Basic SQL

DigitalSkola
Uncover The World Of Digital Skills With Us

Additional Rules? Nope

Just to make the class better!

1. There is no stupid questions!
2. Make sure to mute your mic so it won't disturb others
3. **You must enjoy the class!** If not, immediately raise your issue by click raise hand or comments in the chat

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

One thing we should know

before we start ...

"It's a capital mistake to theorize before one has data"

- Arthur Conan Doyle

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Table of Content

What will We Learn Today?

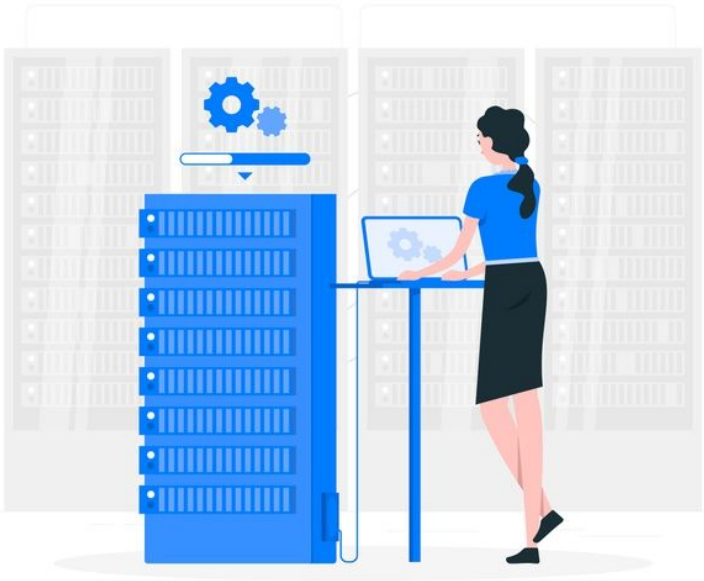
1. Introduction to SQL
2. Create Schema
3. Create Table
4. Insert Table
5. Update Data
6. Select Data
7. Delete Data

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

SQL

- Stands for Structured Query Language
- Can be said as one of the very basic programming language
- Used to communicate with database(s)
- Almost used in every sector of data science or even more



© Copyright by Digital Skola 2020

Why SQL is so important?

- Positioned second after Python as the most used programming language in data science*
- Nowadays almost everything stored in database(s)
  - Our PII (Personally identifiable information)
  - Behaviour in website
  - Transactions history in e-comms
  - Bank statements
  - Chats, posts and activities in social media
  - Our photos, documents, songs in cloud
  - ... and just everything we could imagine

*Kaggle Machine Learning and Data Science Survey in 2018 with 18.827 respondents

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Reminder!

Tools we're gonna use ...

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Let’s get your hand dirty!

© Copyright by Digital Skola 2020

Open DBeaver in your PC

- Click add new connection in the top left
- Pick PostgreSQL
- Fill the credentials as below:
  - Host: digitalskoladb.c04me33o8tni.ap-southeast-1.rds.amazonaws.com
  - Port: 5432
  - Database: sandbox
  - Username: ds11_(nomor kelompok)
  - Password: ds11_(nomor kelompok)

*Kaggle Machine Learning and Data Science Survey in 2018 with 18.827 respondents

© Copyright by Digital Skola 2020

Schema

Located under Database and usually created to cover specific purpose.

For example, a company database may include schema for finance, 3rd party tools, cleaned data, data warehouse, etc

```
CREATE SCHEMA [IF NOT EXISTS] schema_name;
```

Tips:

1. Decide if we want to use camelCase or snake_case
2. Only use alphabets and numbers
3. Use underscore if we use snake_case
4. Use simple, descriptive column names
5. One source of truth! Don't create multiple versions

© Copyright by Digital Skola 2020

Table

Located under Schema and created to save the data in a tabular format.

For example, a Sales schema may include transaction table, product table, store table, etc

```
CREATE TABLE [IF NOT EXISTS] table_name (
   column1 datatype(length) column_contraint,
   column2 datatype(length) column_contraint,
   column3 datatype(length) column_contraint,
   table_constraints
    -- PRIMARY KEY (colomn1)
    -- FOREIGN KEY (colomn2)
           REFERENCES table_name(colomn_name)
);
```

Tips:

1. Same tips like schema
2. Pick the right data type and put necessary length to each column
3. Pick necessary constraint (NOT NULL, UNIQUE, PRIMARY KEY)

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

DATABASE - Data Types

Numeric	Date/time	Character/String	Unicode Character	Binary	Miscellaneous
int	date	char	nchar	binary	clob
bigint	time	varchar	nvarchar	varbinary	blob
smallint	datetime	text	ntext		xml
float	timestamp				json
decimal	year				
real					
bit					

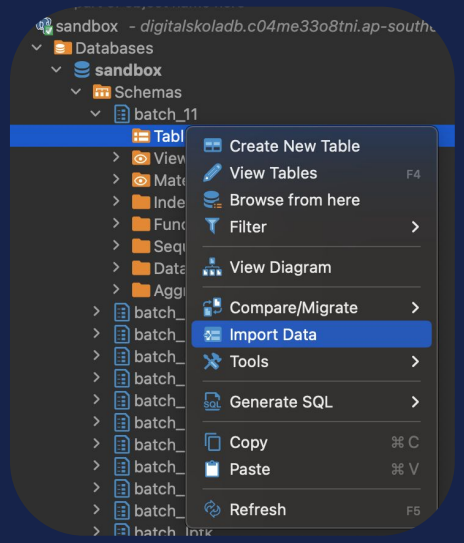
© Copyright by Digital Skola 2020

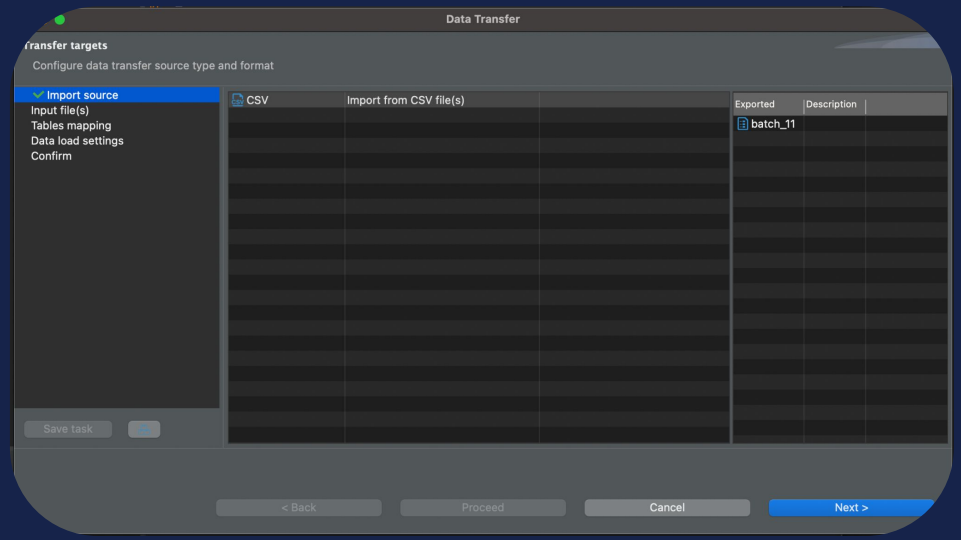
DigitalSkola
Uncover The World Of Digital Skills With Us

Import Data

To pull data from local directory to database.
Can create new tables or insert into existing tables.

Format: CSV





Tips:

1. Make sure all the format already matched especially date and/or time
2. If we want to insert the data into existing tables, make sure the column already match

© Copyright by Digital Skola 2020

Challenge #1

- **Download employee data from this GDrive**
- **Create a table in batch_11 schema**
  - Table naming: employee_(your name) (eg:employee_muggydavid)
- **Fill the table by importing the data from CSV downloaded before**

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Function: Insert Into

Used to fill the data manually or from another table.

```
INSERT INTO table_name VALUES (data1,data2,...), (data1,data2,...)

INSERT INTO table_name (column1,column2,...) VALUES(data1,data2,...), (data1,data2,...)

INSERT INTO table_name
SELECT * FROM table_name

INSERT INTO table_name (column1,column2,...)
SELECT column1,column2,... FROM table_name
```

Tips:

1. Make sure columns match between source and target
2. Make sure to always put schema name in front of table name

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Challenge #2

- Check if table employee_digitalskola exist
- Insert all value in above table to your table
- Insert 1 more row consisting your name and information to your table

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Function: Update

Used to change any value in the table based on the condition set.

```
UPDATE table_name
SET column1 = data1, column2 = data2, ...
WHERE condition
```

Tips:

1. Make sure to fill the right changes in the SET statement
2. Make sure to fill the right condition as we can't redo the changes

© Copyright by Digital Skola 2020

Challenge #3

- Update employee_id 100 with details as below:
  - First name → Belajar
  - Last name → SQL
  - Email →ds11_sql
  - Hire date → today
  - Salary → 55,123
- Update employee_id 101 with your details
- Update employee_id 102 with NULL

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Function: Select

Used to view the the tables under specific condition.

```
SELECT * FROM table_name;

SELECT Column1, Column2,... FROM table_name;
```

Tips:

1. It's better to pick columns compared to use *

© Copyright by Digital Skola 2020

Challenge #4

- Shows all the columns in your table
- Shows bellow columns from your table
  - employee_id
  - first_name
  - last_name
  - salary

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Function: Alter Table

Used to amend some changes into the schema. We could add and/or delete columns using this function.

```
ALTER TABLE table_name ADD column1 datatype(length);

ALTER TABLE table_name DROP COLUMN column1;
```

Tips:

1. Pick the right data type and put necessary length to each column
2. Make sure to fill the right column name as we can't redo the changes

© Copyright by Digital Skola 2020

Challenge #5

- Add below column into your table
  - Hobby → Fill any hobby for employee_id 100 & 101
- Delete below columns in your table
  - department_id
  - manager_id
  - commission_pct

© Copyright by Digital Skola 2020

Function: Delete

Used to delete rows in the table under specific condition.

```
DELETE FROM table_name WHERE condition;
```

Tips:

1. Make sure to fill the right condition as we can't redo the changes

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Challenge #6

- Delete all rows in your table except belows
  - employee_id = 100
  - first name is yours

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Function: Truncate

Used to delete all rows in the table without condition.

```
TRUNCATE TABLE table_name;
```

Tips:

1. Make sure to fill the right column name as we can't redo the changes

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Challenge #7

- Delete all rows in your table

© Copyright by Digital Skola 2020

DigitalSkola
Uncover The World Of Digital Skills With Us

Function: Drop

Used to delete the table without condition.

```
DROP TABLE table_name;
```

Tips:

1. **Make sure to fill the right column name as we can't redo the changes**

© Copyright by Digital Skola 2020

Challenge #8

- Drop your table

© Copyright by Digital Skola 2020

DigitalSkola

Uncover The World Of Digital Skills With Us

Thank YOU

© Copyright by Digital Skola 2020