Overview of Data Types

Let us get an overview of supported datatypes in Postgres.

- Here is the sample `CREATE TABLE` command for the review.

```
CREATE TABLE users (
    user_id SERIAL PRIMARY KEY,
    user_first_name VARCHAR(30) NOT NULL,
    user_last_name VARCHAR(30) NOT NULL,
    user_email_id VARCHAR(50) NOT NULL,
    user_email_validated BOOLEAN DEFAULT FALSE,
    user_password VARCHAR(200),
    user_role VARCHAR(1) NOT NULL DEFAULT 'U', --U and A
    is_active BOOLEAN DEFAULT FALSE,
    created_dt DATE DEFAULT CURRENT_DATE,
    last_updated_ts TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);
```

- While creating tables in RDBMS databases, we should specify data types for the columns.
  - `SERIAL` is nothing but integer which is populated by a special database object called as sequence. It is typically used for surrogate primary key.
  - When `SERIAL` is specified, a sequence with **table_name_serial_column_seq** naming convention will be created. In our case it is `users_user_id_seq`.
  - `INT` or `INTEGER` is used to define columns with integer values. Most of the ids are defined as integer.
  - `FLOAT` or `DOUBLE` can be used to define columns used to store price, salary etc.
  - `VARCHAR` with length is used to define variable length columns such as name, email id etc.
  - `CHAR` can be used to define fixed length string columns - single character fields such as gender which store M or F, three character days or months etc.
  - `BOOLEAN` is used to store **true** and **false** values.
  - We can also use `DATE` or `TIMESTAMP` to store date or time respectively.
- We can add columns, drop columns, modify columns by changing data types as well as specify default values using `ALTER TABLE` command.
- Let us perform these tasks to understand about Data Types. Drop and recreate users table with the following details.
  - user_id - integer
  - user_first_name - not null and alpha numeric or string up to 30 characters
  - user_last_name - not null and alpha numeric or string up to 30 characters
  - user_email_id - not null and alpha numeric or string up to 50 characters
  - user_email_validated - true or false (boolean)
  - user_password - alpha numeric up to 200 characters
  - user_role - single character with U or A (for now we will use VARCHAR(1))
  - is_active - true or false (boolean)
  - created_dt - not null and date with out timestamp. It should be defaulted to system date.

```
%load_ext sql
```

```
%env
DATABASE_URL=postgresql://itversity_retail_user:retail_password@localhost:5432/itversity_retail
_db
```

```
env:
DATABASE_URL=postgresql://itversity_retail_user:retail_password@localhost:5432/itversity_reta
il_db
```

```
%sql DROP TABLE IF EXISTS users
```

```
 * postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
Done.
```

```
[]
```

```sql
%%sql

CREATE TABLE users (
  user_id INT,
  user_first_name VARCHAR(30) NOT NULL,
  user_last_name VARCHAR(30) NOT NULL,
  user_email_id VARCHAR(50) NOT NULL,
  user_email_validated BOOLEAN,
  user_password VARCHAR(200),
  user_role VARCHAR(1),
  is_active BOOLEAN,
  created_dt DATE DEFAULT CURRENT_DATE
)
```

 * postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
Done.

[]

```sql
%%sql

SELECT table_catalog,
    table_name,
    column_name,
    data_type,
    character_maximum_length,
    column_default,
    is_nullable,
    ordinal_position
FROM information_schema.columns
WHERE table_name = 'users'
ORDER BY ordinal_position
```

 * postgresql://itversity_retail_user:***@localhost:5432/itversity_retail_db
9 rows affected.

table_catalog	table_name	column_name	data_type	character_maximum_length	co
itversity_retail_db	users	user_id	integer	None	
itversity_retail_db	users	user_first_name	character varying	30	
itversity_retail_db	users	user_last_name	character varying	30	
itversity_retail_db	users	user_email_id	character varying	50	
itversity_retail_db	users	user_email_validated	boolean	None	
itversity_retail_db	users	user_password	character varying	200	
itversity_retail_db	users	user_role	character varying	1	
itversity_retail_db	users	is_active	boolean	None	
itversity_retail_db	users	created_dt	date	None	CU

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