Assignment #3

# An Exercise of SQL Using SQL*Plus

KAIST

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# SQL*Plus Commands

# Outerjoin Syntax

- **Right outer join**

(Ex) MovieStar(name, address, gender, birthdate)
MovieExec(name, address, cert#, netWorth)

```
– MovieStar NATURAL RIGHT OUTER JOIN MovieExec;
```

MovieStar

| name | address | gender | birthdate |
|---|---|---|---|
| Mary T. Moore | Maple St. | 'F' | 9/9/99 |
| Tom Hanks | Cherry Ln. | 'M' | 8/8/88 |

MovieExec

| name | address | cert# | networth |
|---|---|---|---|
| Mary T. Moore | Maple St. | 12345 | $100… |
| George Lucas | Oak Rd. | 23456 | $200… |

Result

| name | address | gender | birthdate | cert# | networth |
|---|---|---|---|---|---|
| Mary T. Moore | Maple St. | 'F' | 9/9/99 | 12345 | $100… |
| George Lucas | Oak Rd. | NULL | NULL | 23456 | $200… |

# Outerjoin Syntax (cont'd)

– MovieStar NATURAL RIGHT OUTER JOIN MovieExec;

1.
```
SELECT *
FROM MovieStar NATURAL RIGHT OUTER JOIN MovieExec
```

2.
```
SELECT *
FROM MovieStar star RIGHT OUTER JOIN MovieExec exec
ON star.name = exec.name AND
      star.address = exec.address;
```

3.
```
SELECT *
FROM MovieStar star, MovieExec exec
WHERE star.name(+) = exec.name AND
      star.address(+) = exec.address;
```

# Assignment #3

# Submission

- **Due**
  - Sep. 30, 2:00 a.m.
  - Delay is not accepted
- **Submission standard (same as HW #2)**
  - *[student ID].lst* contains the executions of SQL commands and their results. You may use ***SPOOL*** command.
  - Upload the .lst file to course homepage
- **Evaluation**
  - You will get points if your SQL queries find the right answers.
  - Do not cheat others. Both of them will get no point.
- **Contacts of this HW #3**
  - Email : **cmryu@dbserver.kaist.ac.kr** (Chungmo Ryu)
  - Office Hour : **Wed. 16:00 ~ 17:30, Fri. 14:30 ~ 16:00 (N1, 404)**

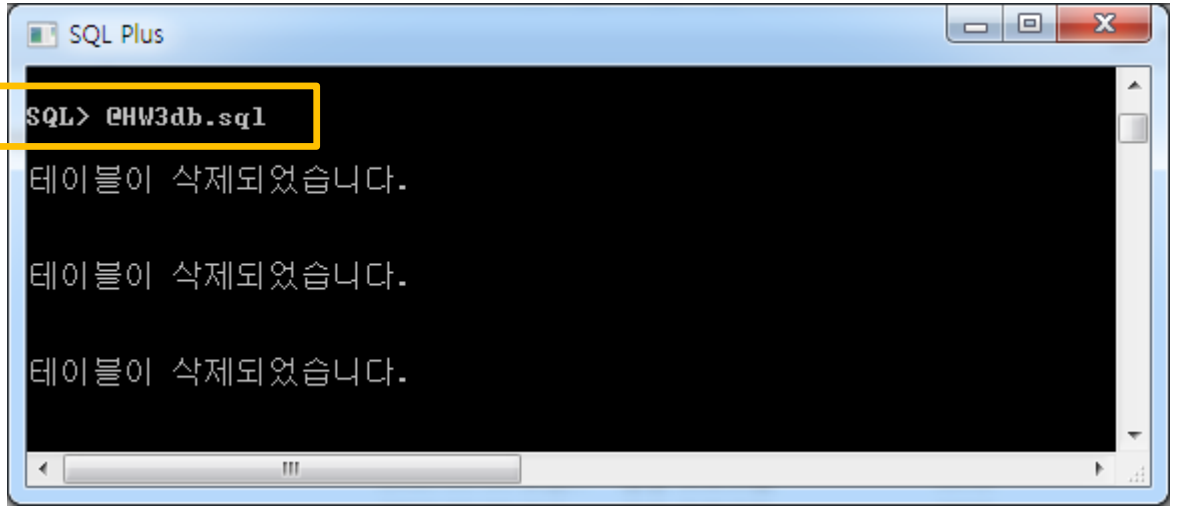
# Example Database

- **Create tables for homework.**

  1) Download *HW3db.sql* from the course homepage and Copy it to (directory that *Oracle Client* is installed)₩BIN

  2) ***@HW3db.sql*** or ***start HW3db.sql***

     (* its contents are same as HW2db.sql from HW #2)



# Example Database (cont'd)

- **Database Design**
  - You can see all the tables stored in your database using a command '**select * from tab;**'

| PRODUCT | maker | model | type |
|---|---|---|---|
| | A | 2001 | pc |
| | A | 1002 | pc |
| | ... | | |

| PC | model | speed | ram | hd | price |
|---|---|---|---|---|---|
| | 1001 | 2.66 | 1024 | 250 | 2114 |
| | 1002 | 2.10 | 512 | 250 | 995 |
| | ... | | | | |

| PRINTER | model | color | type | price |
|---|---|---|---|---|
| | 3001 | true | Ink-jet | 99 |
| | 3002 | false | laser | 239 |
| | ... | | | |

| LAPTOP | model | speed | ram | hd | screen | price |
|---|---|---|---|---|---|---|
| | 2001 | 2.00 | 2048 | 240 | 20.1 | 3673 |
| | 2002 | 1.73 | 1024 | 80 | 17.0 | 949 |
| | ... | | | | | |

# Queries

## Problem 1.

Write the following queries, based on the database schema of HW #1. You should **(1) use at least one subquery in each of your answers** and **(2) write each query in two significantly different ways (half point each)** (e.g., using different sets of the operators **EXISTS**, **IN**, **ALL**, and **ANY**).

1) Find the makers of PC 's with a speed of at least 3.0.

2) Find the model number of the item (PC, laptop, or printer) with the highest price.

3) Find the maker of the color printer with the lowest price.

# Queries

## Problem 2.

Write each of the queries in Problem 2 from HW #1 in SQL, **making sure that duplicates are eliminated.**

1) What PC models have a speed of at least 3.00?
2) Find those manufacturers that sell Laptops, but not PC 's.
3) Find those pairs of PC models that have both the same speed and RAM. A pair should be listed only once; e.g., list (i, j) but not (j, i).
4) Find the manufacturer(s) of the computer (PC or laptop) with the highest available speed.

# Queries

## Problem 3.

(1) Write the following queries, based on the database schema of HW #1, and (2) Evaluate your queries using the data of that exercise.

1) Find for each manufacturer, the average screen size of its laptops.

2) Find the manufacturers that make at least three different models of PC.

3) Find the average hard disk size of a PC for all those manufacturers that make printers.

# References

- Lecture notes
- Text book
  - Chapter 6.3, 6.4
- Oracle SQL Plus Tutorial
  - http://www.holowczak.com/oracle/sqlplus/