

# SQL: Data Manipulation Language (DML) Part 1

SCSD2523 Database

Semester 1 2019/2020

# Learning Objective

- At the end of the topic, students will be able to:
  - Write DML statements to add data into table, update data, and delete data using following commands:
    - **INSERT INTO ... VALUES ...**
    - **INSERT INTO ... SELECT ...**
    - **UPDATE ... SET ... [WHERE] ...**
    - **DELETE FROM ... [WHERE] ...**
  - Write DML statement to display records in tables
    - **SELECT ... FROM ...**
    - **SELECT ... FROM ... WHERE**
    - **SELECT ... FROM ... WHERE ... BETWEEN ... AND**
    - **SELECT ... FROM ... WHERE ... IN**
    - **SELECT ... FROM ... WHERE ... LIKE**

# SQL Statements

STATEMENTS	TYPE
SELECT INSERT UPDATE DELETE MERGE	<b>DATA MANIPULATION LANGUAGE (DML)</b> Retrieves data from database, enters new rows, changes existing rows, and removes unwanted rows from tables in the database, respectively
CREATE ALTER DROP RENAME TRUNCATE COMMENT	<b>DATA DEFINITION LANGUAGE (DDL)</b> Sets up, changes, and removes data structures from tables
GRANT REVOKE	<b>DATA CONTROL LANGUAGE (DCL)</b> Provides or removes access rights to both the Database and the structures within it
COMMIT ROLLBACK SAVEPOINT	<b>TRANSACTION CONTROL</b> Manages the changes made by DML statements. Changes to the data can be grouped together into logical transactions

# Writing SQL Statements

- SQL statements are **not case sensitive** (unless indicated).
- SQL statements can be entered on **one or more lines**.
- Keywords cannot be abbreviated or split across lines
- Clauses are usually placed on separate lines
- **Indents** are used to enhance readability

## Human Resource (HR) schema

- In the HR records, each employee has an identification number, email address, job identification code, salary, and manager. Some employees earn commissions in addition to their salary
- The company also tracks information about jobs within the organization. Each job has an identification code, job title, and a minimum and maximum salary range for the job. Some employees have been with the company for a long time and have held different positions within the company. When an employee resigns, the duration the employee was working for, the job identification number, and the department are recorded.

## Human Resource (HR) schema

- The sample company is regionally diverse, so it tracks the locations of its warehouses and departments. Each employee is assigned to a department, and each department is identified by a unique department number or short name. Each department is associated with one location, and each location has a full address that includes the street name, postal code, city, state or province, and the country code.
- In places where the departments and warehouses are located, the company records details such as the country name, currency symbol, currency name, and the region where the country is located geographically.

# INSERT INTO ... VALUES

- Purpose: To **insert a row of data** into a table.
- Syntax:

```
INSERT INTO tableName (column1, column2, column3)  
VALUES (value1, value2, value3);
```

- Example: Insert a new row into table Department:

```
INSERT INTO departments  
VALUES (70, 'Public Relations', 100, 70);
```

OR

```
INSERT INTO departments (department_id, department_name,  
manager_id, location_id)  
VALUES (70, 'Public Relations', 100, 70);
```

**NOTE: Use single quote (') for string / character data**

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## Inserting rows with **NULL** values

- Implicit method: Omit the column from the column list

```
INSERT INTO departments (department_id, department_name)  
VALUES (30, 'Purchasing');
```

- Explicit method: Specify the NULL keyword in the VALUES clause

```
INSERT INTO departments (department_id, department_name)  
VALUES (30, 'Purchasing', NULL, NULL);
```

department_id	department_name	manager_id	location_id
30	Purchasing		

## Attention: Inserting **NULL** values

- Be sure that you can use the **NULL** value in the targeted column by verifying the NULL status with the **DESCRIBE** command

Result Grid | Filter Rows:  | Export: | Wra

	Field	Type	Null	Key	Default	Extra
▶	Dept_Id	char(1)	NO	PRI	NULL	
	Dept_Name	varchar(20)	YES		NULL	
	Manager_Id	int(11)	YES		NULL	
	location	varchar(100)	NO		NULL	

Output of DESCRIBE in  
MySQL

Script Output x  
Task completed in 0.055 seconds

```

Name          Null?     Type
-----
DEPT_ID       NOT NULL CHAR(1)
DEPT_NAME          VARCHAR2(20)
MANAGER_ID        NUMBER(38)
LOCATION          NOT NULL  VARCHAR2(100)
  
```

Output of DESCRIBE in  
Oracle

## Attention: Inserting **NULL** values

- Common errors that can occur during the user input are checked in the following order:
  - Mandatory value missing for a **NOT NULL** column
  - Duplicate value violating any **unique** or **primary key** constraint
  - Any value violating a **CHECK** constraint
  - **Referential integrity maintained** for a foreign key constraint
  - Data **type mismatch** or values too wide to fit in column

## Attention: Inserting NULL values

- Any value violating a CHECK constraint
  - CHECK is a constraint that set a specific condition for the input data to follow. E.g.: DDL statement below:

```

/* Create the table "Dept" with constraints
create table Dept (
  Dept_Id Char(1),
  Dept Name Varchar(20),
  Manager_Id integer check (Manager_Id>0),
  location Varchar(100) not null,
  Constraint dept_pk Primary Key (Dept_Id));

```

**BUT!!**  
**CHECK constraint doesn't work in MySQL. You can insert the constraint but MySQL will not execute it.**

- Example above: the column "Manager\_Id" has a CHECK constraint that checks if the input is larger than zero,
- Therefore only input that is larger than zero is allowed to enter into the column. Error example in Oracle:

Error starting at line : 32 in command -

```
INSERT INTO Dept (Dept_Id, Dept_Name, Manager_Id, location) VALUES ('B', 'Accounting', 0, 'KL')
```

Error report -

```
ORA-02290: check constraint (SYSTEM.SYS_C007120) violated
```

## Attention: Inserting **NULL** values

- **Referential integrity maintained** for a foreign key constraint
  - Whenever the foreign key exists in the table, according to **Referential Integrity constraint**, the value can either be:
    - **Values exist** in the parent table foreign key refers to. OR
    - Wholly **NULL**
  - Therefore, non-NULL values that does not exist at the table where the foreign key refers to are not allowed to enter in the column. Error example in Oracle:

Error starting at line : 34 in command -

```
INSERT INTO Staff(Emp_Id, Emp_Name, Emp_Date, Post_Id, Dept_Id) VALUES (101, 'Alan', '10-10-2018',102,'A')
```

Error report -

```
ORA-02291: integrity constraint (SYSTEM.SYS_C007123) violated - parent key not found
```

## Recommendation: Inserting **NULL** values

- Use of the column list is **recommended** because it makes the INSERT statement more readable and reliable, or less prone to mistakes. Example

```
INSERT INTO tableName (column1, column2, column3)  
VALUES (value1, value2, value3);
```

## Inserting Special Values

- The SYSDATE function records the current date and time

```
INSERT INTO departments (employee_id, first_name,  
last_name, email, phone_number, hire_date, job_id,  
salary, commission_pct, manager_id, department_id)  
VALUES (113, 'Harraz', 'Ahmad Faizal', 'HAHMMADFAIZAL',  
'07-5531234', SYSDATE, 'AC_ACCOUNT', 7000, NULL,  
205,110);
```

## Inserting specific Date and Time

- The DD-MON-RR format is generally used to insert a date value.
- You may also supply the date value in DD-MON-YYYY format.
- This is recommended because it clearly specifies the century and does not depend on the internal RR format logic specifying the correct century

```
INSERT INTO employees (employee_id, first_name,  
last_name, email, phone_number, hire_date, job_id,  
salary, commission_pct, manager_id, department_id)  
VALUES (114, 'Yusuf', 'Syarin', 'YSYARIN', '07-5534567',  
'09-NOV-2016', 'SA_REP', 8000, 0.2, 100, 60);
```

**For MySQL, use “YYYY-MM-DD” format for DATE datatype**

# INSERT INTO ... SELECT

- To insert data **from an existing table**
- Write the INSERT statement with a **subquery**
- DO NOT use the VALUES clause
- Match the number of columns in the INSERT clause to those in the subquery

```
INSERT INTO sales_reps (id, name, salary, commission_pct)
SELECT employee_id, last_name, salary, commission_pct
FROM employees
WHERE job_id LIKE '%REP%';
```

# UPDATE ... SET

- Purpose: To modify existing values in a table.
- Syntax:

[ ] = OPTIONAL

```
UPDATE table-name  
SET col1 = update-value [, col2 = update-value ]  
[WHERE search-condition]
```

- Example: Update the department ID of employee with the ID of 113 to 50

```
UPDATE employees  
SET department_id = 50  
WHERE employee_id = 113;
```

# Update Two Columns with a Subquery

- Can also be done for multiple subqueries

[ ] = OPTIONAL

```
UPDATE      table
SET         column = (SELECT column
                     FROM table
                     WHERE condition)
             [,column2 = (SELECT column
                     FROM table
                     WHERE condition)]
[WHERE condition]
```

# Update Two Columns with Subquery

- Example: Update employee 113's job and salary to match those of employee 205

```
UPDATE employees
SET (job_id, salary) = (SELECT job_id, salary FROM
employees WHERE employee_id = 205)
WHERE employee_id = 113;
```

# DELETE FROM

- Purpose: To delete existing rows from table
- Syntax:

[ ] = OPTIONAL

```
DELETE FROM table-name  
[WHERE search-condition]
```

- Example: Delete the record of department Finance

```
DELETE FROM departments  
WHERE department_name = 'Finance';
```

- All rows in the table are deleted if you omit the WHERE clause.

```
DELETE FROM departments
```

# SELECT ... FROM

- To retrieve and display data from one or more tables.

[ ] = OPTIONAL

```
SELECT col1, col2, ... coln  
FROM TableName [,TableName]  
[WHERE condition]  
[GROUP BY columnList]  
[HAVING condition]  
[ORDER BY columnList]
```

# SELECT ... FROM

- Retrieve all columns and all rows
- List the full details of the DEPARTMENTS table

```
SELECT * FROM departments;
```

```
oracle@oracleadm1:~
File Edit View Terminal Tabs Help

SQL> select * from departments;

DEPARTMENT_ID DEPARTMENT_NAME          MANAGER_ID LOCATION_ID
-----
          10 Administration             200         1700
          20 Marketing                 201         1800
          50 Shipping                   124         1500
          60 IT                        103         1400
          80 Sales                      149         2500
          90 Executive                  100         1700
         110 Accounting                 205         1700
         190 Contracting                (null)        1700

8 rows selected.

SQL> █
```

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
50	Shipping	124	1500
60	IT	103	1400
80	Sales	149	2500
90	Executive	100	1700
110	Accounting	205	1700
190	Contracting	(null)	1700

# SELECT ... FROM

- Retrieve specific columns, all rows
- Example:
- Produce a list of salaries for all staff, displaying only the employee ID, first name and salary

```
SELECT employee_id,
first_name, salary
FROM departments;
```

```
SQL> select employee_id, first_name, salary
2 from employees;
```

EMPLOYEE_ID	FIRST_NAME	SALARY
200	Jennifer	4400
201	Michael	13000
202	Pat	6000
205	Shelley	12000
206	William	8300
100	Steven	24000
101	Neena	17000
102	Lex	17000
103	Alexander	9000
104	Bruce	6000
107	Diana	4200

EMPLOYEE_ID	FIRST_NAME	SALARY
124	Kevin	5800
141	Trenna	3500
142	Curtis	3100
143	Randall	2600
144	Peter	2500
149	Eleni	10500
174	Ellen	11000
176	Jonathon	8600
178	Kimberely	7000

20 rows selected.

# INSERT INTO ... SELECT

- Copy multiple row of records into a different table
- Example
  - Create a new table name MYDEPT with the same structure as table DEPT

```
CREATE TABLE MYDEPT (DEPTNO, INT NOT
NULL, DNAME VARCHAR(20), LOC
VARCHAR(20) );
```

- Copy all records from DEPT table to MYDEPT

```
INSERT INTO MYDEPT
(SELECT * FROM DEPT);
```

```
SQL> create table mydept (deptno int not null, dname
Table created.
SQL> select * from dept
2 ;
```

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

```
SQL> insert into mydept
2 (select * from dept);
4 rows created.
SQL> select * from mydept;
```

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

# Create new table by copying the structure of an existing table

- Create a new table name DEPT\_BARU with the same structure as table DEPARTMENTS.

```
CREATE TABLE dept_baru  
AS (SELECT * FROM departments  
WHERE 1=2) ;
```

```
SQL> create table dept_baru  
2 as (select *  
3 from departments  
4 where 1=2);
```

```
Table created.
```

```
SQL> select *  
2 from dept_baru;
```

```
no rows selected
```

- This would create a new table called DEPT\_BARU that includes all columns from the DEPARTMENTS table WITHOUT the data from DEPARTMENTS

# Create new table by copying the structure of an existing table (and data)

- Create a new table name NEW\_DEPT with the same structure as table DEPARTMENTS.

```
CREATE TABLE new_dept  
AS (SELECT * FROM departments );
```

- This would create a new table called NEW\_DEPT that includes all columns from the DEPARTMENTS table INCLUDING all the data from DEPARTMENTS

```
SQL> create table new_dept  
2 as (select *  
3 from departments);  
  
Table created.  
  
SQL> select * from new_dept;  
  
DEPARTMENT_ID DEPARTMENT_NAME MANAGER_ID LOCATION_ID  
-----  
10 Administration 200 1700  
20 Marketing 201 1800  
50 Shipping 124 1500  
60 IT 103 1400  
80 Sales 149 2500  
90 Executive 100 1700  
110 Accounting 205 1700  
190 Contracting 1700  
  
8 rows selected.
```

# SELECT...FROM...WHERE (1)

- To list only selected row of records based on conditions
- Conditions involve comparison operators and/or logical operators
  - Comparison operators:
    - = <> < > <= >= !=
    - BETWEEN..AND LIKE IN(set)
  - Logical operators:
    - AND OR NOT

```
SELECT list-of-columns  
FROM list of tables  
WHERE search-condition;
```

# SELECT...FROM...WHERE...BETWEEN...AND

- Example:
  - List all employee ID, last\_name, salary where salary is between 2000 and 5000

```
SELECT employee_id, last_name, salary
FROM employees
WHERE salary
BETWEEN 2000 AND 5000;
```

```
SQL> select employee_id, last_name, salary
  2  from employees
  3  where salary between 2000 and 5000;

EMPLOYEE_ID LAST_NAME          SALARY
-----
          200 Whalen              4400
          107 Lorentz             4200
          141 Rajas                3500
          142 Davies                3100
          143 Matos                 2600
          144 Vargas                2500

6 rows selected.
```

# SELECT...FROM...WHERE...IN

- To search values in a list set
- Example:
  - List all employees whose salaries are 17000, 2500, 8600, 1000

```
SELECT employee_id, last_name, salary
FROM employees
WHERE salary IN (17000, 2500, 8600, 1000);
```

```
SQL> select employee_id, last_name, salary
  2  from employees
  3  where salary in (17000, 2500, 8600, 1000);
```

EMPLOYEE_ID	LAST_NAME	SALARY
101	Kochhar	17000
102	De Haan	17000
144	Vargas	2500
176	Taylor	8600

There is no employee with a salary of 1000. Therefore, it does not return a value.

# SELECT...FROM...WHERE...LIKE (1)

- To perform wild card searchers of valid search string values
  - `_` (underscore symbol) denotes one character
  - `%` denotes zero or many character
- Example:
  - List all employee whose first name starts with a J


```
SELECT employee_id, first_name  
FROM employees  
WHERE first_name LIKE 'J%';
```

```
SQL> select employee_id, first_name  
2 from employees  
3 where first_name like 'J%';  
  
EMPLOYEE_ID FIRST_NAME  
-----  
176 Jonathon  
200 Jennifer
```

## SELECT...FROM...WHERE...LIKE (2)

- Example:
- List all employees whose first name's third letter is an E

```
SELECT employee_id, first_name  
FROM employees  
WHERE first_name LIKE ' __e%';
```



(2 underscore symbols)

```
SQL> select employee_id, first_name  
2 from employees  
3 where first_name like ' __e%';
```

```
EMPLOYEE_ID FIRST_NAME  
-----
```

```
205 Shelley  
103 Alexander  
100 Steven  
101 Neena  
141 Tenna  
149 Eleni
```

```
6 rows selected.
```

# SELECT...FROM...WHERE...IS NULL

- To search for columns with **null value**
- Example:
  - List all employees who has not receive any commission.

```

SELECT employee_id,
first_name, commission_pct
FROM employees
WHERE commission_pct
IS NULL;

```

```

SQL> select employee_id, first_name, commission_pct
2  from employees
3  where commission_pct IS NULL;

```

EMPLOYEE_ID	FIRST_NAME	COMMISSION_PCT
200	Jennifer	
201	Michael	
202	Pat	
205	Shelley	
206	William	
100	Steven	
101	Neena	
102	Lex	
103	Alexander	
104	Bruce	
107	Diana	

EMPLOYEE_ID	FIRST_NAME	COMMISSION_PCT
124	Kevin	
141	Trenna	
142	Curtis	
143	Randall	
144	Peter	

16 rows selected.

# SELECT...FROM...WHERE...IS NOT NULL

- To search for columns with value is not NULL
- Example:
  - List all employees who have received any commissions

```
SELECT employee_id, first_name, commission_pct  
FROM employees  
WHERE commission_pct IS NOT NULL;
```

```
SQL> select employee_id, first_name, commission_pct  
2  from employees  
3  where commission_pct IS NOT NULL;
```

EMPLOYEE_ID	FIRST_NAME	COMMISSION_PCT
149	Eleni	.2
174	Ellen	.3
176	Jonathon	.2
178	Kimberely	.15

# SELECT...FROM...WHERE...AND

- AND requires both component conditions to be true

```
SELECT employee_id, last_name, job_id, salary
FROM employees
WHERE salary >= 10000 CONDITION 1
AND job_id LIKE '%MAN%' ; CONDITION 2
```

```
SQL> select employee_id, last_name, job_id, salary
2  from employees
3  where salary >= 10000
4  and job_id like '%MAN%';
```

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
201	Hartstein	MK_MAN	13000
149	Zlotkey	SA_MAN	10500

# SELECT...FROM...WHERE...OR

- OR requires either component conditions to be true

```
SELECT employee_id, last_name, job_id, salary
FROM employees
WHERE salary >= 10000
OR job_id LIKE '%MAN%';
```

CONDITION 1

CONDITION 2

```
SQL> select employee_id, last_name, job_id, salary
 2  from employees
 3  where salary >= 10000
 4  or job_id like '%MAN%';
```

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
201	Hartstein	MK_MAN	13000
205	Higgins	AC_MGR	12000
100	King	AD_PRES	24000
101	Kochhar	AD_VP	17000
102	De Haan	AD_VP	17000
124	Mourgos	ST_MAN	5800
149	Zlotkey	SA_MAN	10500
174	Abel	SA_REP	11000

8 rows selected.

# NOT operator

- Example:
  - Display the last name and job ID of employees whose job ID is not IT\_PROG, ST\_CLERK, or SA\_REP

```
SELECT last_name, job_id
FROM employees
WHERE job_id
NOT IN ('IT_PROG', 'ST_CLERK',
'SA_REP');
```

```
SQL> select last_name, job_id
 2  from employees
 3  where job_id
 4  not in ('IT_PROG', 'ST_CLERK', 'SA_REP');
```

LAST_NAME	JOB_ID
De Haan	AD_VP
Fay	MK_REP
Gietz	AC_ACCOUNT
Hartstein	MK_MAN
Higgins	AC_MGR
King	AD_PRES
Kochhar	AD_VP
Mourgos	ST_MAN
Whalen	AD_ASST
Zlotkey	SA_MAN

10 rows selected.

# Rules of precedence

- You can use parenthesis to override rules of precedence

Operator	Meaning
1	Arithmetic operators
2	Concatenation operators
3	Comparison operators
4	IS [NOT] NULL, LIKE, [NOT] IN
5	[NOT] BETWEEN
6	Not equal to
7	NOT logical condition
8	AND logical condition
9	OR logical condition

# Rules of Precedence

## 1

```

SELECT last_name, job_id, salary
FROM employees
WHERE job_id = 'SA_REP'
OR job_id = 'AD_PRES'
AND salary > 15000;

```

Check this condition first

```

SQL> select last_name, job_id, salary
2 from employees
3 where job_id = 'SA_REP'
4 OR job_id = 'AD_PRES'
5 AND salary > 15000;

```

LAST_NAME	JOB_ID	SALARY
King	AD_PRES	24000
Abel	SA_REP	11000
Taylor	SA_REP	8600
Grant	SA_REP	7000

## 2

```

SELECT last_name, job_id, salary
FROM employees
WHERE (job_id = 'SA_REP'
OR job_id = 'AD_PRES')
AND salary > 15000;

```

Check the one with parenthesis first

```

SQL> select last_name, job_id, salary
2 from employees
3 where (job_id = 'SA_REP'
4 or job_id = 'AD_PRES')
5 and salary > 15000;

```

LAST_NAME	JOB_ID	SALARY
King	AD_PRES	24000

# DISTINCT (1)

- The default display of queries is all rows, including duplicate rows
- Use the DISTINCT keyword immediately after the SELECT keyword to eliminate duplicate rows

```
SELECT DISTINCT department_id
FROM employees;
```

```
SQL> select distinct department_id
      2 from employees;
```

```
DEPARTMENT_ID
-----
```

```

      20
      90
     110
      50
      80
      10
      60
```

```
8 rows selected.
```

```
SQL> select department_id
      2 from employees;
```

```
DEPARTMENT_ID
-----
```

```

      10
      20
      20
     110
     110
      90
      90
      90
      60
      60
      60
```

```
DEPARTMENT_ID
-----
```

```

      50
      50
      50
      50
      50
      80
      80
      80
```

```
20 rows selected.
```

## DISTINCT (2)

- Multiply columns can be specified after the DISTINCT qualifier
- This affects all the selected columns, and the result is every distinct combination of the columns

```
SELECT DISTINCT department_id,  
job_id FROM employees;
```

```
SQL> select distinct department_id, job_id  
2 from employees;
```

```
DEPARTMENT_ID JOB_ID  
-----  
110 AC_ACCOUNT  
90 AD_VP  
50 ST_CLERK  
80 SA_REP  
110 AC_MGR  
50 ST_MAN  
80 SA_MAN  
20 MK_MAN  
90 AD_PRES  
60 IT_PROG  
SA_REP
```

```
DEPARTMENT_ID JOB_ID  
-----  
10 AD_ASST  
20 MK_REP
```

```
13 rows selected.
```

# DESCRIBE

- Use the DESCRIBE command to **display** the **structure** of a table

```
SQL> describe employees;
Name                                     Null?   Type
-----
EMPLOYEE_ID                             NOT NULL NUMBER(6)
FIRST_NAME                               VARCHAR2(20)
LAST_NAME                                NOT NULL VARCHAR2(25)
EMAIL                                     NOT NULL VARCHAR2(25)
PHONE_NUMBER                             VARCHAR2(20)
HIRE_DATE                                NOT NULL DATE
JOB_ID                                    NOT NULL VARCHAR2(10)
SALARY                                    NUMBER(8,2)
COMMISSION_PCT                           NUMBER(2,2)
MANAGER_ID                                NUMBER(6)
DEPARTMENT_ID                            NUMBER(4)
```

# SUMMARY

- **INSERT INTO** : To add new values (data) into a table
- **UPDATE ... SET** : To update existing value of a column with a new value
- **SELECT ... FROM** : To retrieve records in table(s)
- **SELECT ... FROM ... WHERE** : To retrieve record that match certain condition

## Simple Handwritten Exercise

- Given the following relation schemas, construct the SQL statement for following tasks:

**CUSTOMER** (**customer\_id**, store\_id, first\_name, last\_name, email, address, active)

**RENTAL** (**rental\_id**, rental\_date, inventory\_id, customer\_id, return\_date, staff\_id)

**INVENTORY** (**inventory\_id**, film\_id, store\_id)

**STORE** (**store\_id**, manager\_staff\_id, location)

**STAFF** (**staff\_id**, first\_name, last\_name, address, email, store\_id, salary)

**PAYMENT** (**payment\_id**, customer\_id, staff\_id, rental\_id, amount, payment\_date)

**FILM** (**film\_id**, title, description, rental\_duration, rental\_rate)

- List all films title, rental duration and rental rate.
- List all customers' details who registered to store with ID of ST\_002.
- Insert a new film in database which has the film ID 'F\_0099', title 'My Neighbour Totoro', description 'Is a 1998 Japanese animated film by Hayao Miyazaki', rental duration 14 days, and rental rate of RM8.