# Setting Up a PostgreSQL Database

## Step 1: Install PostgreSQL

1. Download PostgreSQL from the official website: https://www.postgresql.org/download/  
2. Install using:  
 - Windows: Run the installer and follow the setup wizard.  
 - macOS: Use Homebrew (`brew install postgresql`)  
 - Linux: Use package manager (`sudo apt install postgresql` or `sudo yum install postgresql`)  
3. Start PostgreSQL service:  
 - Windows: Use 'pgAdmin' or `net start postgresql`  
 - macOS/Linux: `sudo systemctl start postgresql`

## Step 2: Create a Database and User

1. Open the PostgreSQL shell (`psql` command in terminal).  
2. Create a new database:  
 ```sql  
 CREATE DATABASE mydatabase;  
 ```  
3. Create a user and set a password:  
 ```sql  
 CREATE USER myuser WITH ENCRYPTED PASSWORD 'mypassword';  
 ```  
4. Grant privileges to the user:  
 ```sql  
 GRANT ALL PRIVILEGES ON DATABASE mydatabase TO myuser;  
 ```

## Step 3: Connect to the Database

1. Use `psql` to connect:  
 ```bash  
 psql -U myuser -d mydatabase  
 ```  
2. Using a connection URL:  
 ```bash  
 postgresql://myuser:mypassword@localhost:5432/mydatabase  
 ```

## Step 4: Basic SQL Commands

1. List all databases:  
 ```sql  
 \l  
 ```  
2. List all tables in the database:  
 ```sql  
 \dt  
 ```  
3. Create a new table:  
 ```sql  
 CREATE TABLE users (  
 id SERIAL PRIMARY KEY,  
 name VARCHAR(100),  
 email VARCHAR(100) UNIQUE  
 );  
 ```