

PostgreSQL

Training Exercise - 1

Database, User, Table & Records Operations

- Create a user with only database create access right

```
postgres=# create user jinay with createdb password '123';  
CREATE ROLE  
postgres=# |
```

- Create a user with superuser access rights.

```
postgres=# create user shah with superuser password '123';
CREATE ROLE
postgres=# |
```

- Create a user with database creation, superuser and role creation access rights.

```
postgres=# create user js with createdb superuser createrole password '123';
CREATE ROLE
postgres=# |
```

- Drop any one of the users which you have created.

```
postgres=# drop user js;
DROP ROLE
postgres=# |
```

- Alter any one user's password with your desired password.

```
postgres=# alter user shah with password '456';
ALTER ROLE
postgres=# |
```

- Create a database.

```
postgres=# create database test;
CREATE DATABASE
postgres=#
```

- Delete a database which is created.

```
postgres=# drop database test;
DROP DATABASE
postgres=# |
```

NOTE : All the below operations are to be performed in the terminal prompt of PostgreSQL and pgAdmin.

- Create a database and add a table employee with specified fields.
 - Employee ID
 - Name

- Email
- Phone no
- Designation
- Department
- Birth Date
- Join Date

```
postgres=# create database employeeedb;
CREATE DATABASE
postgres=# \c
You are now connected to database "postgres" as user "postgres".
postgres=# \c employeeedb;
You are now connected to database "employeeedb" as user "postgres".
employeeedb=# create table employee(employeeID serial primary key,name varchar
(100),email varchar(100),phone_no varchar(15),designation varchar(100),depart
ment varchar(100),birth_date date,join_date date);
CREATE TABLE
employeeedb=# |
```

- Modify the table and add two fields as following.
 - Level
 - Qualification
 - Join Date

```
employeeedb=# alter table employee add column qualification varchar(100),add c
olumn level int;
ALTER TABLE
employeeedb=# |
```

- Modify a table and Delete a column from the table.

```
employeeedb=# alter table employee drop column level;
ALTER TABLE
employeeedb=# |
```

- Insert 10 records with unique employee ids in the employee table.

```

employeeedb=# insert into employee (name,email,phone_no,designation,departmen
t,birth_date,join_date,qualification) values ('John Doe', 'john@example.com'
, '1234567890', 'Software Engineer', 'Engineering', '1990-01-01', '2020-01-0
1', 'Bachelor'),('Jane Smith', 'jane@example.com', '0987654321', 'HR Manager
', 'Human Resources', '1985-05-15', '2018-06-01', 'Master'),('Alice Johnson'
, 'alice@example.com', '9876543210', 'Marketing Specialist', 'Marketing', '1
992-11-30', '2019-03-15', 'Bachelor'),('Bob Williams', 'bob@example.com', '0
123456789', 'Financial Analyst', 'Finance', '1988-07-20', '2017-09-10', 'Mas
ter'),('Emma Brown', 'emma@example.com', '6789012345', 'Customer Support Rep
resentative', 'Customer Service', '1995-03-05', '2021-07-20', 'Bachelor'),('
Michael Davis', 'michael@example.com', '5678901234', 'Product Manager', 'Pro
duct Management', '1983-09-10', '2016-02-28', 'PhD'),('Sophia Garcia', 'soph
ia@example.com', '4567890123', 'Operations Manager', 'Operations', '1987-12-
25', '2015-11-15', 'Bachelor'),('William Rodriguez', 'william@example.com',
'3456789012', 'Software Developer', 'Engineering', '1991-06-15', '2022-01-10
', 'Master'),('Olivia Martinez', 'olivia@example.com', '2345678901', 'Sales
Representative', 'Sales', '1994-04-20', '2020-08-05', 'Bachelor'),('David Lo
pez', 'david@example.com', '1234567890', 'IT Specialist', 'Information Techno
logy', '1986-08-30', '2019-05-25', 'Bachelor');
INSERT 0 10

```

```

employeeedb=# select * from employee;

```

employeeid	name	email	phone_no	designation	department	birth_date
join_date	qualification					
1	John Doe	john@example.com	1234567890	Software Engineer	Engineering	1990-01-01
2020-01-01	Bachelor					
2	Jane Smith	jane@example.com	0987654321	HR Manager	Human Resources	1985-05-15
2018-06-01	Master					
3	Alice Johnson	alice@example.com	9876543210	Marketing Specialist	Marketing	1992-11-30
2019-03-15	Bachelor					
4	Bob Williams	bob@example.com	0123456789	Financial Analyst	Finance	1988-07-20
2017-09-10	Master					
5	Emma Brown	emma@example.com	6789012345	Customer Support Representative	Customer Service	1995-03-05
2021-07-20	Bachelor					
6	Michael Davis	michael@example.com	5678901234	Product Manager	Product Management	1983-09-10
2016-02-28	PhD					
7	Sophia Garcia	sophia@example.com	4567890123	Operations Manager	Operations	1987-12-25
2015-11-15	Bachelor					
8	William Rodriguez	william@example.com	3456789012	Software Developer	Engineering	1991-06-15
2022-01-10	Master					
9	Olivia Martinez	olivia@example.com	2345678901	Sales Representative	Sales	1994-04-20
2020-08-05	Bachelor					
10	David Lopez	david@example.com	1234567890	IT Specialist	Information Technology	1986-08-30
2019-05-25	Bachelor					

(10 rows)

- Update all the records together. Update only one field.

```

employeeedb=# update employee set qualification='fresher';
UPDATE 10
employeeedb=# |

```

- Delete a single record from a table.

```

employeeedb=# delete from employee where employeeid=1;
DELETE 1
employeeedb=# |

```

- Delete all the records from a table using Delete.

```
employee=# delete from employee;
DELETE 9
employee=# |
```

- Delete all the records from a table without using Delete.

```
employee=# truncate table employee;
TRUNCATE TABLE
employee=# |
```

NOTE: Below operations to be done from pgAdmin GUI.

- Create a table using the Create script in pgAdmin.

```
CREATE TABLE department (
    department_id SERIAL PRIMARY KEY,
    department_name VARCHAR(100) NOT NULL,
    location VARCHAR(255),
    manager_name VARCHAR(100)
);
```

- Insert 10 records using the Insert script in pgAdmin.

```
INSERT INTO department (department_name, location, manager_name)
VALUES
    ('Sales', 'New York', 'John Smith'),
    ('Marketing', 'Los Angeles', 'Alice Johnson'),
    ('Finance', 'Chicago', 'Michael Brown'),|
    ('Engineering', 'San Francisco', 'David Lee'),
    ('Human Resources', 'Boston', 'Emily Wilson'),
    ('IT', 'Seattle', 'Daniel Miller'),
    ('Operations', 'Dallas', 'Sophia Taylor'),
    ('Customer Service', 'Houston', 'Matthew Martinez'),
    ('Research and Development', 'Atlanta', 'Olivia Thomas'),
    ('Legal', 'Washington D.C.', 'William Anderson');
```

- Update a record using the Update script in pgAdmin.

```
UPDATE department
SET location='India'
WHERE department_name='IT';|
```

- Delete a record using the Delete script in pgAdmin.

```
DELETE FROM department
WHERE department_name='Sales';
```

- Create a table from the Pgadmin.

Create - Table

General

Columns

Advanced

Constraints

Partitions

Parameters

Security

SQL

Name

attendance

Owner

postgres

Schema

public

Tablespace

Select an item...

Partitioned table?

☐

Comment

! 'Name in Columns' cannot be empty.

Close

Reset

Save

Create - Table

Create - Table

Advanced

Constraints

Partitions

Parameters

Security

SQL

Inherited from table(s)

Select to inherit from...

Columns

+

	Name	Data type	Length/Precision	Scale	Not NULL?	Primary key?	Default
	attendanceid	integer			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

General

Definition

Constraints

Variables

Security

Default

Not NULL?

☒

Type

NONE

☒ IDENTITY

GENERATED

Identity

ALWAYS

Increment

1

Start

1

Close

Reset

Save

- Update a table and add a column from pgAdmin.

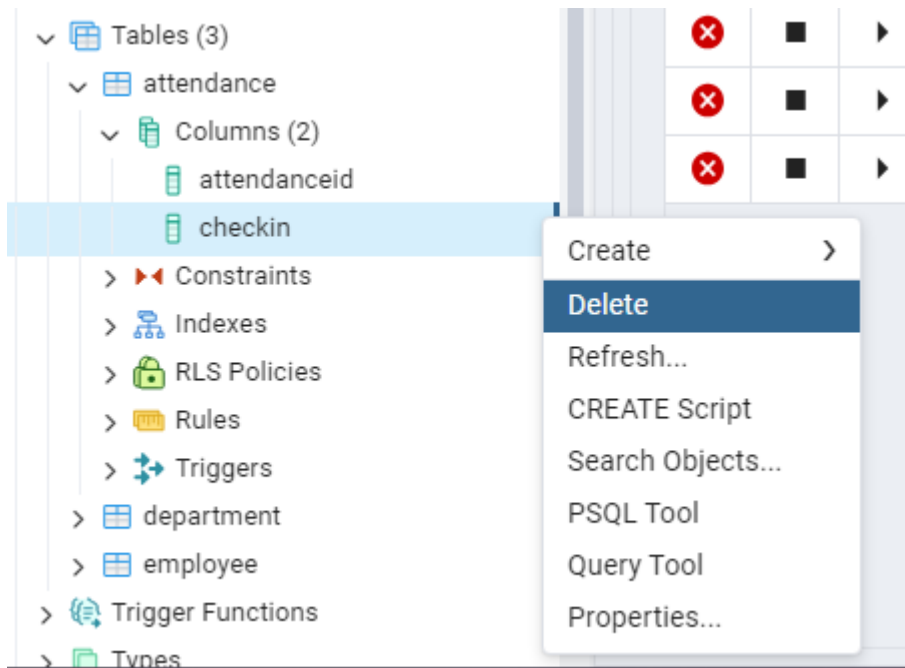
The image displays three overlapping screenshots of the 'Create - Column' dialog box in pgAdmin, illustrating the steps to add a column to a table.

Top Screenshot (General Tab): The 'Name' field is populated with 'checkin'. The 'Comment' field is empty.

Middle Screenshot (Definition Tab): The 'Data type' dropdown is set to 'date'. The 'Length/Precision' and 'Scale' fields are empty.

Bottom Screenshot (Constraints Tab): The 'Default' field is empty. The 'Not NULL?' toggle is turned on. The 'Type' section shows 'NONE' selected with a checkmark, alongside 'IDENTITY' and 'GENERATED' options.

- Remove a column from a table from pgAdmin.



- Update record from the Pgadmin.

	attendanceid [PK] integer	checkin date	checkout date	employeeid integer
1	1	2024-03-15	2024-04-15	11
2	2	2024-03-15	2024-03-15	11
3	3	2024-03-15	2024-03-15	11
4	4	2024-03-15	2024-03-15	11
5	5	2024-03-15	2024-03-15	11
6	6	2024-03-15	2024-03-15	11
7	7	2024-03-15	2024-03-15	11
8	8	2024-03-15	2024-03-15	11
9	9	2024-03-15	2024-03-15	11
10	10	2024-03-15	2024-03-15	11

Total rows: 10 of 10 Query complete 00:00:00.101

✓ Data saved successfully. ✕

Ln 1, Col 1

- View all the records of a table.

	attendanceid [PK] integer	checkin date	checkout date	employeeid integer
1	1	2024-03-15	2024-04-15	11
2	2	2024-03-15	2024-03-15	11
3	3	2024-03-15	2024-03-15	11
4	4	2024-03-15	2024-03-15	11
5	5	2024-03-15	2024-03-15	11
6	6	2024-03-15	2024-03-15	11
7	7	2024-03-15	2024-03-15	11
8	8	2024-03-15	2024-03-15	11
9	9	2024-03-15	2024-03-15	11
10	10	2024-03-15	2024-03-15	11

Total rows: 10 of 10 Query complete 00:00:00.101

✓ Successfully run. Total query runtime: 101 msec. 10 rows affected. ✕

Ln 1, Col 1