

SQL \Rightarrow Structured Query Language.

\rightarrow Declarative Language or non-procedural Language. ^{what}

Procedural Language

Non-Procedural Language

\rightarrow User has to tell both why & how to do it.

\rightarrow C, C++, Java etc.

\rightarrow User has to tell what to do & need not worry about how to do it.

\rightarrow SQL, LISP etc.

\rightarrow It is based on concepts from Set theory.

Java, C++

Procedural

\leftarrow what + how

$\text{sum}(a, b)$

SQL features

1.

DDL (Data Definition Language)
Deals with Schema

- CREATE
- ALTER
- DROP
- TRUNCATE



DML (Data Manipulation Language)
Deals with Data inside Tables

- SELECT
- DELETE
- INSERT
- UPDATE

drop table

2. Defining views on the database.

3. Specifying security and authorization.

4. Specifying transaction controls.

Student

name	age	---	

data definition language.

data manipulation language.

SQL schema

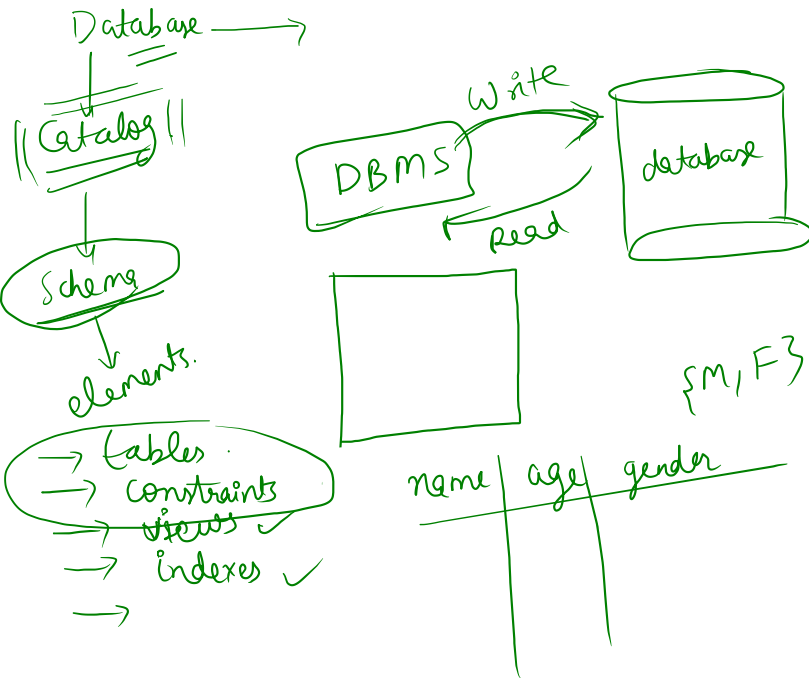
Postgres

- It is identified by a schema name and it includes an authorization identifier to identify the user or account who owns the schema, as well as the descriptors for each element in the schema.
- Schema elements could include tables, types, constraints, views, domains, indexes etc.

We can create a schema using below command.

Create schema schema-name Authorization (user-name);

- Not all users are authorized to create schemas and schema elements.

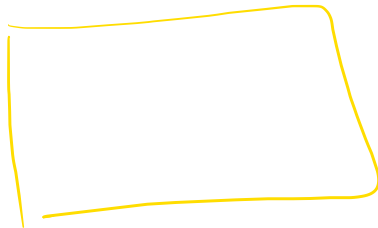


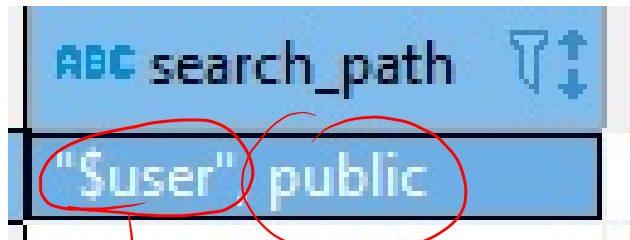
Catalog

- It is a named collection of schemes.
- When db is installed, default environment & schema is created, so that when a user logs in, he/she can directly refer to tables & other elements, without having to specify a particular schema name. *public*

INFORMATION_SCHEMA

- A catalog always contains a special schema called information-schema, which provides information on all the schemes in the catalog & all the element descriptors in them.





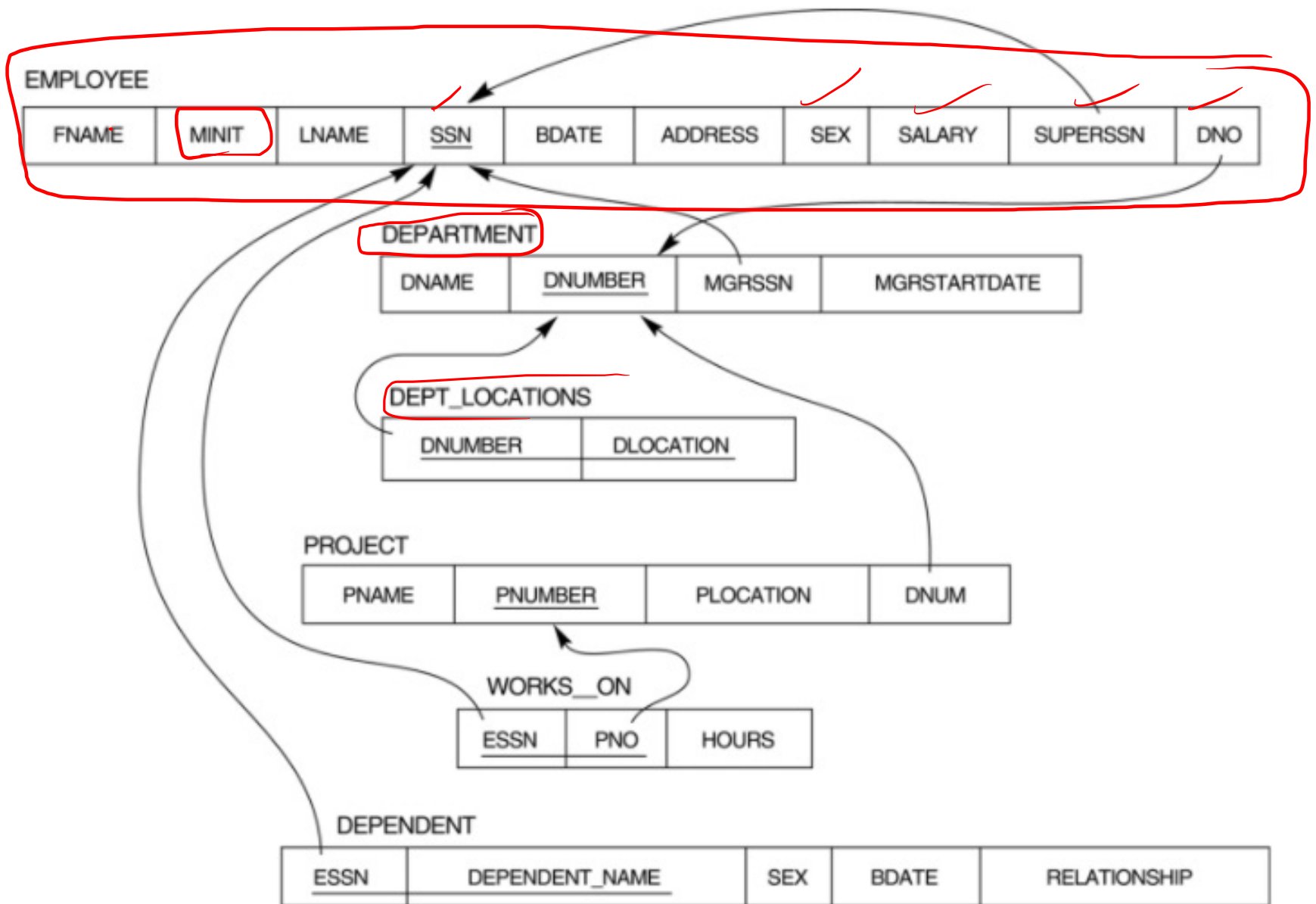
The image shows a screenshot of a database configuration window, likely for PostgreSQL, titled "ABC search_path". Below the title bar, there is a text input field containing the string "\$user" public. The text "\$user" is circled in red, and a red arrow points from it downwards. The word "public" is also circled in red. To the right of the input field, there is a small icon of a funnel with up and down arrows, indicating a search or filter function.

ABC search_path
"\$user" public

The first element specifies that a schema with the same name as the current user is to be searched. If no such schema exists, the entry is ignored. The second element refers to the public schema that we have seen already.

How to set newly created schema to use?

SET search-path TO schema-name ;



DDL Commands

```
Create table table-name (  
  attribute1-name datatype ,  
  attribute2-name datatype ,  
  attribute3-name datatype ,  
  -----  
  -----  
  attributen-name datatype  
) ;
```

```
Create table Employee (  
  fname varchar(15),  
  Minit char ,  
  SSN char(9),  
  Bdate DATE ,  
  
  ) ;
```

