Relational Schema Mapping

What is a set ?

A={ 1, 2 }; B= {a, b }

What is a product set → AxB = { (1,a), (1,b), (2,a), (2,b) }

Product set ←→ Cartesian Product

Its elements can be written in → Table form

It has no duplicates. It is a set.

1	a
1	b
2	a
2	b

This 'Product set' → relates elements of set A {1,2} with elements of set B {a,b}.

Example:

Apple	Red
Banana	Green

Apple is red, and Banana is green.

Therefore, Product set is also called as a relation.

A **proper subset** of AxB also relates few elements.

1	a
1	b
2	a

Any proper subset of a [Product set] → is a **relation**.

➔ It is a set. It is a relation
➔ Table with 2 or more columns is a relation
(with no duplicate rows/columns)

Database Schema → a set of relations

Schema 1:

Columns : COURSE-name(6), TEACHER-name(8), STUDENT-number(8),
STUDENT-name(8), GRADE(4)

Courses (COURSE, TEACHER, SNO, SNAME, GRADE)

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DB      Blake    s102000 NakaMura  A
OS      Blake    s102000 NakaMura  A
OS      Blake    s201000 Kato      B
Physics     Billard  s102000 NakaMura  B
Physics     Billard  s201000 Kato      C
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Schema 2:

in the previous exercise (Exercise Class 1).

Teachers (COURSE, TEACHER)

Classes (COURSE, SNO, SNAME, GRADE).

Schema 3:

Teachers (COURSE, TEACHER)

Grades (COURSE, SNO, GRADE)

Students (SNO, SNAME)

Schema 1 ←→ schema 2 ←→ schema 3

Perform Schema Mapping:

1. Join Table Grades and Students in Schema 3
   Check if, result is same as Table classes in Schema 2

2. Join 2 tables in Schema 2, Check if, the result is same
   As Courses Table in Schema 1