

3. Relational Data Objects อ.ดร.สุรัตน์ โคอินทรางกูร	The relational model is concerned with three aspects of data - Data Structure - Data Integrity - Data Manipulation	Data Structure - Relation / Table - Tuples / Rows (จำนวน tuples เรียกว่า Cardinality) - Attributes / Columns (จำนวน attributes เรียกว่า degree) - Domains																					
Scalar - ค่าของข้อมูลที่แบ่งต่อไปไม่ได้เรียกว่า Scalar - เพราะฉะนั้น scalar คือหน่วยที่เล็กที่สุดของข้อมูล ซึ่งเรียกว่า atomic	Domains Domain is a named set of scalar values, all of the same type. - Domains are <i>pools of legal values</i>.	ความสำคัญของ Domains Domain-Constrained Comparison																					
Domain-Constrained Comparison COURSE <table><tr><td>CODE</td><td>DESC</td><td>UNIT</td></tr><tr><td>AC201</td><td>Accounting</td><td>3</td></tr><tr><td>FN201</td><td>Finance</td><td>3</td></tr></table> REGISTER <table><tr><td>ID</td><td>CODE</td><td>GRADE</td></tr><tr><td>101</td><td>AC201</td><td>3</td></tr><tr><td>101</td><td>FN201</td><td>2</td></tr><tr><td>102</td><td>AC201</td><td>3</td></tr></table>	CODE	DESC	UNIT	AC201	Accounting	3	FN201	Finance	3	ID	CODE	GRADE	101	AC201	3	101	FN201	2	102	AC201	3	Domain-Constrained Comparison SELECT COURSE.CODE, DESC, ID FROM COURSE, REGISTER WHERE COURSE.CODE = REGISTER.CODE SELECT COURSE.CODE, DESC, ID FROM COURSE, REGISTER WHERE COURSE.UNIT = REGISTER.GRADE	Data Definition CREATE TABLE student (id char(10) primary key , name varchar(40) not null , city varchar(40) , dep varchar(10) , grade decimal(3,2)) ;
CODE	DESC	UNIT																					
AC201	Accounting	3																					
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ID	CODE	GRADE																					
101	AC201	3																					
101	FN201	2																					
102	AC201	3																					

Data Definition

```
CREATE DOMAIN      ID      char(10) ;
CREATE DOMAIN      NAME    varchar(40) ;
CREATE DOMAIN      CITY    varchar(40) ;
```

```
CREATE BASE RELATION student (
    id      domain ( ID ) ,
    name    domain ( name ) ,
    city    domain ( city ) )
PRIMARY KEY ( ID ) ;
```

Relation

- A relation is a collection of domains $D1, D2, \dots Dn$ - not necessarily all distinct - consists of two parts, *a heading and a body*.

Properties of Relations

- There are no duplicate tuples
- Tuples are unordered, top to bottom
- Attributes are unordered, left to right
- All attribute values are atomic

Kinds of Relations

- Base relation
- View
- Snapshot
- Query Result
- Intermediate Result