EXERCISE-3

INCLUDING CONSTRAINTS

OBJECTIVE

After the completion of this exercise the students should be able to do the following

- Describe the constraints
- Create and maintain the constraints

What are Integrity constraints?

- Constraints enforce rules at the table level.
- Constraints prevent the deletion of a table if there are dependencies

The following types of integrity constraints are valid

a) **Domain Integrity**

✓ NOT NULL
✓ CHECK

b) **Entity Integrity**

✓ UNIQUE
✓ PRIMARY KEY

c) **Referential Integrity**

✓ FOREIGN KEY

Constraints can be created in either of two ways

1. At the same time as the table is created
2. After the table has been created.

Defining Constraints

Create table tablename (column_name1 data_ type constraints, column_name2 data_ type constraints …);

Example:

Create table employlees (employee_id number(6), first_name varchar2(20), ..job_id varchar2 (10), CONSTRAINT emp_emp_id_pk PRIMARY KEY (employlee_id));

Domain Integrity

This constraint sets a range and any violations that takes place will prevent the user from performing the manipulation that caused the breach.It includes:

Example:

Assume table TEST1 with the following structure

CREATE TABLE test1 (pk number PRIMARY KEY, fk number, col1 number,col2 number, CONTRAINT fk_constraint FOREIGN KEY(fk) references test1, CONSTRAINT ck1 CHECK (pk>0 and col1>0), CONSTRAINT ck2 CHECK (col2>0));

An error is returned for the following statements

ALTER TABLE test1 DROP (pk);

ALTER TABLE test1 DROP (col1);

The above statement can be written with CASCADE CONSTRAINT

ALTER TABLE test 1 DROP(pk) CASCADE CONSTRAINTS;
(OR)
ALTER TABLE test 1 DROP(pk, fk, col1) CASCADE CONSTRAINTS;

VIEWING CONSTRAINTS

Query the USER_CONSTRAINTS table to view all the constraints definition and names.

Example:

SELECT constraint_name, constraint_type, search_condition FROM user_constraints
WHERE table_name='employees';

Viewing the columns associated with constraints

SELECT constraint_name, constraint_type, FROM user_cons_columns
WHERE table_name='employees';

Find the Solution for the following:

1. Add a table-level PRIMARY KEY constraint to the EMP table on the ID column.The constraint should be named at creation. Name the constraint my_emp_id_pk.

alter table emp add constraint my-emp-id-pk primary key (ID);

2. Create a PRIMAY KEY constraint to the DEPT table using the ID colum. The constraint should be named at creation. Name the constraint my_dept_id_pk.

```
alter table department add constraint my_dept_id_pk
primary key (dept_id);
```

3. Add a column DEPT_ID to the EMP table. Add a foreign key reference on the EMP table that ensures that the employee is not assigned to nonexistent deparment. Name the constraint my_emp_dept_id_fk.

```
alter table emp add dept_id integer;
alter table emp add constraint my_emp_dept_id foriegn key
(dept_id)
references department(dept_id);
```

4. Modify the EMP table. Add a COMMISSION column of NUMBER data type, precision 2, scale 2. Add a constraint to the commission column that ensures that a commission value is greater than zero.

```
alter table emp add commission decimal(2,2);
alter table emp add constraint greater_zero check(
commision>0);
```

Evaluation Procedure	Marks awarded
Query(5)	5
Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	8/9/25

PRACTICE QUESTIONS

Limit Rows Selected

1. Using the Global Fast Foods database, retrieve the customer's first name, last name, and address for the customer who uses ID 456.

```
Select first-name, last-name, address from f-customers,
    where id = 456;
```

2. Show the name, start date, and end date for Global Fast Foods' promotional item "ballpen and highlighter" giveaway.

```
select name, start_date, end_date from f- promotional
    where name = 'ballpen and highlighter';
```

3. Create a SQL statement that produces the following output:
Oldest
The 1997 recording in our database is The Celebrants Live in Concert

```
select 'The 1997 recording in our database is' || name
    as 'oldest' from l-promotional-menus where EXTRACT(
                year from startdate) = 1997;
```

4. The following query was supposed to return the CD title "Carpe Diem" but no rows were returned. Correct the mistake in the statement and show the output.

```
SELECT produce, title
FROM d_cds
WHERE title = 'carpe diem';
```

```
select producer, title from d-cds where
    UPPER(title) = 'CARPE DIEM';
```

5. The manager of DJs on Demand would like a report of all the CD titles and years of CDs that were produced before 2000.

```
select title, year-purchased from d-cds where
    year-purchased < 2000;
```

6. Which values will be selected in the following query?

```
SELECT salary
FROM employees
WHERE salary < = 5000;
```

a. 5000
b. 0 - 4999
c. 2500
d. 5

7. Write a SQL statement that will display the student number (studentno), first name (fname), and last name (lname) for all students who are female (F) in the table named students.

```
Select studentno, fname, lname, from students where
    gender = 'F';
```

8. Write a SQL statement that will display the student number (studentno) of any student who has a PE major in the table named students. Title the studentno column Student Number.

```
Select student as 'Student Number' from students
where major = 'PE';
```

9. Write a SQL statement that lists all information about all male students in the table named students.

```
Select * from students where gender = 'M';
```

10. Write a SQL statement that will list the titles and years of all the DJs on Demand's CDs that were not produced in 2000.

```
select title, year_purchased from d_cds where
    year_purchased <> 2000;
```

11. Write a SQL statement that lists the Global Fast Foods employees who were born before 1980.

```
Select first_name, last name, birthdate from t_staffs
where birthdate < to_date('01-JAN-1980','DD-MON-
                          YYYY');
```

Evaluation Procedure	Marks awarded
Practice Evaluation (5)	5
Viva(5)	5
Total (10)	10
Faculty Signature	8/9/25