

CENG316 – Database Systems Assignment 3

191180005 – Selin Cansu Akbaş

Part 1

```
1) SELECT last_name, first_name, job_id,  
    DECODE(job_id, 'AD_PRES', 'A',  
            'ST_MAN', 'B',  
            'IT_PROG', 'C',  
            'SA_REP', 'D',  
            'ST_CLERK', 'E',  
            '0') AS grade  
FROM employees;
```

The screenshot shows the Live SQL web interface. At the top, there's a navigation bar with a hamburger menu, the 'Live SQL' logo, and links for Feedback, Help, and a user profile (selin_cansu@hotmail.com). Below this is a toolbar with 'Clear', 'Find', 'Actions', 'Save', and 'Run' buttons. The main area is titled 'SQL Worksheet' and contains the following SQL query:


```
1 v SELECT last_name, first_name, job_id,  
2     DECODE(job_id, 'AD_PRES', 'A',  
3             'ST_MAN', 'B',  
4             'IT_PROG', 'C',  
5             'SA_REP', 'D',  
6             'ST_CLERK', 'E',  
7             '0') AS grade  
8 FROM employees;
```


Below the query editor, the results are displayed in a table with the following data:

| LAST_NAME | FIRST_NAME | JOB_ID | GRADE |
|-----------|------------|---------|-------|
| King | Steven | AD_PRES | A |
| Kochhar | Neena | AD_VP | 0 |
| De Haan | Lex | AD_VP | 0 |
| Hunold | Alexander | IT_PROG | C |
| Ernst | Bruce | IT_PROG | C |
| Austin | David | IT_PROG | C |
| Pataballa | Valli | IT_PROG | C |
| Lorentz | Diana | IT_PROG | C |
| Greenberg | Nancy | ET_MGR | 0 |

At the bottom of the interface, a footer bar contains the text: '2023 Oracle - Live SQL 23.2.1, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym'.

2) SELECT COUNT(DISTINCT manager_id) AS "Number of Managers"
FROM employees;

 Live SQL

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SQL Worksheet

[Clear](#) [Find](#) [Actions](#) [Save](#) [Run](#)

```
1 SELECT COUNT(DISTINCT manager_id) AS "Number of Managers"
2 FROM employees;
```

| Number of Managers |
|--------------------|
| 18 |

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3) SELECT manager_id, MAX(salary) AS highest_salary
FROM employees
WHERE manager_id IS NOT NULL
GROUP BY manager_id
HAVING MAX(salary) > 7000
ORDER BY highest_salary DESC;

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT manager_id, MAX(salary) AS highest_salary
2 FROM employees
3 WHERE manager_id IS NOT NULL
4 GROUP BY manager_id
5 HAVING MAX(salary) > 7000
6 ORDER BY highest_salary DESC;
```

| MANAGER_ID | HIGHEST_SALARY |
|------------|----------------|
| 100 | 17000 |
| 101 | 12008 |
| 148 | 11500 |
| 149 | 11000 |
| 147 | 10500 |
| 146 | 10000 |
| 145 | 10000 |
| 108 | 9000 |
| 102 | 9000 |
| 205 | 8300 |

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```

4) SELECT e.last_name AS employee_last_name,
       e.first_name AS employee_first_name,
       e.hire_date AS employee_hire_date,
       m.last_name AS manager_last_name,
       m.first_name AS manager_first_name,
       m.hire_date AS manager_hire_date
FROM employees e
JOIN employees m ON e.manager_id = m.employee_id
WHERE e.hire_date > m.hire_date;

```

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SQL Worksheet
Clear Find Actions Save Run

```

1 SELECT e.last_name AS employee_last_name,
2       e.first_name AS employee_first_name,
3       e.hire_date AS employee_hire_date,
4       m.last_name AS manager_last_name,
5       m.first_name AS manager_first_name,
6       m.hire_date AS manager_hire_date
7 FROM employees e
8 JOIN employees m ON e.manager_id = m.employee_id
9 WHERE e.hire_date > m.hire_date;


```

| EMPLOYEE_LAST_NAME | EMPLOYEE_FIRST_NAME | EMPLOYEE_HIRE_DATE | MANAGER_LAST_NAME | MANAGER_FIRST_NAME | MANAGER_HIRE_DATE |
|--------------------|---------------------|--------------------|-------------------|--------------------|-------------------|
| Kochhar | Neena | 21-SEP-05 | King | Steven | 17-JUN-03 |
| Weiss | Matthew | 18-JUL-04 | King | Steven | 17-JUN-03 |
| Fripp | Adam | 10-APR-05 | King | Steven | 17-JUN-03 |
| Vollman | Shanta | 10-OCT-05 | King | Steven | 17-JUN-03 |
| Mourgos | Kevin | 16-NOV-07 | King | Steven | 17-JUN-03 |
| Russell | John | 01-OCT-04 | King | Steven | 17-JUN-03 |
| Partners | Karen | 05-JAN-05 | King | Steven | 17-JUN-03 |
| Errazuriz | Alberto | 10-MAR-05 | King | Steven | 17-JUN-03 |
| Cambrault | Gerald | 15-OCT-07 | King | Steven | 17-JUN-03 |
| Zlotkey | Eleni | 29-JAN-08 | King | Steven | 17-JUN-03 |
| Hartstein | Michael | 17-FEB-04 | King | Steven | 17-JUN-03 |

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Part 2

```
5) SELECT e.last_name, e.job_id, e.department_id, d.department_name
FROM employees e
JOIN departments d ON e.department_id = d.department_id
JOIN locations l ON d.location_id = l.location_id
WHERE l.city = 'Toronto';
```

≡  Live SQL

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SQL Worksheet Clear Find Actions Save Run

```
1 SELECT e.last_name, e.job_id, e.department_id, d.department_name
2 FROM employees e
3 JOIN departments d ON e.department_id = d.department_id
4 JOIN locations l ON d.location_id = l.location_id
5 WHERE l.city = 'Toronto';
```

| LAST_NAME | JOB_ID | DEPARTMENT_ID | DEPARTMENT_NAME |
|-----------|--------|---------------|-----------------|
| Hartstein | MK_MAN | 20 | Marketing |
| Fay | MK_REP | 20 | Marketing |

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2 rows selected.

```
6) SELECT e.last_name AS Employee,  
       e.employee_id AS "Emp ID",  
       m.last_name AS Manager,  
       m.employee_id AS "Mgr ID"  
FROM employees e  
JOIN employees m ON e.manager_id = m.employee_id;
```

Live SQL

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SQL Worksheet

Clear Find Actions Save Run

```
1 SELECT e.last_name AS Employee,  
2       e.employee_id AS "Emp ID",  
3       m.last_name AS Manager,  
4       m.employee_id AS "Mgr ID"  
5 FROM employees e  
6 JOIN employees m ON e.manager_id = m.employee_id;
```

| EMPLOYEE | Emp ID | MANAGER | Mgr ID |
|-----------|--------|---------|--------|
| Kochhar | 101 | King | 100 |
| De Haan | 102 | King | 100 |
| Raphaely | 114 | King | 100 |
| Weiss | 120 | King | 100 |
| Frapp | 121 | King | 100 |
| Kaufling | 122 | King | 100 |
| Vollman | 123 | King | 100 |
| Mourgos | 124 | King | 100 |
| Russell | 145 | King | 100 |
| Partners | 146 | King | 100 |
| Errazuriz | 147 | King | 100 |

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7) DESCRIBE job_grades;

SELECT e.last_name, e.job_id, d.department_name, e.salary, jg.grade_level AS
"GRADE"

FROM employees e

JOIN departments d ON e.department_id = d.department_id

JOIN job_grades jg ON e.salary BETWEEN jg.lowest_sal AND jg.highest_sal;

≡

Live SQL

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SQL Worksheet

Clear Find Actions Save Run

```
1 DESCRIBE job_grades;
2 v SELECT e.last_name, e.job_id, d.department_name, e.salary, jg.grade_level AS "GRADE"
3 FROM employees e
4 JOIN departments d ON e.department_id = d.department_id
5 JOIN job_grades jg ON e.salary BETWEEN jg.lowest_sal AND jg.highest_sal;
```

TABLE JOB_GRADES

| Column | Null? | Type |
|-------------|----------|-------------|
| GRADE_LEVEL | NOT NULL | VARCHAR2(3) |
| LOWEST_SAL | - | NUMBER |
| HIGHEST_SAL | - | NUMBER |

Download CSV

3 rows selected.

| LAST_NAME | JOB_ID | DEPARTMENT_NAME | SALARY | GRADE |
|------------|----------|-----------------|--------|-------|
| Whalen | AD_ASST | Administration | 4400 | B |
| Fay | MK_REP | Marketing | 6000 | C |
| Hartstein | MK_MAN | Marketing | 13000 | D |
| Colmenares | PU_CLERK | Purchasing | 2500 | A |
| Himuro | PU_CLERK | Purchasing | 2600 | A |
| Tobias | PU_CLERK | Purchasing | 2800 | A |
| Baida | PU_CLERK | Purchasing | 2900 | A |

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```

8) SELECT e.last_name AS employee_last_name,
       e.first_name AS employee_first_name,
       e.hire_date AS employee_hire_date,
       (SELECT m.last_name || ', ' || m.first_name
        FROM employees m
        WHERE m.employee_id = e.manager_id) AS manager_name,
       (SELECT m.hire_date
        FROM employees m
        WHERE m.employee_id = e.manager_id) AS manager_hire_date
FROM employees e
WHERE e.hire_date > (SELECT m.hire_date
                    FROM employees m
                    WHERE m.employee_id = e.manager_id);

```

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SQL Worksheet
Clear Find Actions Save Run

```

1 SELECT e.last_name AS employee_last_name,
2       e.first_name AS employee_first_name,
3       e.hire_date AS employee_hire_date,
4       (SELECT m.last_name || ', ' || m.first_name
5        FROM employees m
6        WHERE m.employee_id = e.manager_id) AS manager_name,
7       (SELECT m.hire_date
8        FROM employees m
9        WHERE m.employee_id = e.manager_id) AS manager_hire_date
10 FROM employees e
11 WHERE e.hire_date > (SELECT m.hire_date
12                     FROM employees m
13                     WHERE m.employee_id = e.manager_id);

```

| EMPLOYEE_LAST_NAME | EMPLOYEE_FIRST_NAME | EMPLOYEE_HIRE_DATE | MANAGER_NAME | MANAGER_HIRE_DATE |
|--------------------|---------------------|--------------------|-------------------|-------------------|
| Kochhar | Neena | 21-SEP-05 | King, Steven | 17-JUN-03 |
| Hunold | Alexander | 03-JAN-06 | De Haan, Lex | 13-JAN-01 |
| Ernst | Bruce | 21-MAY-07 | Hunold, Alexander | 03-JAN-06 |
| Pataballa | Valli | 05-FEB-06 | Hunold, Alexander | 03-JAN-06 |
| Lorentz | Diana | 07-FEB-07 | Hunold, Alexander | 03-JAN-06 |
| Chen | John | 28-SEP-05 | Greenberg, Nancy | 17-AUG-02 |
| Sciarra | Ismael | 30-SEP-05 | Greenberg, Nancy | 17-AUG-02 |
| Urman | Jose Manuel | 07-MAR-06 | Greenberg, Nancy | 17-AUG-02 |
| Popp | Luis | 07-DEC-07 | Greenberg, Nancy | 17-AUG-02 |
| Khoo | Alexander | 18-MAY-03 | Raphaely, Den | 07-DEC-02 |
| Baida | Shelli | 24-DEC-05 | Raphaely, Den | 07-DEC-02 |

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