DATABASE LABORATORY

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

Practical – 4 :

For the same previous database tables (i.e. Practical – 3)

STUDENT (regno: string, name: string, major: string, bdate: date)

COURSE (course#: int, cname#: string, dept: String)

TEXT (book_ISBN: int, book_title: string, publisher: string, author: string)

ENROLL (regno: string, course#: int, sem: int, marks: int)

BOOK_ADOPTION (course#: int, sem: int, book_ISBN: int)

Write and execute the SQL queries for the following requirements :

1) List out the students those who have born in the month of April

2) List out all the students whose age lies between 17 and 19

3) List out all the student details whose marks greater than 750

4) Increase the marks by 10 % to students belongs to Computer Science Department and I semester Students.

5) Find out the department in which no books are available :

6) Find out the department to which no Students have joined :

7) Remove all the details related to the Electronics department

Execute the queries in the following steps :

1. List out the students those who have born in the month of April

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

```
SQL > select * from student ;
```

Step-2 : Then, display the same by using to_char function to extract only the month part.

```
SQL >  select reg_no, student_name, birth_date, to_char(birth_date,'Month')
       from student;
```

Step-3 : Then, give april as the value to the condition :

```
SQL >  select reg_no, student_name, birth_date, to_char(birth_date,'Month')
       from student
       where to_char(birth_date,'Mon') = 'Apr'
```

2. List out all the students whose age lies between 17 and 19

Step-1 : First try to display regno, studentname and their age :

```
SQL> select reg_no, student_name, to_char(sysdate, 'yyyy') - to_char(birth_date,'YYYY')
       as age
     from student ;
```

Step-2 : Then, try to display the same by giving condition (using between operator)

```
SQL> select reg_no, student_name, to_char(sysdate, 'yyyy') - to_char(birth_date,'YYYY')
       as age
     from student
     where to_char(sysdate, 'yyyy') - to_char(birth_date,'YYYY')  between 17 and 19
```

3. List out all the student details whose marks greater than 750

Step-1 : First, try to list the student details by joining the tables student, enroll and course

```
SQL > select student_name,course_name,semester,marks
      from student,course,enroll
      where student.reg_no=enroll.reg_no
      and enroll.course_no=course.course_no
```

Step-2 : Then, try to display the same by adding an additional condition marks > 750

```
SQL> select student_name,course_name,semester,marks
     from student,course,enroll
     where student.reg_no=enroll.reg_no
     and enroll.course_no=course.course_no
     and marks >= 750
```

4. Increase the marks by 10 % to students belongs to Computer Science Department and I semester Students.

Step-1 : First, try to list out student marks details by using select statement and to ensure yourself that the conditions of the queries are correct (i.e. we have used sub query concept)

Here, we are trying to display student name and marks

```
SQL > select student_name, marks
      from student, enroll
      where student.reg_no = enroll.reg_no
      and semester = 'I Semester'
      and  student.reg_no in (select reg_no
                              from enroll
                              where course_no in ( select course_no
                                                   from course
                                                   where department='CS Dept') )
```

OR

Here, We are directly approaching enroll table:

```
SQL > select reg_no, marks
      from enroll
      where semester = 'I Semester'
      and  reg_no in (select reg_no
                      from enroll
                      where course_no in ( select course_no
                                           from course
                                           where department='CS Dept'))
```

Step-2 : Then, after confirming the above query, then replace select statement with update statement to increase the marks by 10 %

```
SQL > update enroll set marks = marks+(marks*0.1)
      where  semester = 'I Semester'
      and    reg_no in (select reg_no
                        from enroll
                        where course_no in ( select course_no
                                             from course
                                             where department='CS Dept') )
```

5. Find out the department in which no books are available :

Method -1 : Here, the book allotment details are available from book_adoption table so use that table for the sub query.

```
SQL> select department
     from course
     where course_no not in (select course_no from book_adoption)
```

Method - 2 : Here, We have used the concept of set theory operator MINUS

```
SQL > select department
      from course
      where course_no in ( select course_no from course
                           MINUS
                           select course_no from book_adoption)
```

Method - 3 : Here, We have used the concept of JOINING Tables

```
SQL> select department
     from course
     where course_no not in ( select course.course_no
                              from   course,book_adoption
                                where  course.course_no = book_adoption.course_no)
```

6. Find out the department to which no Students have joined :

Method -1 : Here, the student allotment details are available from enroll table so use that table for the sub query.

```
SQL> select department
     from course
     where course_no not in (select course_no from enroll)
```

Method - 2 : Here, We have used the concept of set theory operator MINUS

```
SQL > select department
      from course
      where course_no in ( select course_no from course
                           MINUS
                           select course_no from enroll)
```

Method - 3 : Here, We have used the concept of JOINING Tables

```
SQL> select department
     from course
     where course_no not in ( select course.course_no
                              from course,enroll
                              where course.course_no = enroll.course_no)
```

7. Remove all the details related to the Electronics department

Step-1 : Here, There is a master child relationship among the tables course, student and enroll we have remove the records from child tables first and then master table. First try to obtain the details of Electronics department by using SELECT statement.

First from Enroll Table by using SELECT statement :

```
SQL> select course_no
     from enroll
     where course_no in ( select course_no
                          from course
                          where department='EC Dept')
```

Then replace SELECT statement by DELETE statement:

```
SQL> delete from enroll
     where course_no in ( select course_no
                          from course
                          where department='EC Dept')
```

Step-2 : First from book_adoption Table by using SELECT statement :

```
SQL> select course_no
     from book_adoption
     where course_no in ( select course_no
                          from course
                          where department='EC Dept')
```

Then replace SELECT statement by DELETE statement:

```
SQL> delete from book_adoption
     where course_no in ( select course_no
                          from course
                          where department='EC Dept')
```

Step-3 : Now you can delete the records from master table Course :

```
SQL > delete from course where department = 'EC Dept';
```