

# CS 2102 Database Systems

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You can download this note from:

<http://www.comp.nus.edu.sg/~zhaogang/cs2102.html>

# Warming up

- You can set up your database by script
  - [http://www.comp.nus.edu.sg/~zhaogang/cs2102.html\(allinone\\_sybase.sql\)](http://www.comp.nus.edu.sg/~zhaogang/cs2102.html(allinone_sybase.sql))
- Schema:
  - Student(name, email, year, faculty, department, graduate)
  - Book(title, format, page, language, authors, publisher, year, isbn10, isbn13)
  - Copy(owner, book, copy, available)
  - Loan(borrower, owner, book, copy, borrowed, returned)

# Warming up

- **Problem:**

- Show the loan record happened between '2010-4-1' to '2010-4-30'
- Show the book isbn and available infor for user Tso Huilin whose email is 'tsohuilin1989@msn.com'
- Now George goanna borrow the book (isbn: 978-0130811370, copy:1) from Tso Huilin; (George, george@nus.edu.sg,2009-8-1,soc,cs)
- Delete the infor you just insert.
- Reset your database.

# Lab 2: More SQLs

**Duplicates and order,  
multiple relations and  
complex conditions**

# Outline

- Experiment Platforms
  - Windows Azure
- SQL
  - Duplicate and Sorting
  - multiple relations manipulation
  - complex conditions

# Windows Azure

- Provided by microsoft
- Refer to document '[windows azure.pdf](#)'
- Set up the database by the script  
“allinone\_azure.sql”
- You can check you tables by the sql
  - SELECT \* FROM sys.Tables

# Duplicate

- Eliminating duplicate query results

```
select DISTINCT col_name from table_name  
where serch_condition
```

- problem1
- Show all the students' name
- Show different students' name
- Problem 5
- NOTE: use distinct when it is strictly necessary, since this operation is expensive

# Sorting

- Sort query results by one or more columns in either ascending (**asc**) or descending (**desc**).

```
select col_name,... from table_name  
where serch_condition order by col_name [asc/desc]
```

- Problem 3
- Show the loan record happened between '2010-4-1' to '2010-4-30' sort by the borrow date

# Rename

- We can rename col\_name can table\_name temporally for convince purpose.

```
select col_name as new_col_name  
from table_name new_tabele name
```

- You can use these new name in the selection and where clause.
- E.g. select book as b,c.owner from copy c

# like

- The **like** keyword searches for a character string that matches a pattern.

```
where [not]
```

```
column_name [not] like 'match_string'
```

- We use % to match any string of zero or more characters.
- E.g. show the book infor which title contains 'computer'

# multiple relations manipulation

- Issue query on multiple tables.

```
select col_name,... from table_name1,...  
where serch_condition ...
```

- Problem
  - Problem 4,6,7,8,9,10,11

Student(name,email,year,faculty,department,graduate)

Book(title,format,page,language,authors,publisher,year,isbn10,isbn13)

Copy(owner,book,copy, available)

Loan(borrower, owner,book,copy, borrowed, returned)

# UNION

- Union
  - Query1 union[all] query 2....
  - By default, the **union** operator removes duplicate
  - All select lists in the **union** statement must have the same number of expressions
  - Corresponding columns in all queries, must be of the same datatype and same order
  - Problem 12,13,14,15