DATABASE LABORATORY

Subject Code: 2TMCAL1 I. A. Marks: 50
Hours/Week: 02 Exam Marks: 50
Total Hours: 24 Exam Hours: 03

Practical – 5 :

Consider the following Employee database of working in a department and getting grade of a salary.

Employee (empno: number, empname: string, job: string,
manager: number (self reference key), hiredate: date, salary: number,
commision: number, deptno number(foreign key))

Department (deptno: number, deptname: string, location: string)

SalaryGrade (grade: number, LowSalary: number, highSalary: number)

i. Create the above tables by properly specifying the primary keys and the foreign keys

ii. Enter atleast ten tuples for each relation.

Write and execute the SQL queries for the following requirements :

1. List details of employees who have joined before 30 Sep 81.

2. List employee names those who have joined between the months June to December of the year 1981.

3. List the name and designation of the employee who does not report to anybody.
(i.e. doesn't have any managers)

4. List the names of employees whose names should have 'A' as the third character.

5. List the employees whose name should not start with letter 'A' and should not end with the letter 'A' but it should be there in the name other than First and Last character.

6. List the names of employees who have finished their 25 years of experience in the company.

7. List the employee name, salary, PF, HRA, DA and gross; order the results in the ascending order of gross. (PF is 10%, HRA is 50%, DA is 30% of the salary and gross is sum of salary, PF, HRA & DA)

8. List the department name, number of employees, total_salary, average salary, maximum salary and minimum salary in each of the department.

9. List the total salary, maximum salary, minimum salary and average salary of the employees according to job wise.

Create the tables with the following source codes :

Table Name : Department :

```
create table  Department (
deptno          number(2)    primary key,
deptname        varchar2(30),
location                varchar2(20)
);
```

Table Name : Employee :

```
create table Employee (
empno           number(4)    primary key,
empname         varchar2(20),
job             varchar2(15),
manager          number(4),
hiredate        date,
salary          number(8,2),
commission      number(8,2),
deptno          references  Department(deptno)
);
```

Table Name : SalaryGrade :

```
create table  SalaryGrade (
grade           number(2)   primary key,
lowsalary       number(8,2),
highsalary      number(8,2)
);
```

Insert the records in to the tables with the following codes :

To the table : Department :

insert into department values (10, ‘ACCOUNTING’, ‘NEW YORK’);
insert into department values (20, ‘RESEARCH’, ‘DALLAS’);
insert into department values (30, ‘SALES’, ‘CHICAGO’);
insert into department values (40, ’OPERATIONS’, ‘BOSTON’);
insert into department values (50, ‘DESIGN’,’BANGALORE’);

To the table : Employee

insert into Employee values (7369, ’SMITH’, ’CLERK’, 7902,’17-DEC-80’, 800, Null, 20);
insert into Employee values (7499, ’ALLEN’, ‘SALESMAN’, 7698, ‘20-FEB-81’, 1600, 300, 30);
insert into Employee values (7521, ‘WARD’, ‘SALESMAN’, 7698, ‘22-FEB-81’, 1250, 500, 30);
insert into Employee values (7566, ‘JONES’, ’MANAGER’, 7839, ‘02-APR-81’, 2975, Null, 20);
insert into Employee values (7654, ’MARTIN’, ’SALESMAN’, 7698, ‘28-SEP-81’, 1250, 1400, 30);
insert into Employee values (7698,’BLAKE’, ‘MANAGER’, 7839, ’01-MAY-81’, 2850, Null, 30);
insert into Employee values (7782, ’CLARK’, ’MANAGER’, 7839, ’09-JUN-81’, 2450, Null, 10);
insert into Employee values (7788, ‘SCOTT’, ‘ANALYST’, 7566, ‘19-APR-87’, 3000, Null, 20);
insert into Employee values (7839,’KING’, ‘PRESIDENT’, Null, ‘17-NOV-81’, 5000, Null, 10);
insert into Employee values (7844,’TURNER’,’SALESMAN’,7698,’08-SEP-81’,1500, 0, 30);
insert into Employee values (7876,’ADAMS’, ‘CLERK’, 7788, ‘23-MAY-87’, 1100, Null, 20);
insert into Employee values (7900, ’JAMES’, ‘CLERK’, 7698, ’03-DEC-81’, 950, Null, 30);
insert into Employee values (7902,’FORD’, ‘ANALYST’, 7566,’03-DEC-81’, 3000, Null, 20);
insert into Employee values (7934,’MILLER’, ’CLERK’, 7782, ’23-JAN-82’, 1300, Null, 10);

To the table : SalaryGrade :

insert into SalaryGrade values (1, 700, 1200);
insert into SalaryGrade values (2, 1201, 1400);
insert into SalaryGrade values (3, 1401, 2000);
insert into SalaryGrade values (4, 2001, 3000);
insert into SalaryGrade values (5, 3001, 9999);

Execute the queries in the following steps :

1. List details of employees who have joined before 30 Sep 81.

Step-1 : First try to display the employee details from employee table

SQL > select * from employee ;

Step-2 : Then, display the employee details by using following condition.

SQL > select * from employee
Where hiredate < '30-Sep-81'

2. List employee names those who have joined between the months June to December of the year 1981.

Step-1 : First try to display the employee details those who have joined in the year 1981

SQL > select * from employee where hiredate like '%81';

Step-2 : Then, display the employee details those who joined between the months June to December of the year 1981 by using following condition.

SQL > select * from employee
Where hiredate between '01-jun-81' and '31-dec-81';

3. List the name and designation of the employee who does not report to anybody. (i.e. doesn't have any managers)

Step-1 : First try to display the employee details those who have managers

SQL > select * from employee where manager is not null;

Step-2 : Then, try to display the employee details those who don't have any managers

SQL > select * from employee where manager is null;

4. List the names of employees whose names should have 'A' as the third character.

SQL > select empname from employee where empname like '__A%';

5. List the employees whose name should not start with letter 'A' and should not end with the letter 'A' but it should be there in the name other than First and Last character.

Step-1 : First try to display the employee name which does not start with the letter ‘A’

```
SQL > select empname from employee where empname not like ‘A%’;
```

Step-2 : Then, try to display the employee name which does not end with the letter ‘A’

```
SQL > select empname from employee
        where empname not like ‘A%’
        and empname not like ‘%A’;
```

Step-3 : Then, try to display the employee name in which the letter ‘A’ should be there

```
SQL > select empname from employee
        where empname not like ‘A%’
        and empname not like ‘%A’
        and empname like ‘%A%’
```

6. List the names of employees who have finished their 25 years of experience in the company.

Step-1 : First try to display the employee details with number of years of experience

```
SQL > select empno, empname, to_char(sysdate,’YYYY’) – to_char(hiredate,’YYYY’) as
Experience from employee
```

Step-2 : Then, try to display the employee details with number of years of experience greater than 25

```
SQL > select empno, empname, to_char(sysdate,’YYYY’) – to_char(hiredate,’YYYY’) as
Experience from employee
        where to_char(sysdate,’YYYY’) – to_char(hiredate,’YYYY’) > 25;
```

7. List the employee name, salary, PF, HRA, DA and gross; order the results in the ascending order of gross. (PF is 10%, HRA is 50%, DA is 30% of the salary and gross is sum of salary, PF, HRA & DA)

First try to display the employee details with various salary components

```
SQL > select empno, empname, salary*0.10 as PF, salary*0.50 as HRA, salary*0.30 as DA,
      (salary*0.10 + salary*0.50 + salary*0.30 + salary) as Gross_Salary
        From employee;
```

8. List the department name, number of employees, total_salary, average salary, maximum salary and minimum salary in each of the department.

Step-1 : First try to display the department number and number of employees working in that department

```
SQL > select deptno, count(deptno) as noofemps
        From employee
        Group by deptno;
```

Step-2 : Then, try to display the department name and number of employees working in that department by using joining concept

```
SQL > select deptname, count(deptname) as noofemps
        From employee, department
        Where employee.deptno=department.deptno
        Group by deptname;
```

Step-3 : Then, try to display the remaining details

```
SQL > select deptname, count(deptname) as noofemps, sum(salary) as Total_salary,
                avg(salary) as avg_salary, max(salary) as Maximum_salary,
                min(salary) as Minimum_salary
        From employee, department
        Where employee.deptno=department.deptno
        Group by deptname;
```

9. List the total salary, maximum salary, minimum salary and average salary of the employees according to job wise.

Step-1 : First try to display the job type and number of employees working in that type of job

```
SQL > select job, count(job) as noofemps
        From employee
        Group by job;
```

Step-2 : Then, try to display the remaining details

```
SQL > select job, count(job) as noofemps, sum(salary) as Total_salary,
                avg(salary) as avg_salary, max(salary) as Maximum_salary,
                min(salary) as Minimum_salary
        From employee
        Group by job;
```