ORACLE ACADEMY

Section 6 Lesson 1: Fundamentals of Subqueries

Try It / Solve It

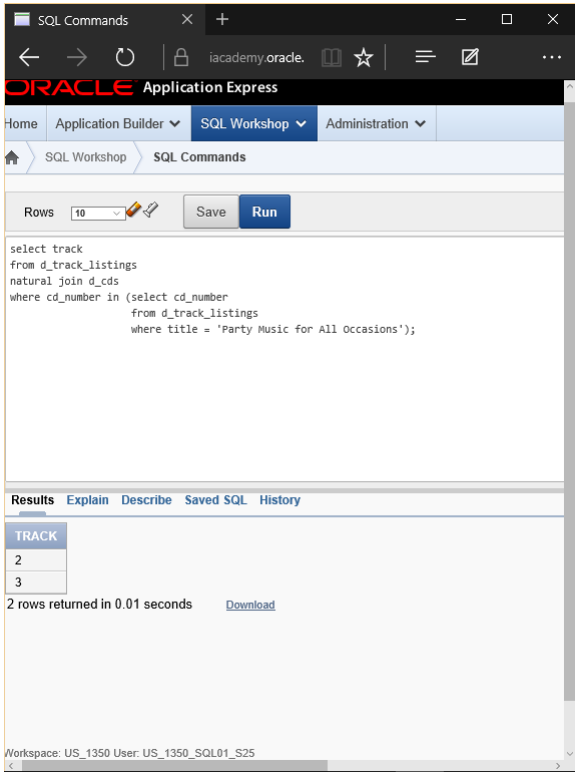
1. What is the purpose of using a subquery? In SQL, subqueries enable us to findhe information we need so that we can get the information we want.

2. What is a subquery? A subquery is a SELECT statement that is embedded in clause of another SELECT statement

3. What DJs on Demand d_play_list_items song_id's have the same event_id as song_id 45? Song IDs 46 and 47 have the same event ID as song ID 45.

4. Which events in the DJs on Demand database cost more than event_id = 100? Vigil Wedding ID no. 105 costs more.

5. Find the track number of the song that has the same CD number as "Party Music for All Occasions."



6. List the DJs on Demand events whose theme code is the same as the code for "Tropical." Tropical-themed events: ID no. 100 (Peters Graduation) and no. 105 (Vigil wedding).

7. What are the names of the Global Fast Foods staff members whose salaries are greater than the staff member whose ID is 12? Monique Tuttle is the staff member whose salary is greater than the staff member whose ID is 12.

8. What are the names of the Global Fast Foods staff members whose staff types are not the same as Bob Miller's? Sue Doe and Monique Tuttle are the staff whose types are not the same as Bob Miller's.

9. Which Oracle employees have the same department ID as the IT department? Alexander Hunoid, Bruce Ernst, and Diana Lorentz are the employees who have the same department ID as the IT department.

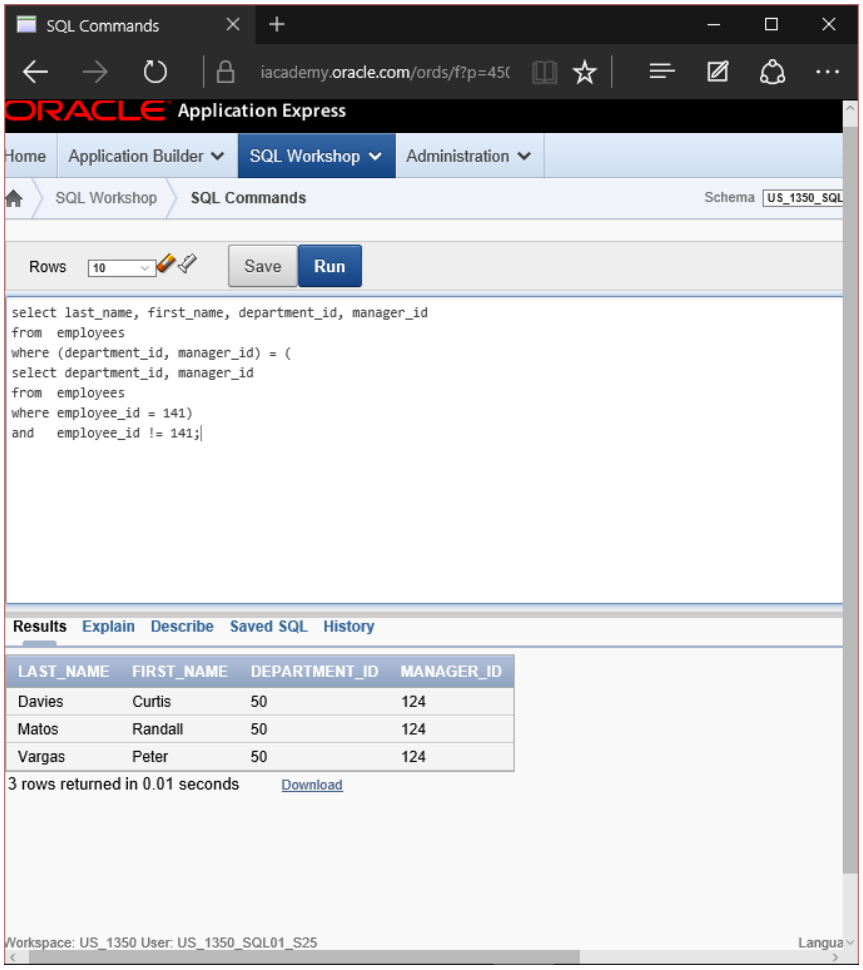
10. What are the department names of the Oracle departments that have the same location ID as Seattle? Administration, Executive, Accounting, and Contracting departments all have the same location ID as Seattle.

11. Indicate whether the statement regarding subqueries is True or False.
    a. **TRUE** It is good programming practice to place a subquery on the right side of the comparison operator.

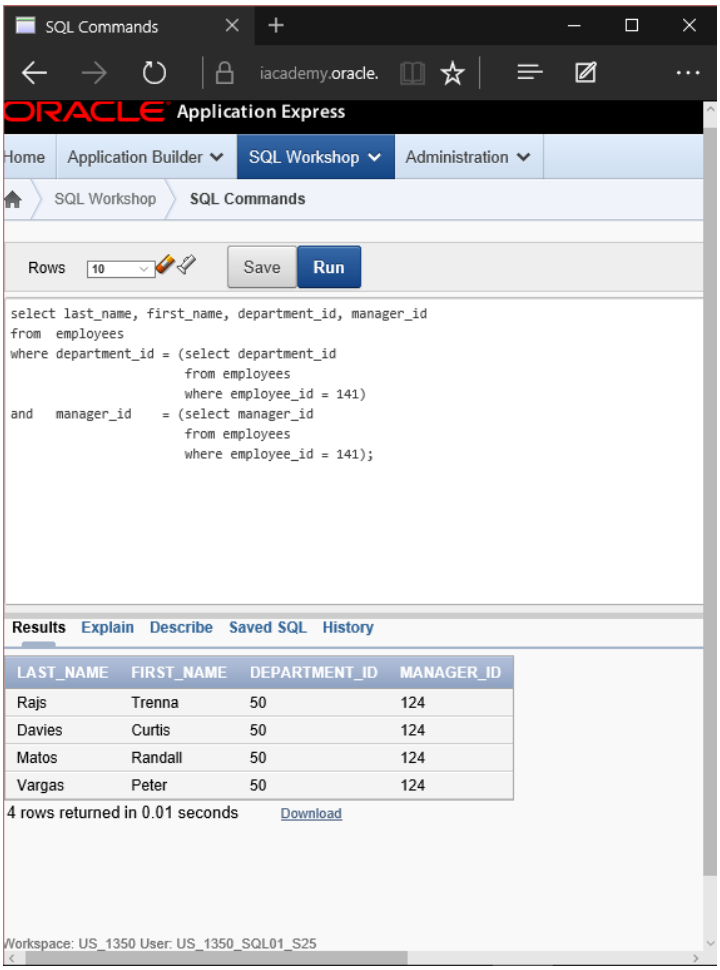
    b. **TRUE** A subquery can reference a table that is not included in the outer query's FROM clause.

    c. **FALSE** Single-row subqueries can return multiple values to the outer query.

12. Write a pair-wise subquery listing the last_name, first_name, department_id, and manager_id for all employees that have the same department_ id and manager_id as employee 141. Exclude employee 141 from the result set.



13. Write a non-pair-wise subquery listing the last_name, first_name, department_id, and manager_id for all employees that have the same department_ id and manager_id as employee 141.



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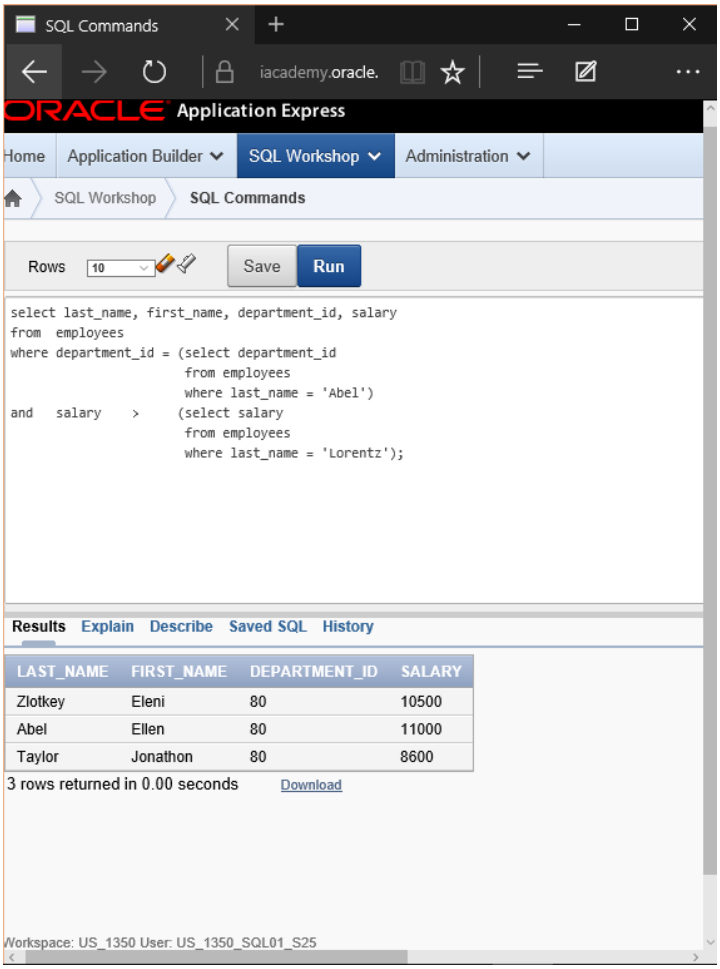
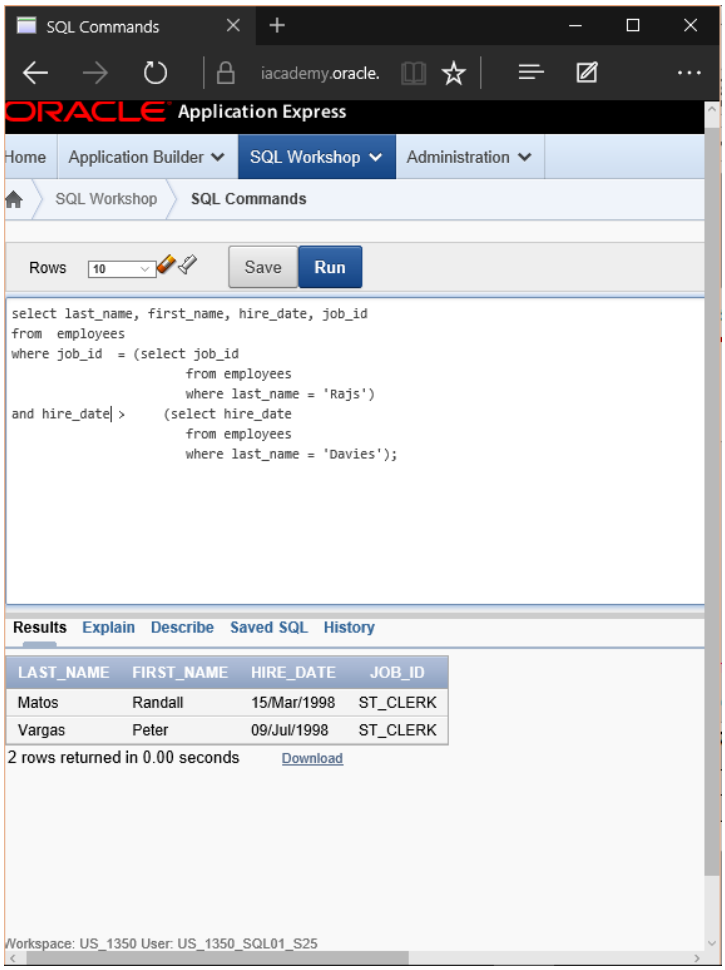
Section 6 Lesson 2: Single-Row Subqueries

Try It / Solve It

1. Write a query to return all those employees who have a salary greater than that of Lorentz and are in the same department as Abel.



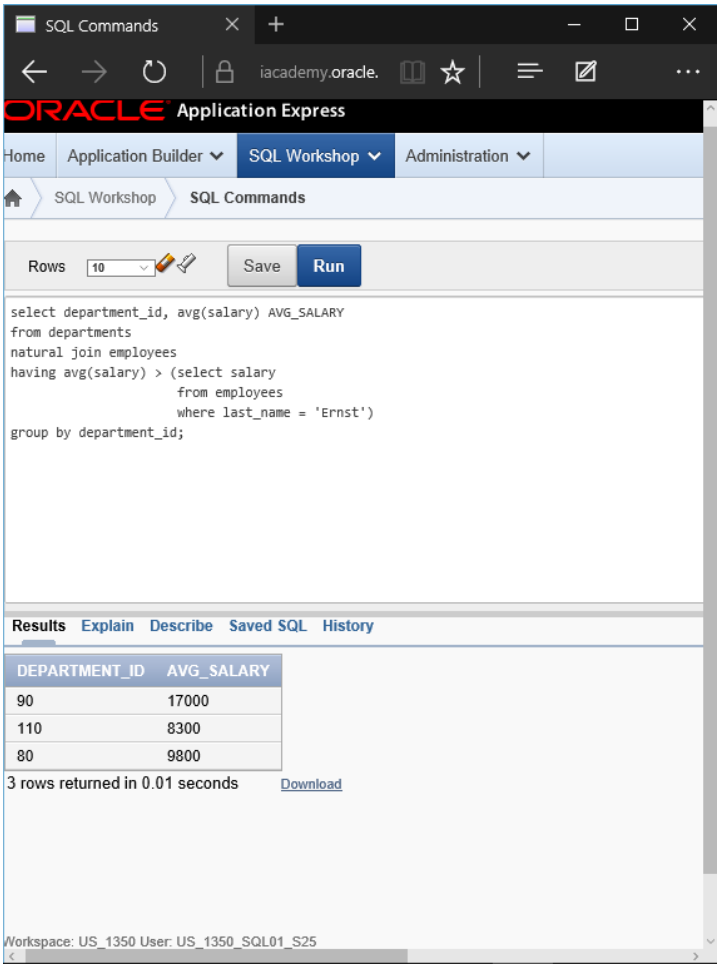
2. Write a query to return all those employees who have the same job id as Rajs and were hired after Davies.



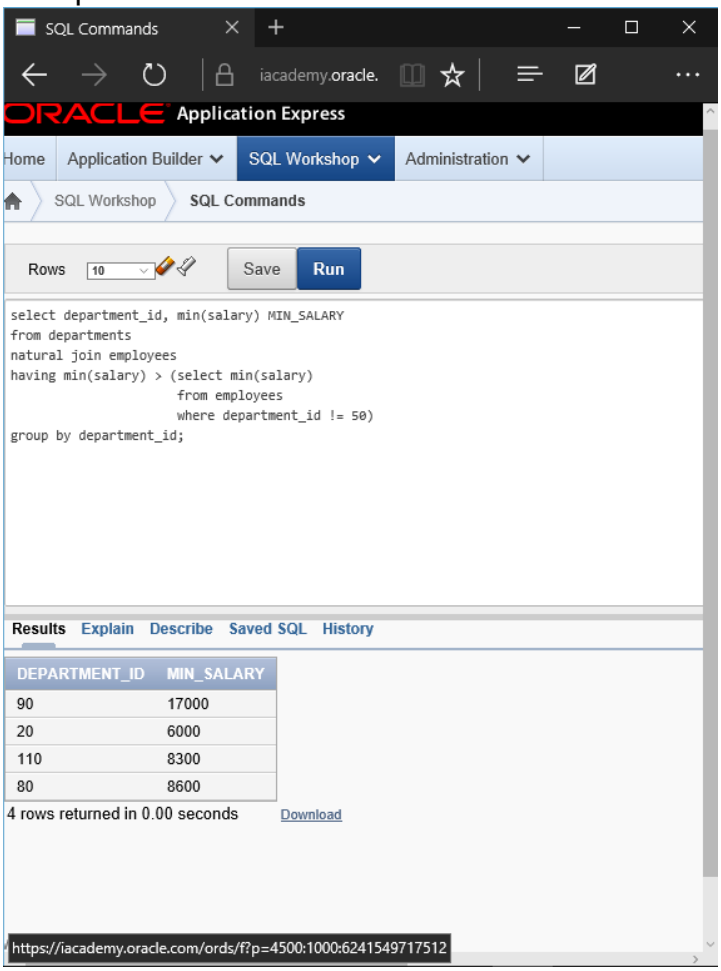
3. What DJs on Demand events have the same theme code as event ID = 100? Event ID 105 (Vigil wedding) has the same theme code as event ID 100.

4. What is the staff type for those Global Fast Foods jobs that have a salary less than those of any Cook staff-type jobs? There are no staff_types listed that have a salary less than those of any Cook staff-type jobs.

5. Write a query to return a list of department id's and average salaries where the department's average salary is greater than Ernst's salary.



6. Return the department ID and minimum salary of all employees, grouped by department ID, having a minimum salary greater than the minimum salary of those employees whose department ID is not equal to 50.



7.

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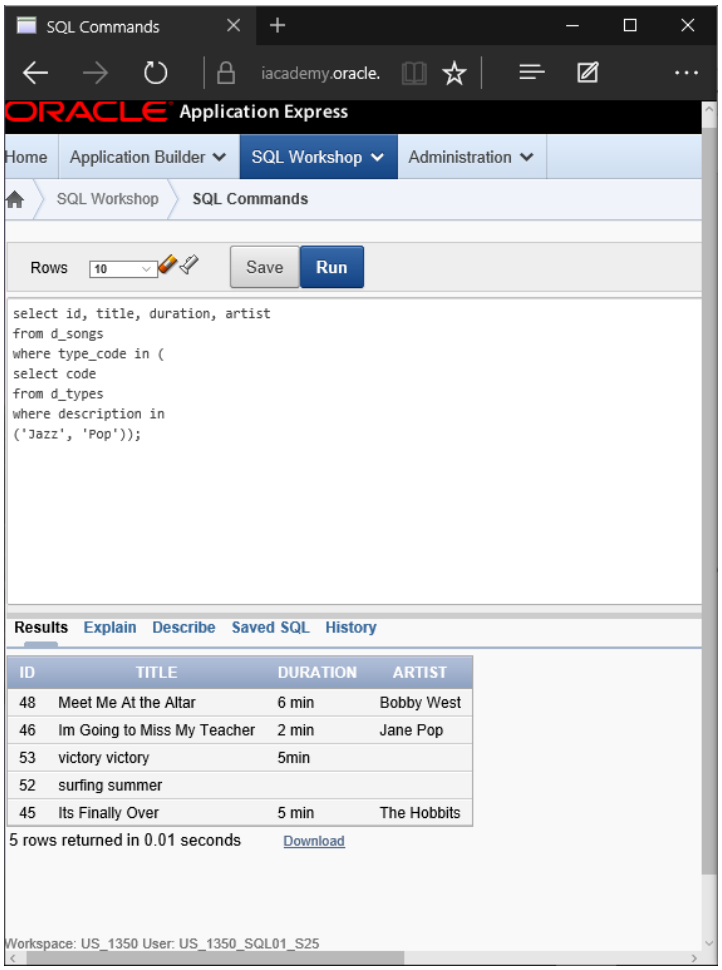
Section 6 Lesson 3: Multiple-Row Subqueries

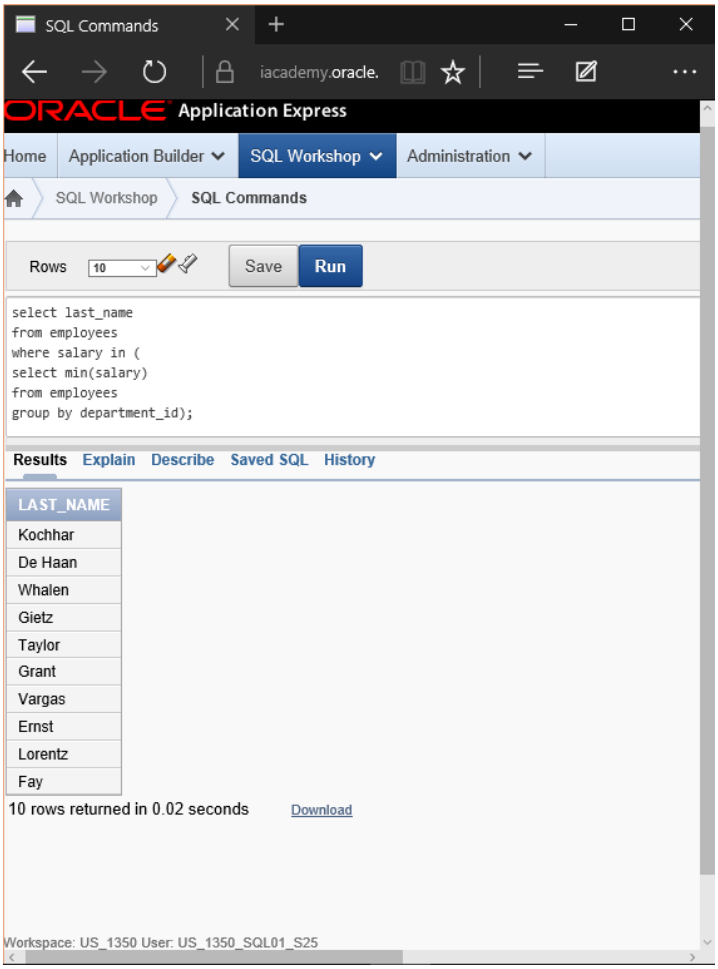
Try It / Solve It

1. What will be returned by a query if it has a subquery that returns a null ? 'No datafound.' is returned by a query if it has a subquery returning a null value.

2. Write a query that returns jazz and pop songs. Write a multi-row subquery and use the d_songs and d_types tables. Include the id, title, duration, and the artist name.



3. Find the last names of all employees whose salaries are the same as the minimum salary for any department.



4. Which Global Fast Foods employee earns the lowest salary? Hint: You can use either a single-row or a multiple-row subquery. Sue Doe and Bob Miller both earn the lowest salary at 10.

5. Place the correct multiple-row comparison operators in the outer query WHERE clause of each of the following:
   a. Which CDs in our d_cds collection were produced before “Carpe Diem” was produced?
      WHERE year = (SELECT year FROM d_cds WHERE title = ‘Carpe Diem’) (SELECT year ...

   b. Which employees have salaries lower than any one of the programmers in the IT department?
      WHERE salary = (SELECT min(salary) FROM employees NATURAL JOIN departments WHERE department_name = 'IT') (SELECT salary ...

   c. What CD titles were produced in the same year as “Party Music for All Occasions” or “Carpe Diem”?
      WHERE year IN (SELECT year FROM d_cds WHERE title IN ('Party Music for All Occasions', 'Carpe Diem')) (SELECT year ...

d. What song title has a duration longer than every type code 77 title? WHERE duration > ANY (SELECT duration FROM d_songs WHERE type_code = 77) (SELECT duration ...

6. If each WHERE clause is from the outer query, which of the following are true?

_____ a. WHERE size > ANY -- If the inner query returns sizes ranging from 8 to 12, the value 9 could be returned in the outer query.

_____ b. WHERE book_number IN -- If the inner query returns books numbered 102, 105, 437, and 225 then 325 could be returned in the outer query.

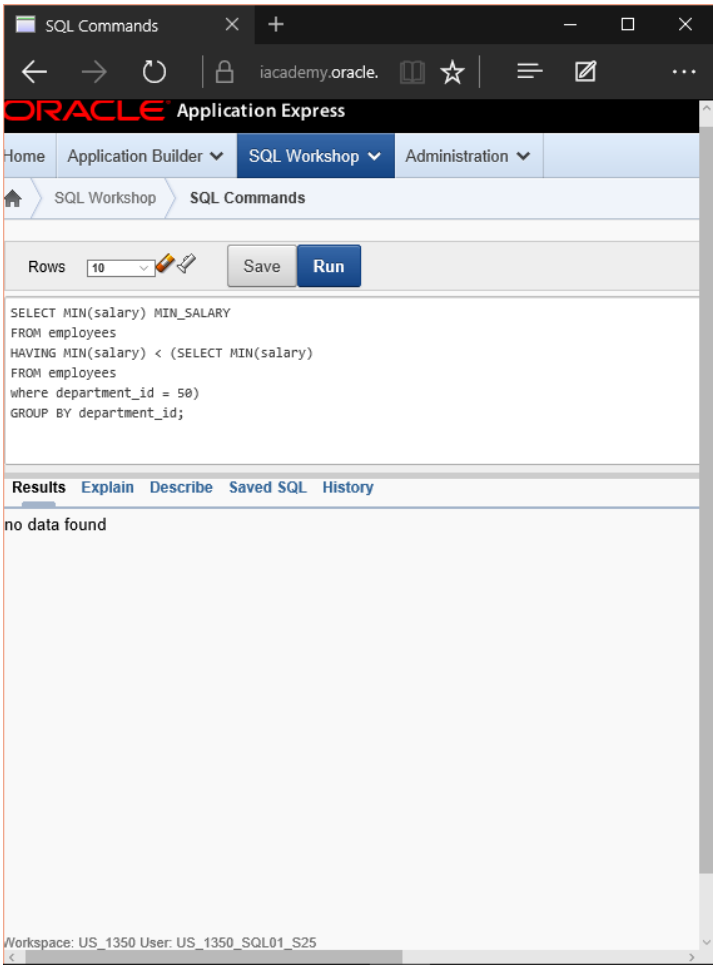
_____ c. WHERE score <= ALL -- If the inner query returns the scores 89, 98, 65, and 72, then 82 could be returned in the outer query.

TRUE d. WHERE color NOT IN -- If the inner query returns red, green, blue, black, and then the outer query could return white.

_____ e. WHERE game_date = ANY -- If the inner query returns 05-JUN-1997, 10-DEC2002, and 2-JAN-2004, then the outer query could return 10-SEP-2002.

7. The goal of the following query is to display the minimum salary for each department whose minimum salary is less than the lowest salary of the employees in department 50. However, the subquery does not execute because it has five errors. Find them, correct them, and run the query.

```
SELECT department_id
FROM employees
WHERE MIN(salary)
HAVING MIN(salary) >
GROUP BY department_id
SELECT MIN(salary)
WHERE department_id < 50;
```



8. Which statements are true about the subquery below?

```
SELECT employee_id, last_name
FROM employees
WHERE salary =
    (SELECT MIN(salary)
    FROM employees
    GROUP BY department_id);
```

_____ a. The inner query could be eliminated simply by changing the WHERE clause to WHERE MIN(salary).

TRUE b. The query wants the names of employees who make the same salary as the smallest salary in any department.

_____ c. The query first selects the employee ID and last name, and then compares that to the salaries in every department.

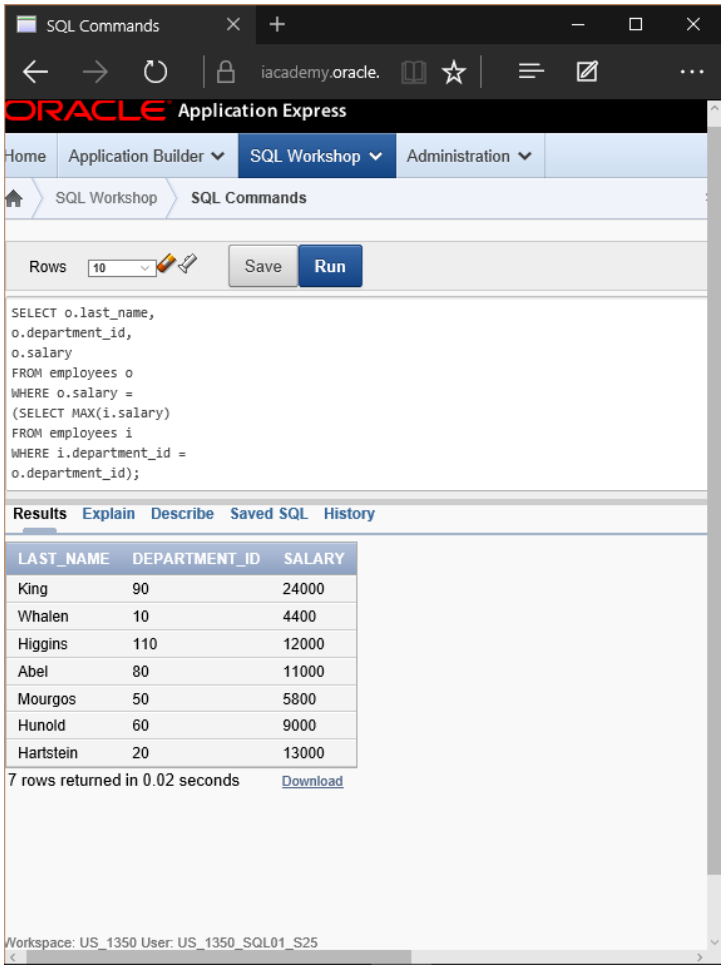
TRUE d. This query will not execute.

Section 6 Lesson 4: Correlated Subqueries

Try It / Solve It

1. Explain the main difference between correlated and non-correlated subqueries?
   Correlated subqueries are used for row-by-row processing and are each executed once for every row of the outer query. With a normal subquery, the inner SELECT query runs and executes once, returning a set of values to the outer query.

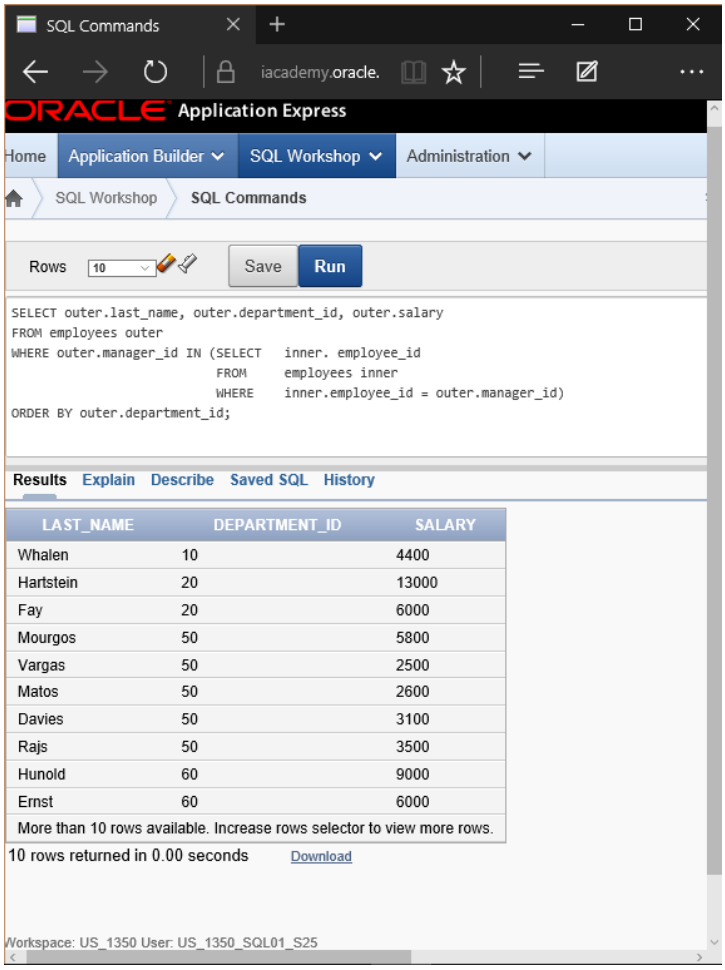
2. Write a query that lists the highest earners for each department. Include the last_name, department_id, and the salary for each employee.



3. Examine the following select statement and finish it so that it will return the last_name, department_id, and salary of employees who have at least one person reporting to them. So we are effectively looking for managers only. In the partially written SELECT statement, the WHERE clause will work as it is. It is simply testing for the existence of a row in the subquery.

```
SELECT (enter columns here)
FROM   (enter table name here) outer
WHERE  'x' IN (SELECT 'x'
               FROM   (enter table name here) inner
               WHERE  inner(enter column name here)  = inner(enter column name here)
```

Finish off the statement by sorting the rows on the department_id column.



4. Using a WITH clause, write a SELECT statement to list the job_title of those jobs whose maximum salary is more than half the maximum salary of the entire company. Name your subquery MAX_CALC_SAL. Name the columns in the result JOB_TITLE and JOB_TOTAL, and sort the result on JOB_TOTAL in descending order.

   Hint: Examine the jobs table. You will need to join JOBS and EMPLOYEES to display the job_title.