# Prompt-Give the detailed documentation of create table statement with syntax and examples in postgresql as a freshers

**PostgreSQL CREATE TABLE Statement – Complete Guide for Freshers**

**📌 What is CREATE TABLE?**

The CREATE TABLE statement in PostgreSQL is used to **create a new table** in a database to store structured data in **rows and columns**.

**🧩 1. Syntax of CREATE TABLE**

sql

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CREATE TABLE table\_name (

column1 datatype [constraint],

column2 datatype [constraint],

...

[table\_constraints]

);

**🔠 2. Common PostgreSQL Data Types**

| **Data Type** | **Description** | **Example Values** |
| --- | --- | --- |
| INTEGER / INT | Whole numbers | 1, 200, -50 |
| SERIAL | Auto-increment integer (used for IDs) | 1, 2, 3… |
| VARCHAR(n) | Variable-length string (max n chars) | 'John', 'Hello' |
| TEXT | Large string | 'This is a long text...' |
| DATE | Date value | '2025-08-07' |
| BOOLEAN | True/False | TRUE, FALSE |
| DECIMAL(p,s) | Exact number with precision/scale | 1234.56 (p=6, s=2) |

**🔐 3. Common Constraints**

| **Constraint** | **Description** |
| --- | --- |
| PRIMARY KEY | Uniquely identifies each row |
| FOREIGN KEY | Ensures referential integrity with another table |
| NOT NULL | Column cannot be empty |
| UNIQUE | All values in column must be unique |
| DEFAULT | Default value if none provided |
| CHECK | Ensures column values meet condition |

**✅ 4. Example 1: Create a customers Table**

sql

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CREATE TABLE customers (

customer\_id VARCHAR(10) PRIMARY KEY,

full\_name VARCHAR(100) NOT NULL,

gender VARCHAR(10),

date\_of\_birth DATE,

contact VARCHAR(15) UNIQUE,

account\_type VARCHAR(20),

balance DECIMAL(10,2) DEFAULT 0.00,

bank\_id VARCHAR(10)

);

**🔍 Explanation:**

* customer\_id: Primary key, must be unique
* full\_name: Cannot be null
* contact: Must be unique
* balance: Defaults to 0.00 if no value is provided

**✅ 5. Example 2: Create a transactions Table with Foreign Key**

sql

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CREATE TABLE transactions (

transaction\_id SERIAL PRIMARY KEY,

customer\_id VARCHAR(10) NOT NULL,

transaction\_date DATE NOT NULL,

amount DECIMAL(10,2) NOT NULL CHECK (amount > 0),

transaction\_type VARCHAR(20) NOT NULL,

description TEXT,

FOREIGN KEY (customer\_id) REFERENCES customers(customer\_id)

);

**🔍 Explanation:**

* transaction\_id: Auto-increments automatically
* amount: Must be greater than 0 (check constraint)
* customer\_id: Foreign key that must match an existing customer

**🚨 6. Common Mistakes Freshers Make**

| **Mistake** | **Fix** |
| --- | --- |
| Forgetting PRIMARY KEY | Always define it to uniquely identify each row |
| Missing NOT NULL where needed | Set important columns as NOT NULL |
| Wrong data types | Use appropriate types (e.g., DATE, DECIMAL) |
| No FOREIGN KEY | Add to maintain relationships |
| Forgetting semicolon ; | Always end SQL commands with ; |

**🧪 7. Try it Yourself – Full Example**

sql

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-- Step 1: Create customers table

CREATE TABLE customers (

customer\_id VARCHAR(10) PRIMARY KEY,

full\_name VARCHAR(100),

date\_of\_birth DATE,

contact VARCHAR(15),

account\_type VARCHAR(20),

balance DECIMAL(10,2)

);

-- Step 2: Create transactions table

CREATE TABLE transactions (

transaction\_id SERIAL PRIMARY KEY,

customer\_id VARCHAR(10) REFERENCES customers(customer\_id),

transaction\_date DATE,

amount DECIMAL(10,2),

transaction\_type VARCHAR(20),

description TEXT

);

**📦 8. Insert Sample Data**

sql

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-- Insert customer

INSERT INTO customers (customer\_id, full\_name, date\_of\_birth, contact, account\_type, balance)

VALUES ('C001', 'Alice Smith', '1992-05-10', '555-1234', 'Savings', 1200.50);

-- Insert transaction

INSERT INTO transactions (customer\_id, transaction\_date, amount, transaction\_type, description)

VALUES ('C001', '2025-08-07', 200.00, 'Deposit', 'Monthly saving');

**📚 Summary**

* Use CREATE TABLE to define your database structure.
* Choose the right **data types** and apply **constraints**.
* Always define **primary keys**, and use **foreign keys** for relationships.
* Keep data clean with constraints like NOT NULL, CHECK, and DEFAULT.