2-RDBMS SQL and PL/SQL Fundamentals

PART II **Marks 2 Each**

1. You have been hired as a SQL programmer for Acme Corporation. Your first task is to create some reports based on data from the Human Resources tables. Your first task is to determine the structure of the DEPARTMENTS table and its contents.

DESCRIBE DEPARTMENTS;

SELECT * FROM DEPARTMENTS;

2. The HR department needs a query to display all unique job codes from the EMPLOYEES table.

SELECT DISTINCT JOB_ID FROM EMPLOYEES;

3. Create a query to display all the data from the EMPLOYEES table. Separate each column output with a comma. Name the column THE_OUTPUT.

SELECT EMPLOYEE_ID || ',' || FIRST_NAME || ',' || LAST_NAME || ',' || EMAIL || ',' || PHONE_NUMBER || ',' || HIRE_DATE || ',' || JOB_ID || ',' || SALARY || ',' || COMMISSION_PCT || ',' || MANAGER_ID || ',' || DEPARTMENT_ID AS "THE_OUTPUT" FROM EMPLOYEES;

4. Because of budget issues, the HR department needs a report that displays the last name and salary of employees earning more than $12,000.

SELECT LAST_NAME, SALARY FROM EMPLOYEES WHERE SALARY > 12000;

5. The HR departments needs to find high-salary and low-salary employees. Write a query to display the last name and salary for all employees whose salary is not in the $5,000–$12,000 range.

SELECT LAST_NAME, SALARY FROM EMPLOYEES WHERE SALARY NOT BETWEEN 5000 AND 12000;

6. Create a report to display the last name, job ID, and start date for the employees whose last names are Matos and Taylor. Order the query in ascending order by start date.

SELECT LAST_NAME, JOB_ID, HIRE_DATE FROM EMPLOYEES WHERE LAST_NAME IN ('Matos', 'Taylor');

7. Write a Query to list the last name and salary of employees who earn between $5,000 and $12,000, and are in department 20 or 50. Label the columns Employee and Monthly Salary, respectively.

SELECT LAST_NAME AS EMPLOYEE, SALARY AS "MONTHLY SALARY" FROM EMPLOYEES WHERE SALARY BETWEEN 5000 AND 12000 AND DEPARTMENT_ID IN (20, 50);

8. Display the last name, salary, and commission for all employees who earn commissions. Sort data in descending order of salary and commissions.

SELECT LAST_NAME, SALARY, COMMISSION_PCT FROM EMPLOYEES WHERE COMMISSION_PCT IS NOT NULL ORDER BY SALARY DESC, COMMISSION_PCT DESC;

9. The HR department wants to run reports based on a manager. Create a query that prompts the user for a manager ID and generates the employee ID, last name, salary,

and department for that manager's employees. The HR department wants the ability to sort the report on a selected column.

SELECT EMPLOYEE_ID, LAST_NAME, SALARY, DEPARTMENT_ID FROM EMPLOYEES WHERE MANAGER_ID = &MANAGER_ID;

10. The HR department needs a report to display the employee number, last name, salary, and salary increased by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.

SELECT EMPLOYEE_ID, LAST_NAME, SALARY, ((15.5/100) * SALARY)+SALARY AS "NEW_SALARY" FROM EMPLOYEES ;

11. Create a query that displays the first eight characters of the employees' last names and indicates the amounts of their salaries with asterisks. Each asterisk signifies a thousand dollars. Sort the data in descending order of salary. Label the column EMPLOYEES_AND_THEIR_SALARIES.

SELECT SUBSTR(LAST_NAME, 1, 8) || ',' || RPAD('*', SALARY/1000, '*') AS "EMPLOYEES_AND_THEIR_SALARIES" FROM EMPLOYEES;

12. Using the DECODE and CASE function, write a query that displays the grade of all employees based on the value of the column JOB_ID, using the following data:

Job	*Grade*
AD_PRES	A
ST_MAN	B
IT_PROG	C
SA_REP	D
ST_CLERK	E
None of the above	0

SELECT EMPLOYEE_ID, FIRST_NAME, DECODE(JOB_ID, 'AD_PRES', 'A', 'ST_MAN', 'B', 'IT_PROG', 'C', 'SA_REP', 'D', 'ST_CLERK', 'E', '0') AS GRADES FROM EMPLOYEES;

13. The HR department needs a report of employees in Toronto. Display the last name, job, department number, and department name for all employees who work in Toronto.

SELECT E.LAST_NAME, E.JOB_ID, D.DEPARTMENT_ID, D.DEPARTMENT_NAME, L.LOCATION_ID, L.CITY FROM EMPLOYEES E JOIN DEPARTMENTS D ON (E.DEPARTMENT_ID = D.DEPARTMENT_ID) JOIN LOCATIONS L ON (L.LOCATION_ID = D.LOCATION_ID) WHERE CITY = 'Toronto';

14. Create a report to display the last name and employee number of employees along with their manager's last name and manager number. Label the columns Employee, Emp#,Manager, and Mgr#, respectively.

SELECT E.LAST_NAME AS "Employee", E.EMPLOYEE_ID AS "Emp#", M.LAST_NAME AS "Manager", E.MANAGER_ID AS "Mgr#" FROM EMPLOYEES E LEFT JOIN EMPLOYEES M ON E.MANAGER_ID = M.EMPLOYEE_ID;

15. The HR department needs a query that prompts the user for an employee last name. The query then displays the last name and hire date of any employee in the same department as the employee whose name the user supplies (excluding that employee). For example, if the user enters Zlotkey, find all employees who work with Zlotkey (excluding Zlotkey).

SELECT LAST_NAME, HIRE_DATE FROM EMPLOYEES WHERE DEPARTMENT_ID = (SELECT DEPARTMENT_ID FROM EMPLOYEES WHERE LAST_NAME = '&&las') AND LAST_NAME <> '&las';

16. Write a query that displays the last name (with the first letter uppercase and all other letters lowercase) and the length of the last name for all employees whose name starts with the letters J, A, or M. Give each column an appropriate label. Sort the results by the last names of the employees.

	Name	Length
1	Abel	4
2	Matos	5
3	Mourgos	7

Rewrite the query so that the user is prompted to enter a letter that starts the last name. For example, if the user enters H when prompted for a letter, the output should show all employees whose last name starts with the letter H.

	Name	Length
1	Hartstein	9
2	Higgins	7
3	Hunold	6

SELECT INITCAP(LAST_NAME) AS NAME , LENGTH(LAST_NAME) AS LENGTH FROM EMPLOYEES ORDER BY LAST_NAME;

17. Create a report to display the last name and employee number of employees along with their manager's last name and manager number. Label the columns Employee, Emp#, Manager, and Mgr#, respectively

	Employee	EMP#	Manager	Mgr#
1	Whalen	200	Kochhar	101
2	Hartstein	201	King	100
3	Fay	202	Hartstein	201
4	Higgins	205	Kochhar	101
5	Gietz	206	Higgins	205
6	Kochhar	101	King	100
7	De Haan	102	King	100
8	Hunold	103	De Haan	102
9	Ernst	104	Hunold	103
10	Lorentz	107	Hunold	103
11	Mourgos	124	King	100
12	Rajs	141	Mourgos	124
13	Davies	142	Mourgos	124
14	Matos	143	Mourgos	124
15	Vargas	144	Mourgos	124
16	Zlotkey	149	King	100
17	Abel	174	Zlotkey	149
18	Taylor	176	Zlotkey	149
19	Grant	178	Zlotkey	149

CREATE VIEW EMPLY AS SELECT E.LAST_NAME AS "Employee", E.EMPLOYEE_ID AS "Emp#", M.LAST_NAME AS "Manager", E.MANAGER_ID AS "Mgr#" FROM

EMPLOYEES E LEFT JOIN EMPLOYEES M ON E.MANAGER_ID = M.EMPLOYEE_ID;

18. Create the EMP table based on the following table instance chart. Confirm that the table is created.

Column Name	ID	LAST_NAME	FIRST_NAME	DEPT_ID
Key Type				
Nulls/Unique				
FK Table				DEPT
FK Column				ID
Data type	NUMBER	VARCHAR2	VARCHAR2	NUMBER
Length	7	25	25	7

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Name                          Null     Type
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ID                                     NUMBER(7)
LAST_NAME                              VARCHAR2(25)
FIRST_NAME                             VARCHAR2(25)
DEPT_ID                                NUMBER(7)

4 rows selected
```

CREATE TABLE EMMMP (ID NUMBER(7), LAST_NAME VARCHAR(25), FIRST_NAME VARCHAR(25), DEPT_ID NUMBER(7) CONSTRAINT FK REFERENCES DEPARTMENTS(DEPARTMENT_ID));

DESC EMMMP;

19. The staff in the HR department want to hide some of the data in the EMPLOYEES table. They want a view called EMPLOYEES_VU based on the employee numbers, employee names, and department numbers from the EMPLOYEES table. They want the heading for the employee name to be EMPLOYEE.

CREATE VIEW EMPLOYEES_VUT AS SELECT EMPLOYEE_ID, FIRST_NAME || LAST_NAME AS "EMPLOYEE NAME", DEPARTMENT_ID FROM EMPLOYEES;

SELECT * FROM EMPLOYEES_VUT;

20. You need a sequence that can be used with the primary key column of the DEPT table. The sequence should start at 200 and have a maximum value of 1,000. Have your sequence increment by 10. Name the sequence DEPT_ID_SEQ. And create a synonym for your EMPLOYEES table. Call it EMP.

CREATE SEQUENCE DEPT_ID_SEQ INCREMENT BY 10 START WITH 200 MAXVALUE 1000;

CREATE SYNONYM EMPPP FOR EMPLOYEES;

Generic Diagram For Reference