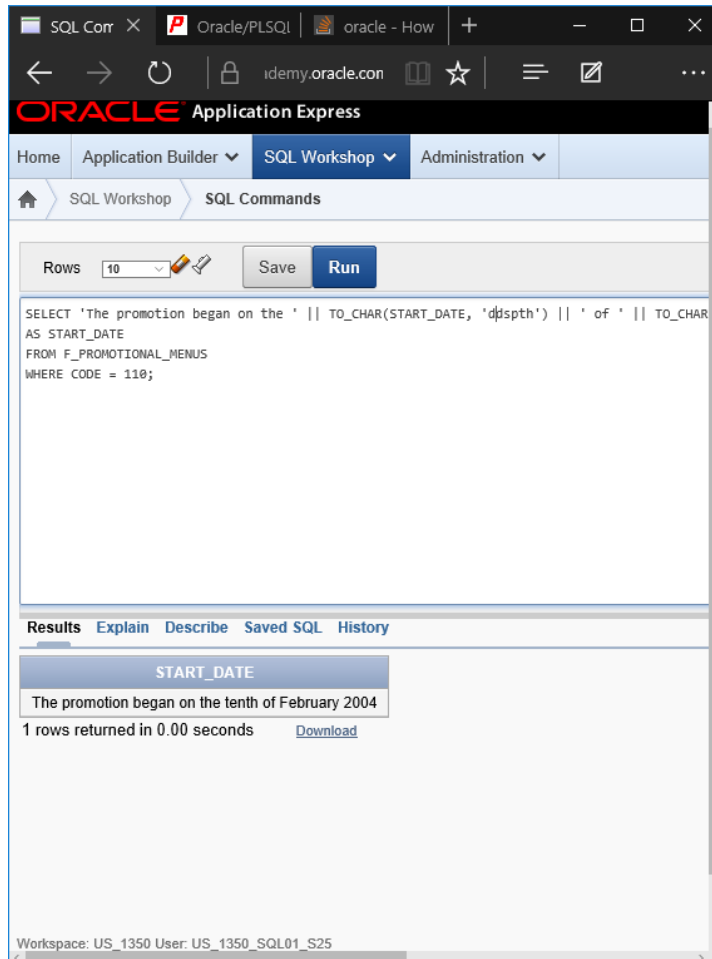
```
SELECT TO_CHAR(TO_DATE('January 3, 04', 'Month DD, YY'), 'DD-MON-YYYY')
AS CONVERT
FROM DUAL;
```

Below the command area, the 'Results' tab is active, displaying the output of the query:

CONVERT
03-JAN-2004

Below the table, it states '1 rows returned in 0.00 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

- Format a query from the Global Fast Foods f_promotional_menus table to print out the start_date of promotional code 110 as: The promotion began on the tenth of February 2004.



The screenshot shows the Oracle Application Express interface. The top navigation bar includes links for Home, Application Builder, SQL Workshop, and Administration. The SQL Workshop section is active, showing the SQL Commands tab. A query is entered in the text area:

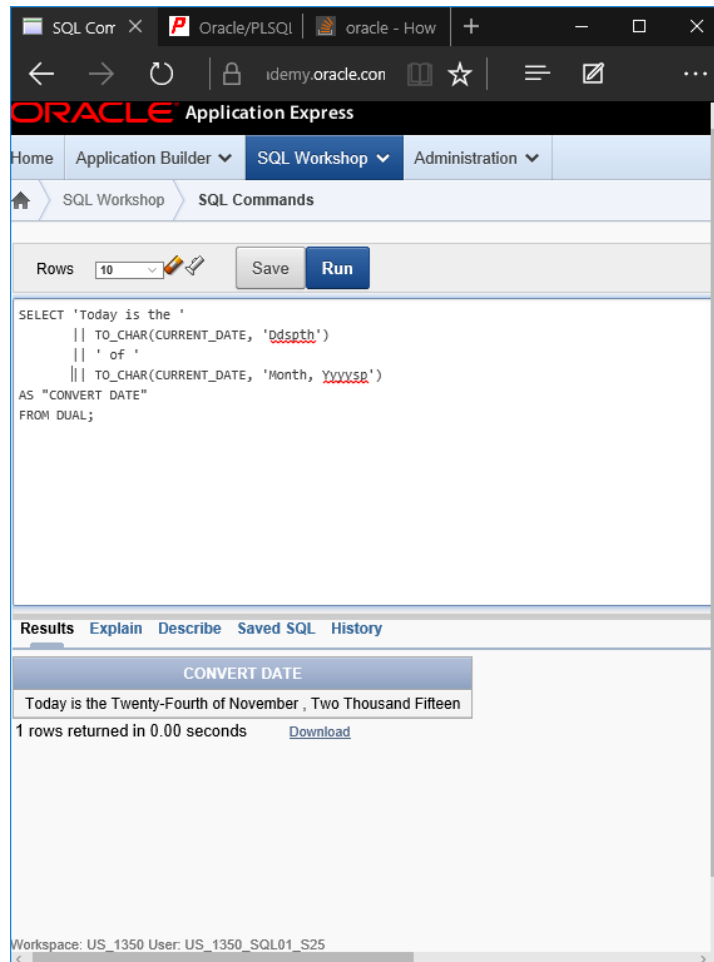
```
SELECT 'The promotion began on the ' || TO_CHAR(START_DATE, 'dspth') || ' of ' || TO_CHAR(
AS START_DATE
FROM F_PROMOTIONAL_MENUS
WHERE CODE = 110;
```

The query is executed, and the results are displayed in a table with one row:

START_DATE
The promotion began on the tenth of February 2004

Below the table, it indicates "1 rows returned in 0.00 seconds" and provides a "Download" link. The bottom status bar shows the workspace and user information: "Workspace: US_1350 User: US_1350_SQL01_S25".

4. Convert today's date to a format such as: "Today is the Twentieth of March, Two Thousand Four"



The screenshot shows the Oracle Application Express interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. The 'Rows' dropdown is set to 10. The SQL command area contains the following query:

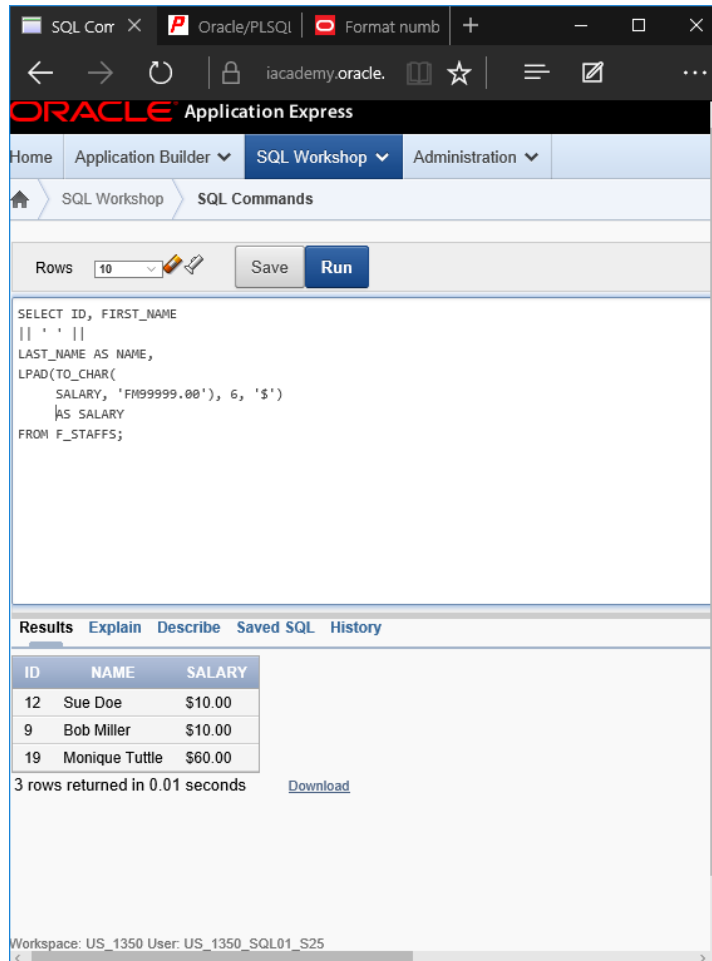
```
SELECT 'Today is the '  
      || TO_CHAR(CURRENT_DATE, 'Ddspth')  
      || ' of '  
      || TO_CHAR(CURRENT_DATE, 'Month, Yvvvsp')  
AS "CONVERT DATE"  
FROM DUAL;
```

The 'Results' tab is active, showing the output of the query:

CONVERT DATE
Today is the Twenty-Fourth of November , Two Thousand Fifteen

Below the table, it states '1 rows returned in 0.00 seconds' and provides a 'Download' link. The status bar at the bottom indicates 'Workspace: US_1350 User: US_1350_SQL01_S25'.

5. List the ID, name, and salary for all Global Fast Foods employees. Display salary with a \$ sign and two decimal places.



The screenshot shows the Oracle Application Express SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' section is selected. Below the navigation bar, there is a 'Rows' dropdown set to '10', a 'Save' button, and a 'Run' button. The SQL command area contains the following query:

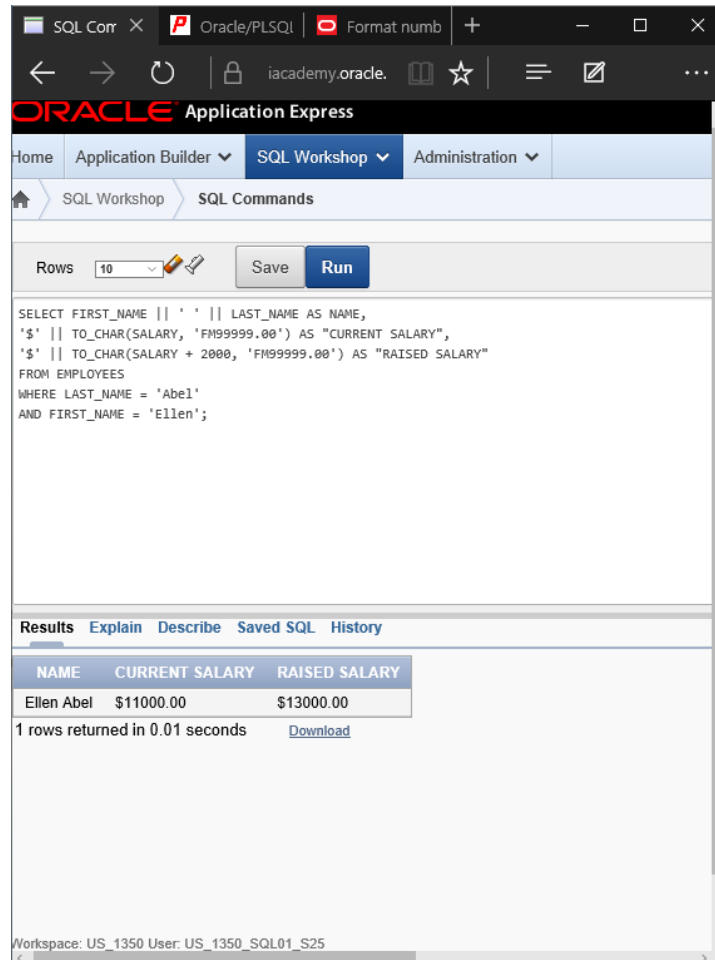
```
SELECT ID, FIRST_NAME  
|| ' ' ||  
LAST_NAME AS NAME,  
LPAD(TO_CHAR(  
    SALARY, 'FM99999.00'), 6, '$')  
AS SALARY  
FROM F_STAFFS;
```

Below the SQL command area, the 'Results' tab is selected, displaying a table with 3 rows. The table has columns 'ID', 'NAME', and 'SALARY'. The data is as follows:

ID	NAME	SALARY
12	Sue Doe	\$10.00
9	Bob Miller	\$10.00
19	Monique Tuttle	\$60.00

Below the table, it states '3 rows returned in 0.01 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

6. Ellen Abel is an employee who has received a \$2,000 raise. Display her first name and last name, her current salary, and her new salary. Display both salaries with a \$ and two decimal places. Label her new salary column AS New Salary.



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' section is selected. Below the navigation bar, there are buttons for 'Rows' (set to 10), 'Save', and 'Run'. The SQL command area contains the following query:

```
SELECT FIRST_NAME || ' ' || LAST_NAME AS NAME,
'$' || TO_CHAR(SALARY, 'FM9999.00') AS "CURRENT SALARY",
'$' || TO_CHAR(SALARY + 2000, 'FM9999.00') AS "RAISED SALARY"
FROM EMPLOYEES
WHERE LAST_NAME = 'Abel'
AND FIRST_NAME = 'Ellen';
```

Below the SQL command area, the 'Results' tab is active, displaying the query results in a table:

NAME	CURRENT SALARY	RAISED SALARY
Ellen Abel	\$11000.00	\$13000.00

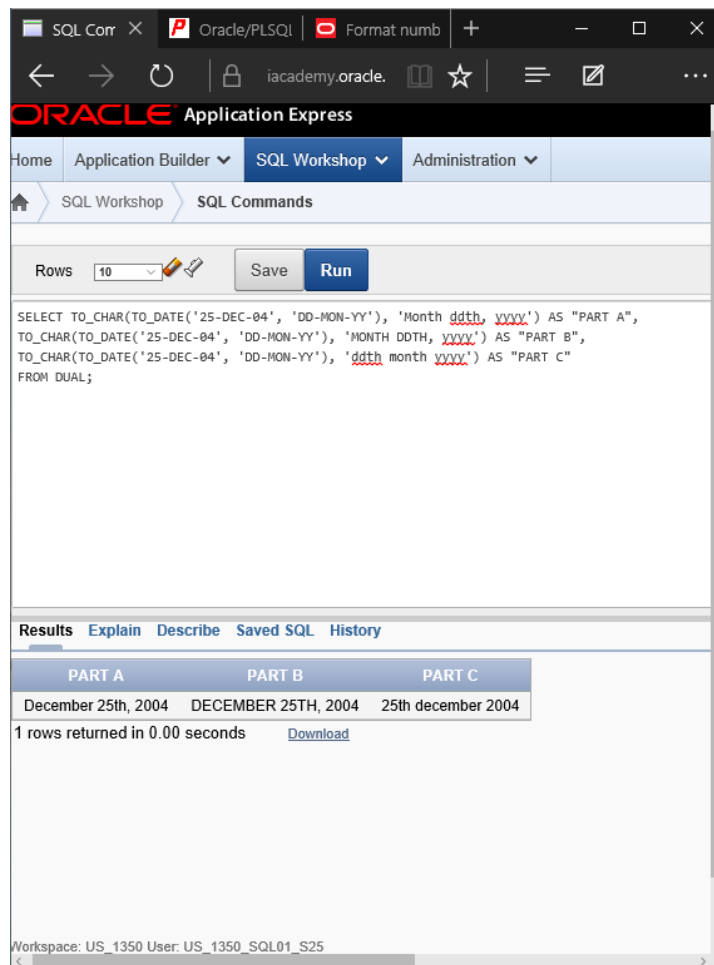
Below the table, it states '1 rows returned in 0.01 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

7. On what day of the week and date did Global Fast Foods' promotional code 110 Valentine's Special begin? [Tuesday, February 10, 2004.](#)
8. Create one query that will convert 25-DEC-04 into each of the following (you will have to convert 25-DEC-04 to a date and then to character data):

December 25th, 2004

DECEMBER 25TH, 2004

25th december, 2004



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' section is selected. Below the navigation bar, there is a 'Rows' dropdown set to 10, and 'Save' and 'Run' buttons. The SQL command area contains the following query:

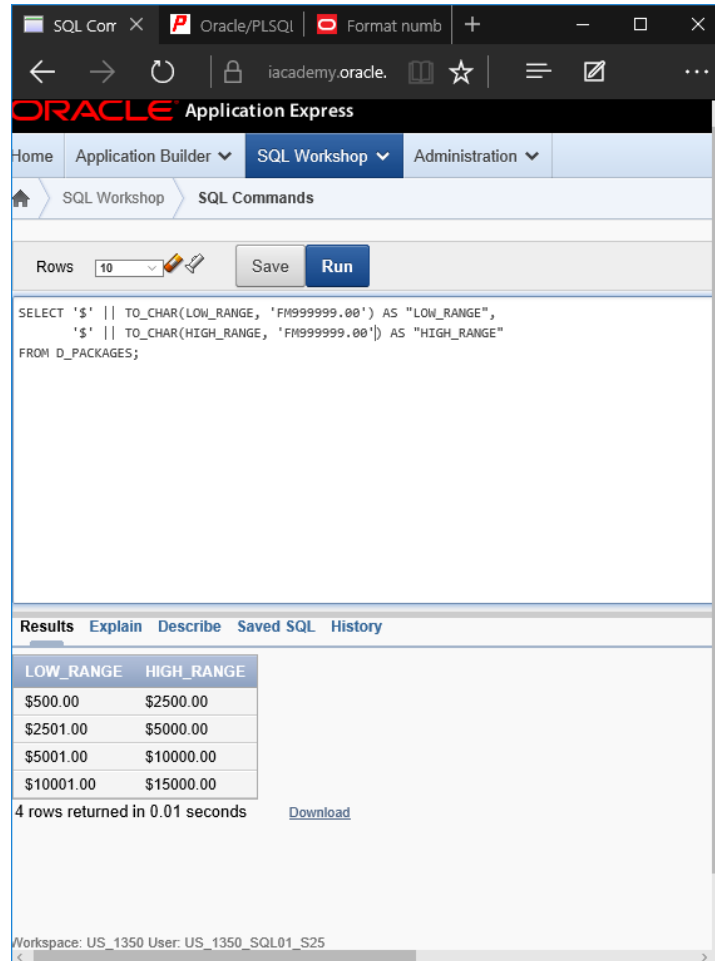
```
SELECT TO_CHAR(TO_DATE('25-DEC-04', 'DD-MON-YY'), 'Month ddth, yyyy') AS "PART A",
TO_CHAR(TO_DATE('25-DEC-04', 'DD-MON-YY'), 'MONTH DDTH, yyyy') AS "PART B",
TO_CHAR(TO_DATE('25-DEC-04', 'DD-MON-YY'), 'ddth month yyyy') AS "PART C"
FROM DUAL;
```

The 'Results' tab is selected, showing a table with three columns: 'PART A', 'PART B', and 'PART C'. The table contains one row of data:

PART A	PART B	PART C
December 25th, 2004	DECEMBER 25TH, 2004	25th december 2004

Below the table, it states '1 rows returned in 0.00 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

9. Create a query that will format the DJs on Demand d_packages columns, low-range and high-range package costs, in the format \$2500.00.



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' section is selected. Below the navigation bar, there is a 'Rows' dropdown set to '10', and 'Save' and 'Run' buttons. The SQL command area contains the following query:

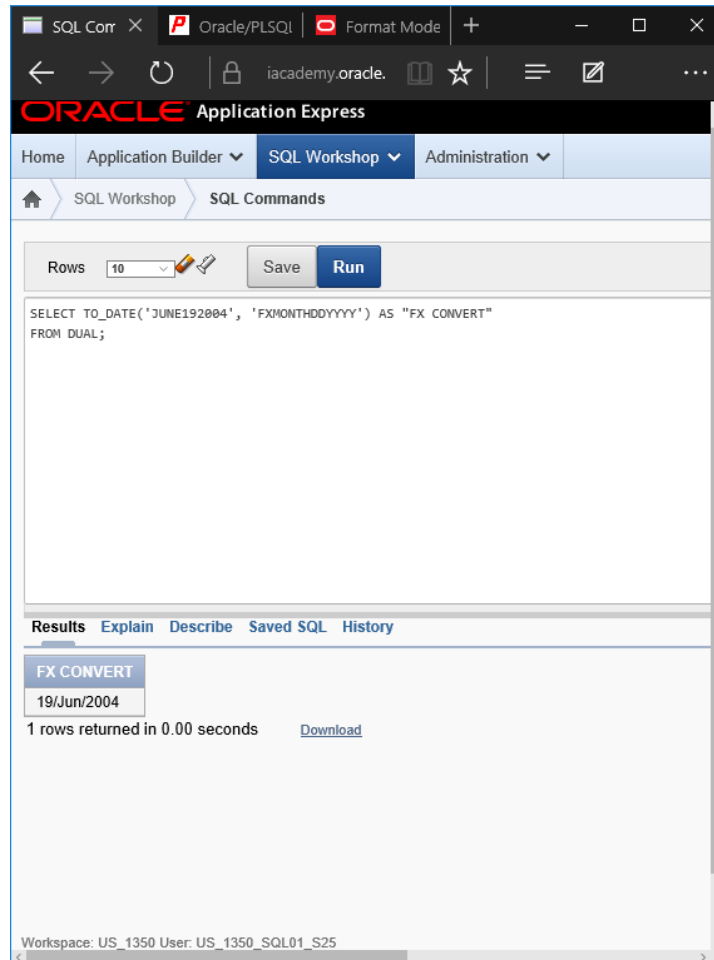
```
SELECT '$' || TO_CHAR(LOW_RANGE, 'FM999999.00') AS "LOW_RANGE",  
       '$' || TO_CHAR(HIGH_RANGE, 'FM999999.00') AS "HIGH_RANGE"  
FROM D_PACKAGES;
```

Below the query, the 'Results' tab is active, displaying a table with two columns: 'LOW_RANGE' and 'HIGH_RANGE'. The table contains four rows of data:

LOW_RANGE	HIGH_RANGE
\$500.00	\$2500.00
\$2501.00	\$5000.00
\$5001.00	\$10000.00
\$10001.00	\$15000.00

Below the table, it states '4 rows returned in 0.01 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

10. Convert JUNE192004 to a date using the fx format model.



The screenshot shows the Oracle Application Express (APEX) SQL Workshop interface. The browser address bar indicates the URL is `iaacademy.oracle`. The navigation menu includes Home, Application Builder, SQL Workshop (selected), and Administration. The SQL Workshop page shows the SQL Commands tab with a text area containing the following SQL query:

```
SELECT TO_DATE('JUNE192004', 'FXMONTHDDYYYY') AS "FX CONVERT"
FROM DUAL;
```

Below the text area are buttons for Rows (set to 10), Save, and Run. The Run button has been clicked, and the Results tab is active. The results display shows a single row with the column header **FX CONVERT** and the value **19/Jun/2004**. Below the results, it states "1 rows returned in 0.00 seconds" and provides a [Download](#) link. The status bar at the bottom indicates the workspace is `US_1350` and the user is `US_1350_SQL01_S25`.

11. What is the distinction between implicit and explicit datatype conversion? Give an example of each. Implicit conversion occurs when the SQL server casts differing datatypes according to the rules of datatype precedence. Ex. A: the GETDATE function implicitly converts to style 0. Explicit conversion uses the CAST and CONVERT functions to perform datatype conversion. Ex. B: Given that the value '10' is an INT variable type, CAST(10 AS DECIMAL (5,2)) converts the INT variable type into DECIMAL.

12. Why is it important from a business perspective to have datatype conversions?

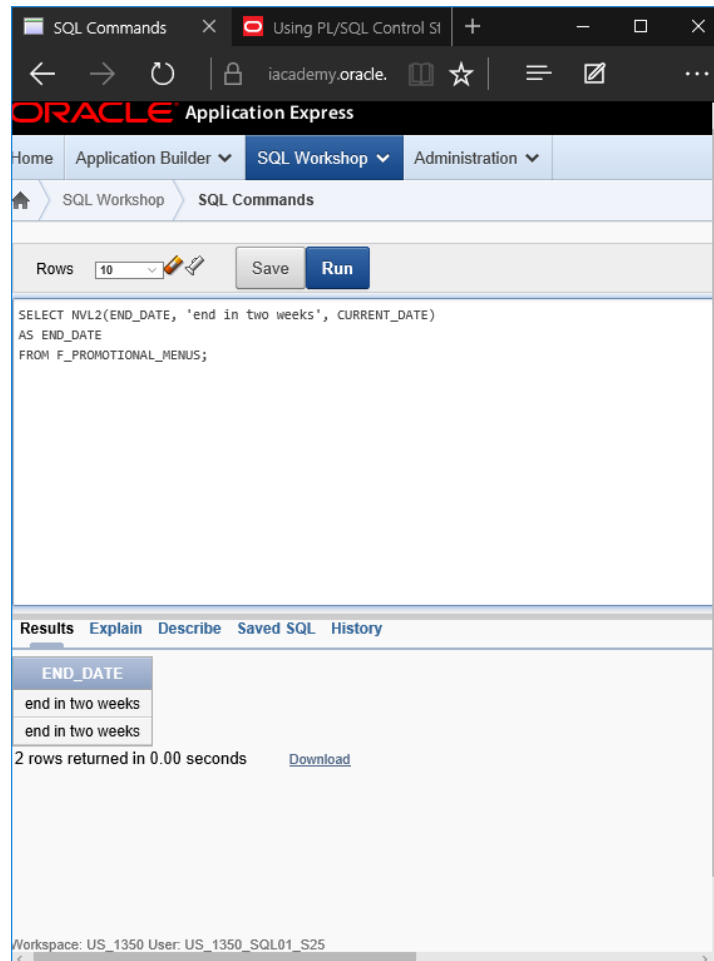
Datatype conversions allow for easier readability and meaningful display of data. It can also be used to counter against insufficient precision due to rounding errors.

Section 2 Lesson 2: NULL Functions

Try It / Solve It

Use aliases to make the output more readable.

1. Create a report that shows the Global Fast Foods promotional name, start date, and end date from the `f_promotional_menus` table. If there is an end date, temporarily replace it with “end in two weeks.” If there is no end date, replace it with today’s date.



The screenshot shows the Oracle Application Express interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' page is displayed. The 'Rows' dropdown is set to 10. The SQL command entered is:

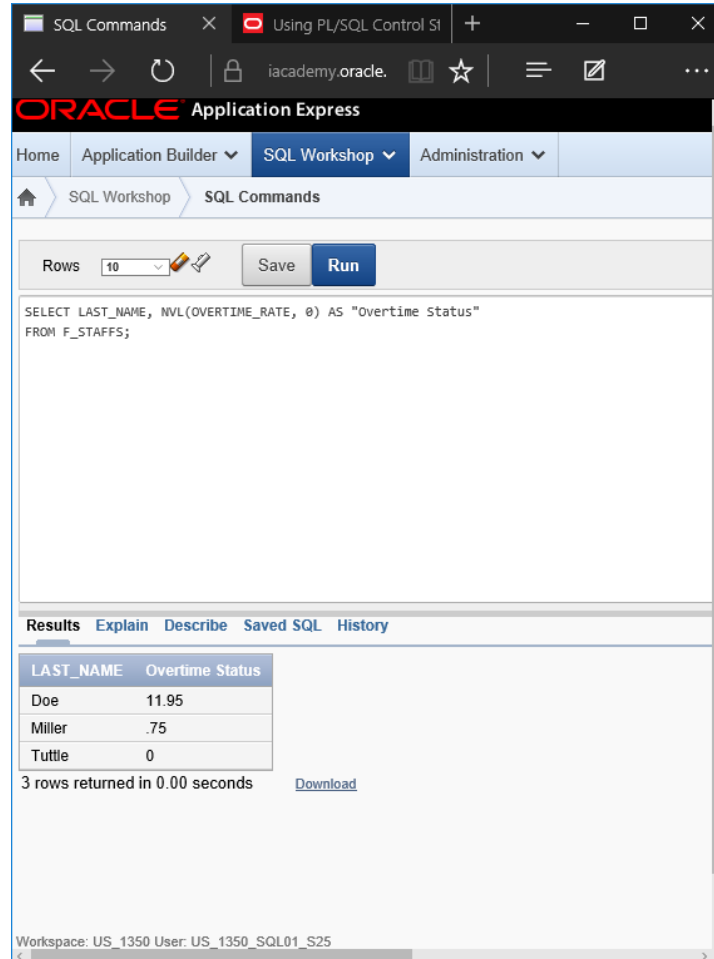
```
SELECT NVL2(END_DATE, 'end in two weeks', CURRENT_DATE)
AS END_DATE
FROM F_PROMOTIONAL_MENUS;
```

The 'Results' tab is selected, showing the following output:

END_DATE
end in two weeks
end in two weeks

Below the table, it states '2 rows returned in 0.00 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

2. Not all Global Fast Foods staff members receive overtime pay. Instead of displaying a null value for these employees, replace null with zero. Include the employee's last name and overtime rate in the output. Label the overtime rate as "Overtime Status".



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. The 'Rows' dropdown is set to 10. The 'Run' button is highlighted. The SQL command entered is:

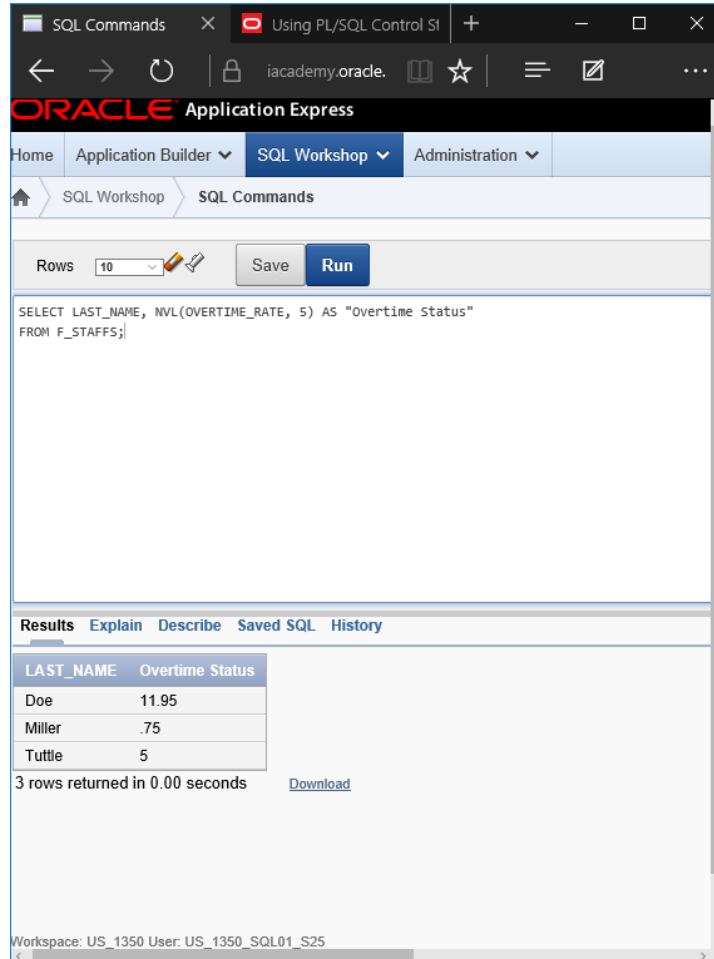
```
SELECT LAST_NAME, NVL(OVERTIME_RATE, 0) AS "Overtime Status"
FROM F_STAFFS;
```

The 'Results' tab is active, displaying the following table:

LAST_NAME	Overtime Status
Doe	11.95
Miller	.75
Tuttle	0

Below the table, it states '3 rows returned in 0.00 seconds' and provides a 'Download' link. The workspace information at the bottom is 'Workspace: US_1350 User: US_1350_SQL01_S25'.

3. The manager of Global Fast Foods has decided to give all staff who currently do not earn overtime an overtime rate of \$5.00. Construct a query that displays the last names and the overtime rate for each staff member, substituting \$5.00 for each null overtime value.



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. Below the navigation bar, there is a 'Rows' dropdown set to '10', a 'Save' button, and a 'Run' button. The SQL command area contains the following query:

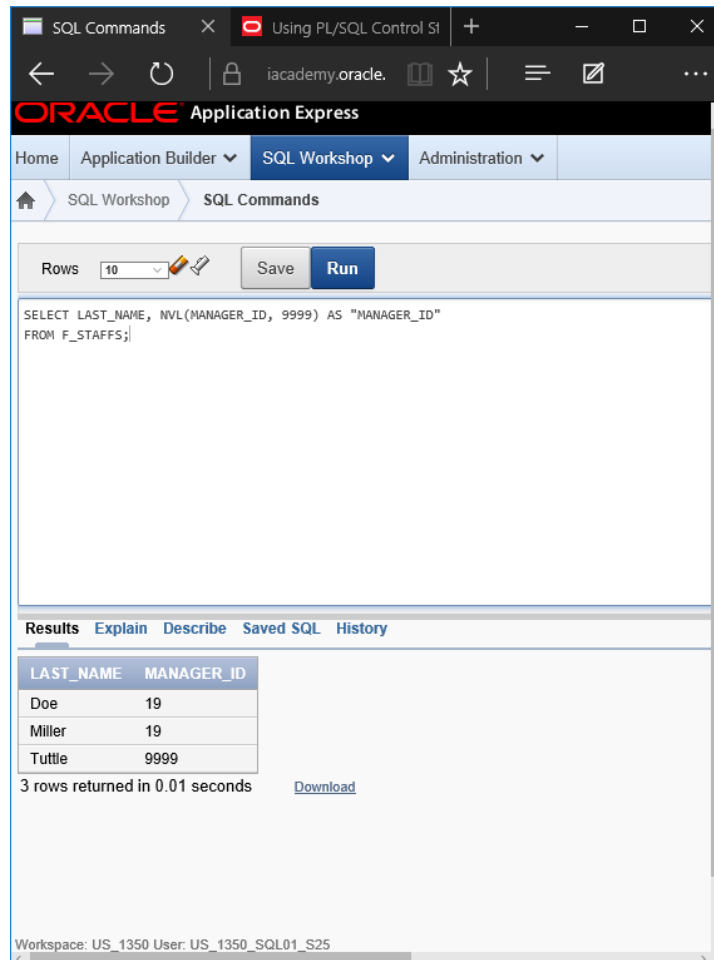
```
SELECT LAST_NAME, NVL(OVERTIME_RATE, 5) AS "Overtime Status"
FROM F_STAFFS;
```

Below the query area, the 'Results' tab is active, displaying a table with the following data:

LAST_NAME	Overtime Status
Doe	11.95
Miller	.75
Tuttle	5

Below the table, it states '3 rows returned in 0.00 seconds' and provides a 'Download' link. The bottom status bar shows 'Workspace: US_1350 User: US_1350_SQL01_S25'.

4. Not all Global Fast Foods staff members have a manager. Create a query that displays the employee last name and 9999 in the manager ID column for these employees.



The screenshot shows the Oracle Application Express SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. The 'Rows' dropdown is set to 10. The 'Run' button is highlighted. The SQL command entered is:

```
SELECT LAST_NAME, NVL(MANAGER_ID, 9999) AS "MANAGER_ID"
FROM F_STAFFS;
```

The 'Results' tab is active, displaying a table with the following data:

LAST_NAME	MANAGER_ID
Doe	19
Miller	19
Tuttle	9999

Below the table, it states '3 rows returned in 0.01 seconds' and provides a 'Download' link. The workspace information at the bottom is 'Workspace: US_1350 User: US_1350_SQL01_S25'.

5. Which statement(s) below will return null if the value of v_sal is 50?

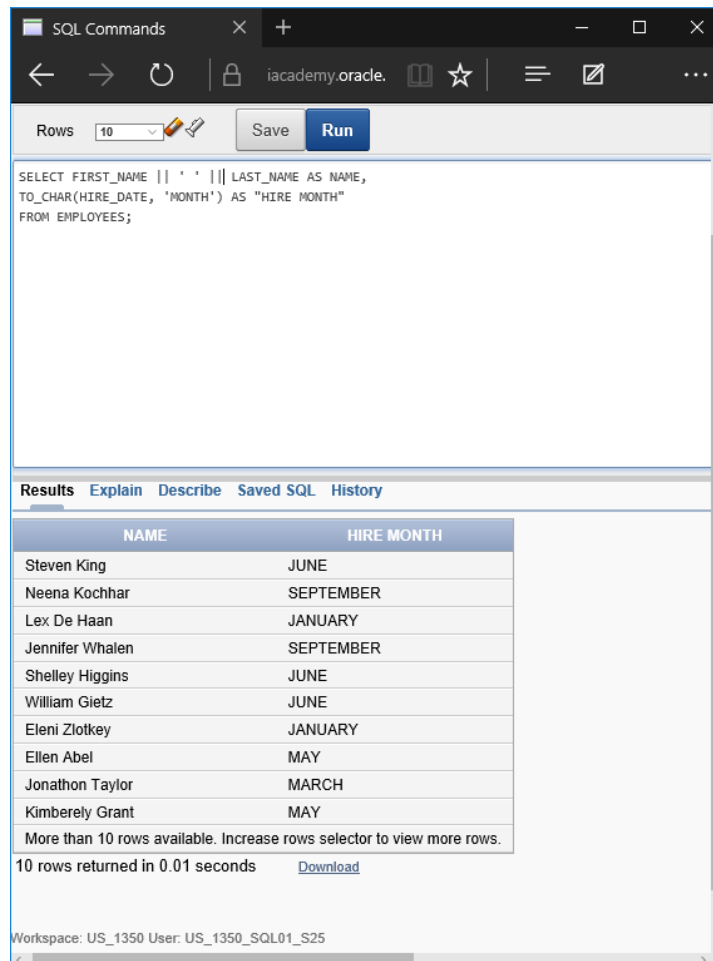
- a. SELECT nvl(v_sal, 50) FROM emp;
- b. SELECT nvl2(v_sal, 50) FROM emp;
- c. **SELECT nullif(v_sal, 50) FROM emp;** ←
- d. SELECT coalesce (v_sal, Null, 50) FROM emp;

6. What does this query on the Global Fast Foods table return?

SELECT COALESCE(last_name, to_char(manager_id)) as NAME FROM f_staffs; This query returns the LAST_NAME column results given that it is not null. If in the case that it is null then the char conversion of the MANAGER_ID will be displayed under the column NAME.

7.

- a. Create a report listing the first and last names and month of hire for all employees in the EMPLOYEES table (use TO_CHAR to convert hire_date to display the month).



The screenshot shows the SQL Developer interface. The SQL Commands window contains the following query:

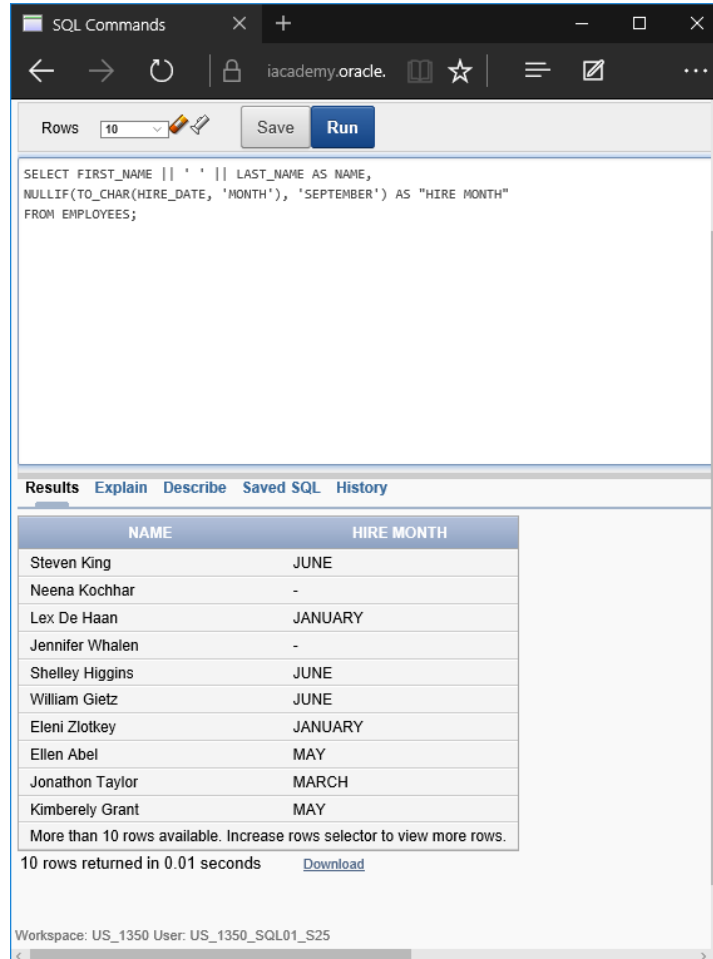
```
SELECT FIRST_NAME || ' ' || LAST_NAME AS NAME,
TO_CHAR(HIRE_DATE, 'MONTH') AS "HIRE MONTH"
FROM EMPLOYEES;
```

The Results window displays the following data:

NAME	HIRE MONTH
Steven King	JUNE
Neena Kochhar	SEPTEMBER
Lex De Haan	JANUARY
Jennifer Whalen	SEPTEMBER
Shelley Higgins	JUNE
William Gietz	JUNE
Eleni Zlotkey	JANUARY
Ellen Abel	MAY
Jonathon Taylor	MARCH
Kimberely Grant	MAY

Below the table, it states: "More than 10 rows available. Increase rows selector to view more rows." and "10 rows returned in 0.01 seconds".

- b. Modify the report to display null if the month of hire is September. Use the NULLIF function.



The screenshot shows the SQL Commands window in Oracle Academy. The query entered is:

```
SELECT FIRST_NAME || ' ' || LAST_NAME AS NAME,
NULLIF(TO_CHAR(HIRE_DATE, 'MONTH'), 'SEPTEMBER') AS "HIRE MONTH"
FROM EMPLOYEES;
```

The results are displayed in a table with two columns: NAME and HIRE MONTH. The table contains 10 rows of data, showing the first names and last names of employees along with their hire month. The hire month is displayed as null for employees hired in September.

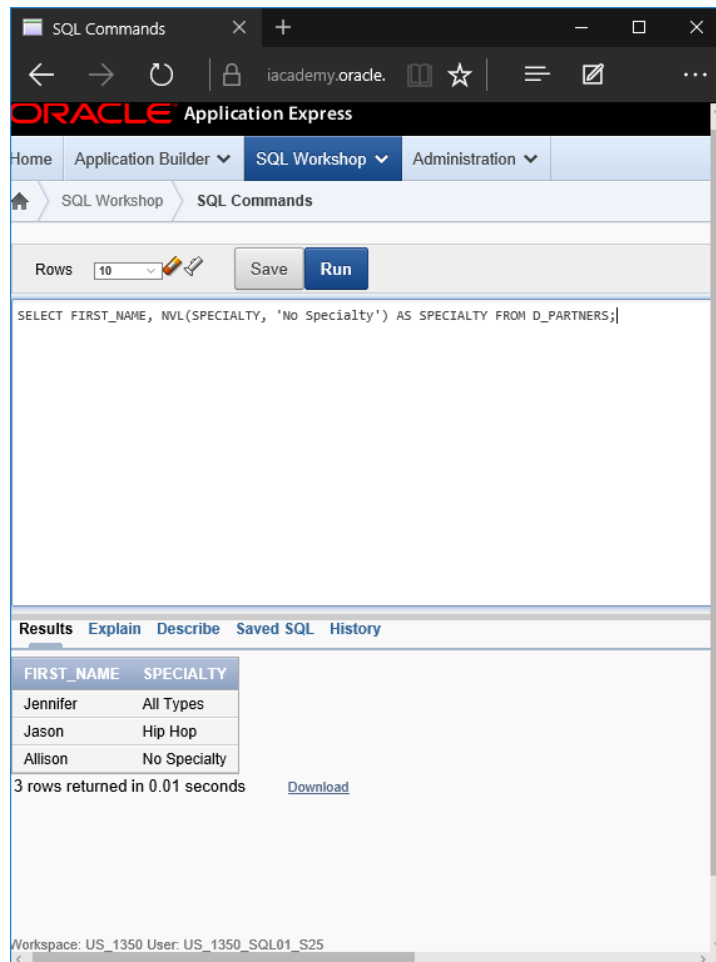
NAME	HIRE MONTH
Steven King	JUNE
Neena Kochhar	-
Lex De Haan	JANUARY
Jennifer Whalen	-
Shelley Higgins	JUNE
William Gietz	JUNE
Eleni Zlotkey	JANUARY
Ellen Abel	MAY
Jonathon Taylor	MARCH
Kimberely Grant	MAY

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

7. For all null values in the specialty column in the DJs on Demand d_partners table, substitute “No Specialty.” Show the first name and specialty columns only.



The screenshot shows the Oracle SQL Workshop interface. The top navigation bar includes 'Home', 'Application Builder', 'SQL Workshop', and 'Administration'. The 'SQL Workshop' tab is active, and the 'SQL Commands' sub-tab is selected. Below the navigation bar, there is a 'Rows' dropdown set to '10', a 'Save' button, and a 'Run' button. The SQL command entered in the text area is: `SELECT FIRST_NAME, NVL(SPECIALTY, 'No Specialty') AS SPECIALTY FROM D_PARTNERS;`

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

FIRST_NAME	SPECIALTY
Jennifer	All Types
Jason	Hip Hop
Allison	No Specialty

Below the table, it states '3 rows returned in 0.01 seconds' and provides a 'Download' link. At the bottom of the page, the workspace information is shown: 'Workspace: US_1350 User: US_1350_SQL01_S25'.

Section 2 Lesson 3: Conditional Expressions

Try It / Solve It

1. From the DJs on Demand d_songs table, create a query that replaces the 2-minute songs with “shortest” and the 10-minute songs with “longest”. Label the output column “Play Times”.

The screenshot shows the SQL Workshop interface with the SQL Commands tab active. The query entered is:

```
SELECT TITLE,
CASE DURATION
WHEN '2 min' THEN 'Shortest'
WHEN '10 min' THEN 'Longest'
ELSE DURATION
END AS DURATION
FROM D_SONGS;
```

The Results tab is selected, displaying a table with 8 rows. The table has two columns: TITLE and DURATION. The data is as follows:

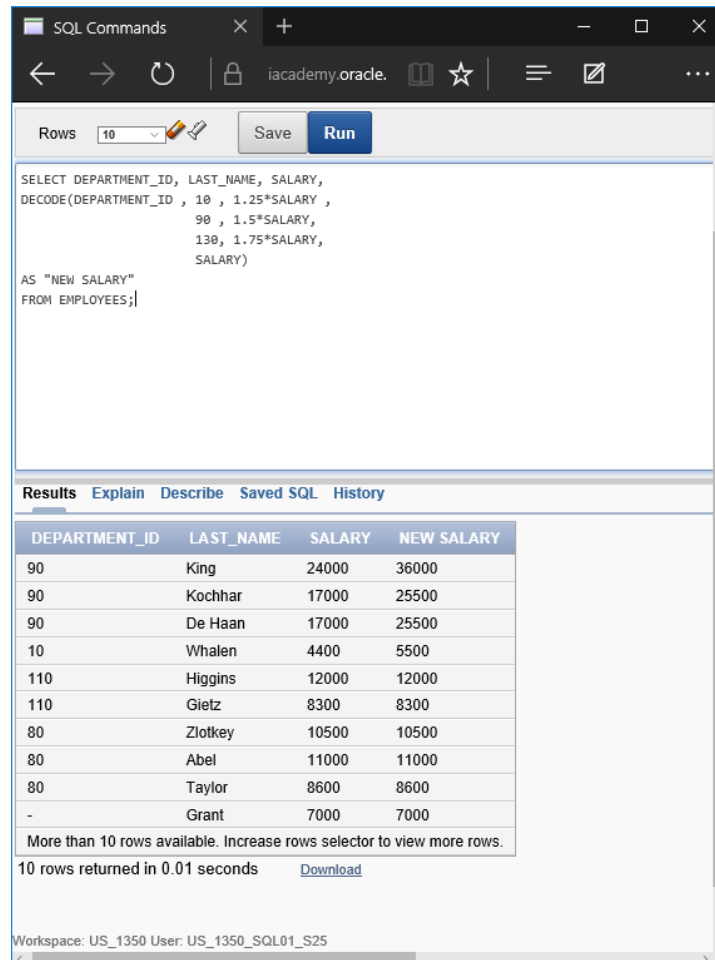
TITLE	DURATION
Its Finally Over	5 min
Im Going to Miss My Teacher	Shortest
Hurrah for Today	3 min
Meet Me At the Altar	6 min
Lets Celebrate	8 min
All These Years	Longest
surfing summer	
victory victory	5min

8 rows returned in 0.07 seconds [Download](#)

Workspace: US_1350 User: US_1350_SQL01_S25

- Use the Oracle database employees table and CASE expression to decode the department id. Display the department id, last name, salary, and a column called "New Salary" whose value is based on the following conditions:

If the department id is 10 then 1.25 * salary
 If the department id is 90 then 1.5 * salary
 If the department id is 130 then 1.75 * salary
 Otherwise, display the old salary.



The screenshot shows a web-based SQL interface. The top bar includes navigation icons and the URL 'iacademy.oracle.'. Below the bar, there's a 'Rows' selector set to 10, and 'Save' and 'Run' buttons. The main area contains a SQL query using a CASE expression to calculate a 'NEW SALARY' based on 'DEPARTMENT_ID'. Below the query, there are tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The 'Results' tab is active, displaying a table with 4 columns: DEPARTMENT_ID, LAST_NAME, SALARY, and NEW SALARY. The table contains 10 rows of data. At the bottom, it indicates '10 rows returned in 0.01 seconds' and provides a 'Download' link. The workspace information at the bottom reads 'Workspace: US_1350 User: US_1350_SQL01_S25'.

```

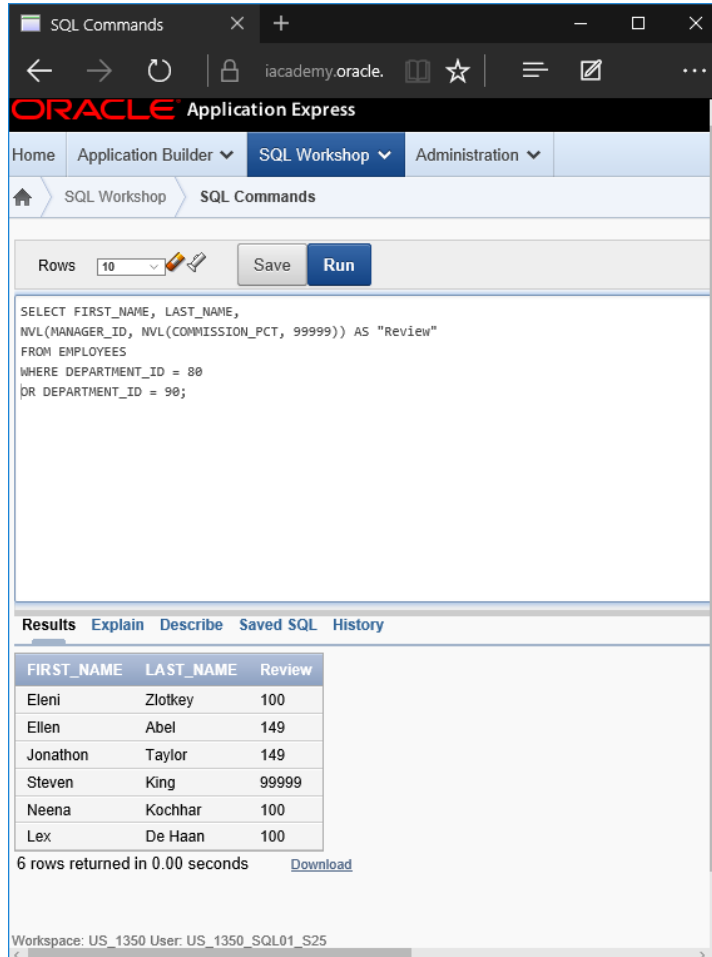
SELECT DEPARTMENT_ID, LAST_NAME, SALARY,
       DECODE(DEPARTMENT_ID, 10, 1.25*SALARY,
              90, 1.5*SALARY,
              130, 1.75*SALARY,
              SALARY)
AS "NEW SALARY"
FROM EMPLOYEES;
    
```

DEPARTMENT_ID	LAST_NAME	SALARY	NEW SALARY
90	King	24000	36000
90	Kochhar	17000	25500
90	De Haan	17000	25500
10	Whalen	4400	5500
110	Higgins	12000	12000
110	Gietz	8300	8300
80	Zlotkey	10500	10500
80	Abel	11000	11000
80	Taylor	8600	8600
-	Grant	7000	7000

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

- Display the first name, last name, manager ID, and commission percentage of all employees in departments 80 and 90. In a 5th column called "Review", again display the manager ID. If they don't have a manager, display the commission percentage. If they don't have a commission, display 99999.



The screenshot shows the Oracle SQL Workshop interface. The SQL Commands window displays the following query:

```
SELECT FIRST_NAME, LAST_NAME,
NVL(MANAGER_ID, NVL(COMMISSION_PCT, 99999)) AS "Review"
FROM EMPLOYEES
WHERE DEPARTMENT_ID = 80
OR DEPARTMENT_ID = 90;
```

The Results tab shows the following data:

FIRST_NAME	LAST_NAME	Review
Eleni	Zlotkey	100
Ellen	Abel	149
Jonathon	Taylor	149
Steven	King	99999
Neena	Kochhar	100
Lex	De Haan	100

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

Workspace: US_1350 User: US_1350_SQL01_S25