Lab 3 and Lab 4 – DDL Commands & Constraints

Objective: Objective: At the end of the assignments, participants will be able to understand basic DDL, Create table with constraints, Alter, Truncate, Drop and Rename

Exercise -1:

1. **Complete the GRADUATE CANDIDATE table instance chart. Credits is a foreign-key column referencing the requirements table.**

Column Name	student_id	last_name	first_name	credits	graduation_date
Key Type					
Nulls/Unique					
FK Column					
Datatype	NUMBER	VARCHAR2	VARCHAR2	NUMBER	DATE
Length	6			3	

Ans 1)

Column Name	student_id	last_name	first_name	credits	graduation_date
Key Type	PRIMARY KEY	UNIQUE	UNIQUE	FOREIGN KEY	
Nulls/Unique	NOT NULL	NOT NULL	NOT NULL	NOT NULL	NOT NULL
FK Column				requirements	
Datatype	NUMBER	VARCHAR2	VARCHAR2	NUMBER	DATE
Length	6	30	30	3	

2. **Write the syntax to create the grad_candidates table.**

Ans 2)

```
CREATE TABLE grad_candidates (
   student_id NUMBER(6) PRIMARY KEY,
   last_name VARCHAR2(30) NOT NULL,
   first_name VARCHAR2(30) NOT NULL,
   credits NUMBER(3) NOT NULL,
   graduation_date DATE NOT NULL,
   CONSTRAINT fk_credits FOREIGN KEY (credits) REFERENCES requirements(credits) );
```

3. **Confirm creation of the table.**

Ans 3) DESCRIBE grad_candidates;

4. **Create a new table using grad_candidates with the following syntax: CREATE TABLE o_grad_candidates AS (SELECT * FROM grad_candidates);**

Ans 4) CREATE TABLE o_grad_candidates AS (SELECT * FROM grad_candidates);

5. **Create a new table using a subquery. Name the new table your first name -- e.g., gaurav_table. Using a subquery, copy grad_candidates into gaurav_table.**

Ans 5) CREATE TABLE gaurav_table AS (SELECT * FROM grad_candidates);

6. **In your o_grad_candidates table, enter a new column called “adm_date.” The datatype for the new column should be VARCHAR2. Set the DEFAULT for this column as SYSDATE.**

Ans 6) ALTER TABLE o_grad_candidates ADD adm_date VARCHAR2(20) DEFAULT SYSDATE;

7. **In your o_grad_candidates table, increase the length of last_name column by 10 and remove the credits column.**

Ans 7) ALTER TABLE o_grad_candidates MODIFY last_name VARCHAR2(30);

ALTER TABLE o_grad_candidates DROP COLUMN credits;

8. **Create a new column in the smith_table table called start_date. Use the TIMESTAMP WITH LOCAL TIME ZONE as the datatype.**

Ans 8) ALTER TABLE smith_table ADD start_date TIMESTAMP WITH LOCAL TIME ZONE;

9. **Write syntax to change the name of credit column by grad_credit.**

Ans 9) ALTER TABLE grad_candidates RENAME COLUMN credits TO grad_credit;

10. **Insert 5 tuples in gaurav_table.**

Ans 10) INSERT INTO gaurav_table (student_id, last_name, first_name, grad_credit, graduation_date) VALUES (1, 'Doe', 'John', 120, '2024-12-31'),

(2, 'Smith', 'Jane', 130, '2025-01-15'),

(3, 'Johnson', 'Michael', 115, '2024-11-20'),

(4, 'Williams', 'Emily', 125, '2025-02-05'),

(5, 'Brown', 'David', 135, '2024-12-10');

11. **Truncate the gaurav_table table. Then do a SELECT * statement. Are the columns still there?**

Ans 11) TRUNCATE TABLE gaurav_table;

SELECT * FROM gaurav_table;

12. **What the distinction is between TRUNCATE and DROP for tables?**

Ans 12)

Feature	TRUNCATE TABLE	DROP TABLE
Action	Removes all rows from a table.	Deletes the entire table, including its structure and data.
Speed	Generally faster than DROP TABLE as it doesn't deal with individual rows.	Slower because it involves removing the entire table definition.
Rollback	Can be rolled back in some cases.	Cannot be rolled back.
Constraints	Removes all rows without checking constraints.	Removes the table and its constraints.

13. List the changes that can and cannot be made to a column.

Ans 13)

Changes that can be made to a column:

- Data type: Alter the data type of the column.
- Length: Modify the length of a character or numeric column.
- Nullable: Change whether the column can contain null values.
- Default value: Set or remove a default value for the column.
- Constraints: Add or remove constraints like NOT NULL, UNIQUE, or CHECK.
- Name: Rename the column.

Changes that cannot be made to a column:

- Primary key: Changing a column to or from a primary key requires dropping and recreating the table.
- Foreign key: Modifying a foreign key relationship typically involves dropping and recreating the table or using more complex techniques.

14. Rename o_grad_candidates to n_grad_candidates.

Ans 14) ALTER TABLE o_grad_candidates RENAME TO n_grad_candidates;