

Y04A2L
Presentation

Database Models

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Database Models

1. What is the database?
2. Database x Schema x Software
3. What is the database models
4. Types of database models
 - I. Hierarchical model
 - II. Network model
 - III. Relational model
 - IV. Object model

What is the database?

Database is

- a collection of records
- a collection of information

which is stored

- in a computer
- in a systematic way

so that a computer program can consult it to answer questions.

The term **database** originated within the computer industry.

Database x Schema x Software

Database = collection of records, or pieces of knowledge.

Schema = describes the objects of database and the relationships among them.

NOT *database*!

Software = database management system (DBMS) = the computer program that is used to manage and query a database .

NOT *database*!

MISTAKE!

Many database administrators and programmers use the term *database* for the database and schema as for the software.

What are the database models?

Database model

- = modeling the database structure
- = way of organizing a schema

Database model = tool for

- representing the structure
- representing functionality of the database

and allows you to define:

- database schema - data organization
- ways to protect database
- ensure data integrity
- operations with data

Types of database models

There are **4 basic types** of database models:

I. Hierarchical model

Data is organized into a tree-like structure.

II. Network model

Data is organized using two fundamental constructs, called *records* and *sets*.

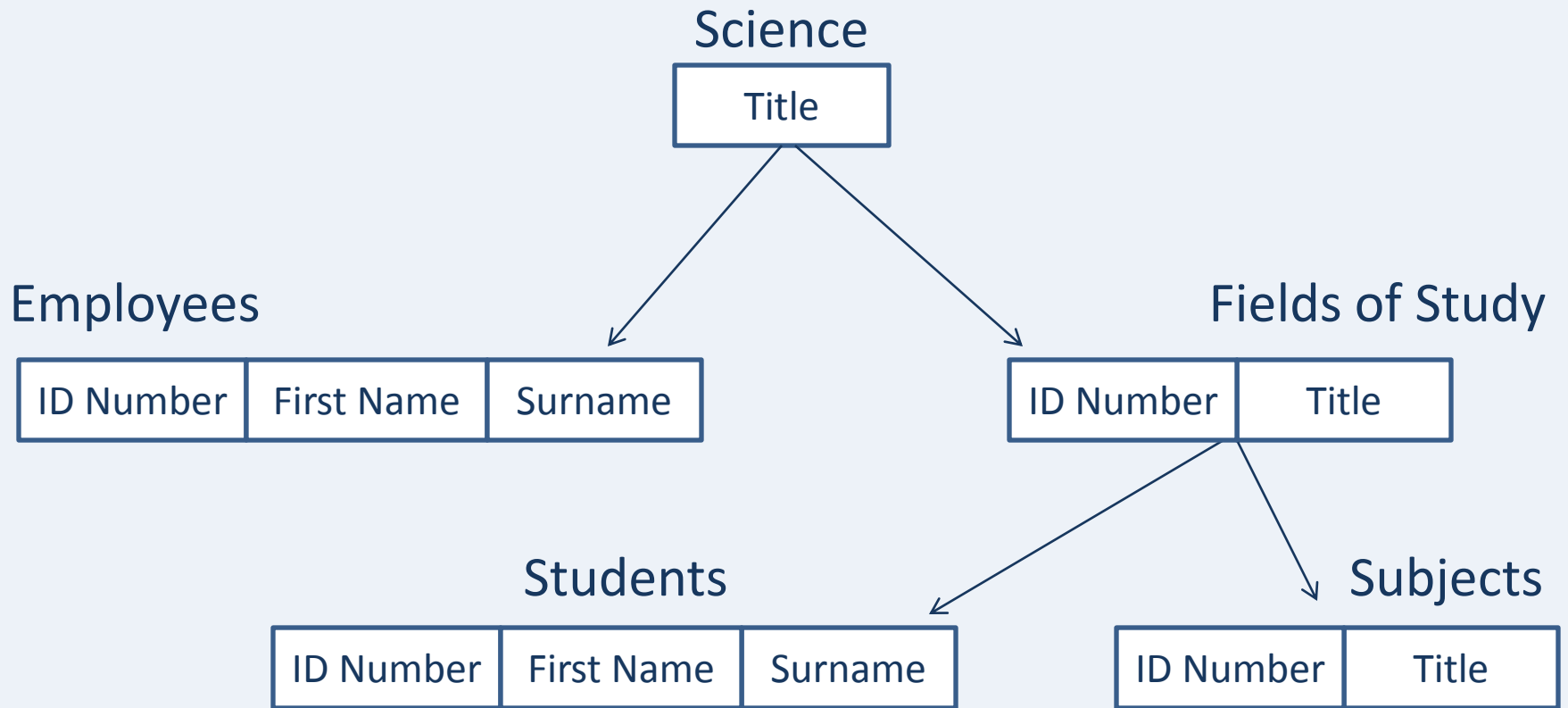
III. Relational model

It is a mathematical model defined in terms of predicate logic and set theory.

IV. Object model

Data is represented in the form of objects as used in object-oriented programming.

Hierarchical Model



Network Models

Set of fields

STM

WM

Set of subjects

Math

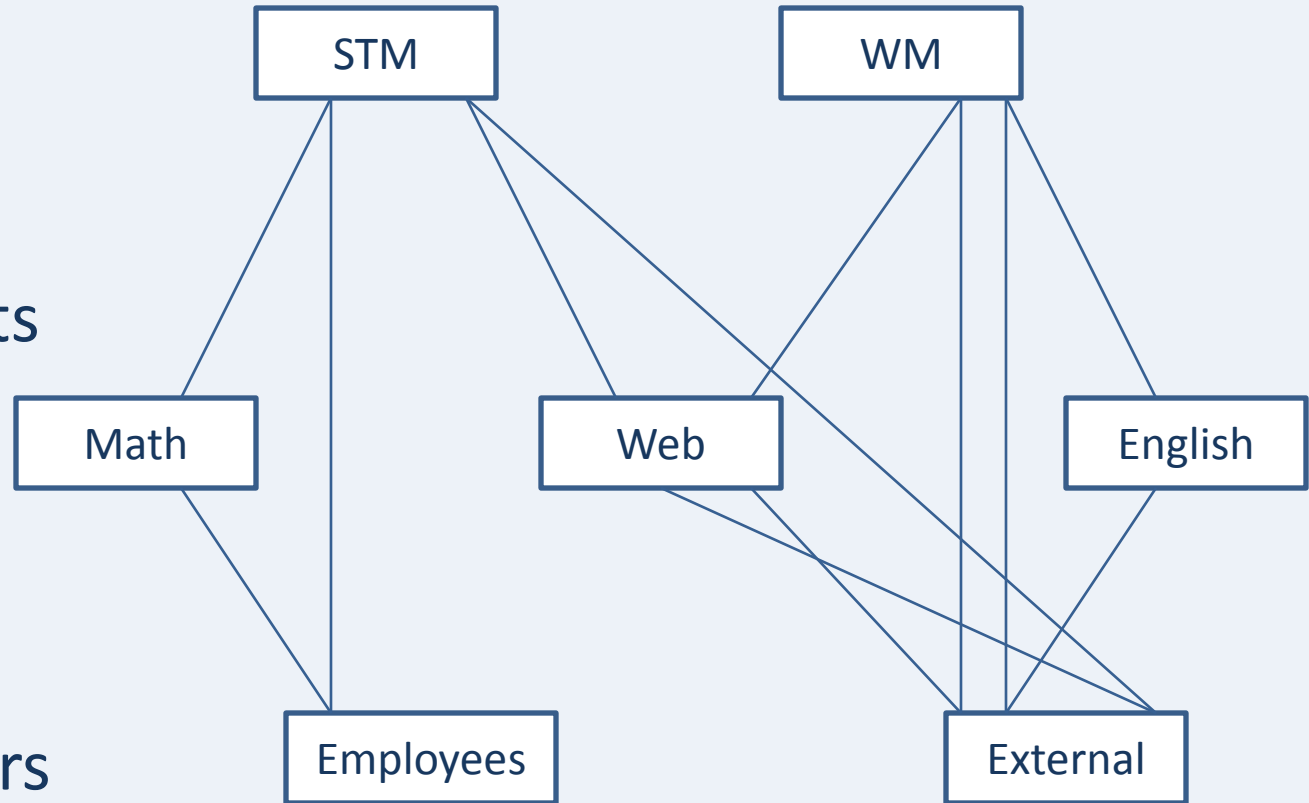
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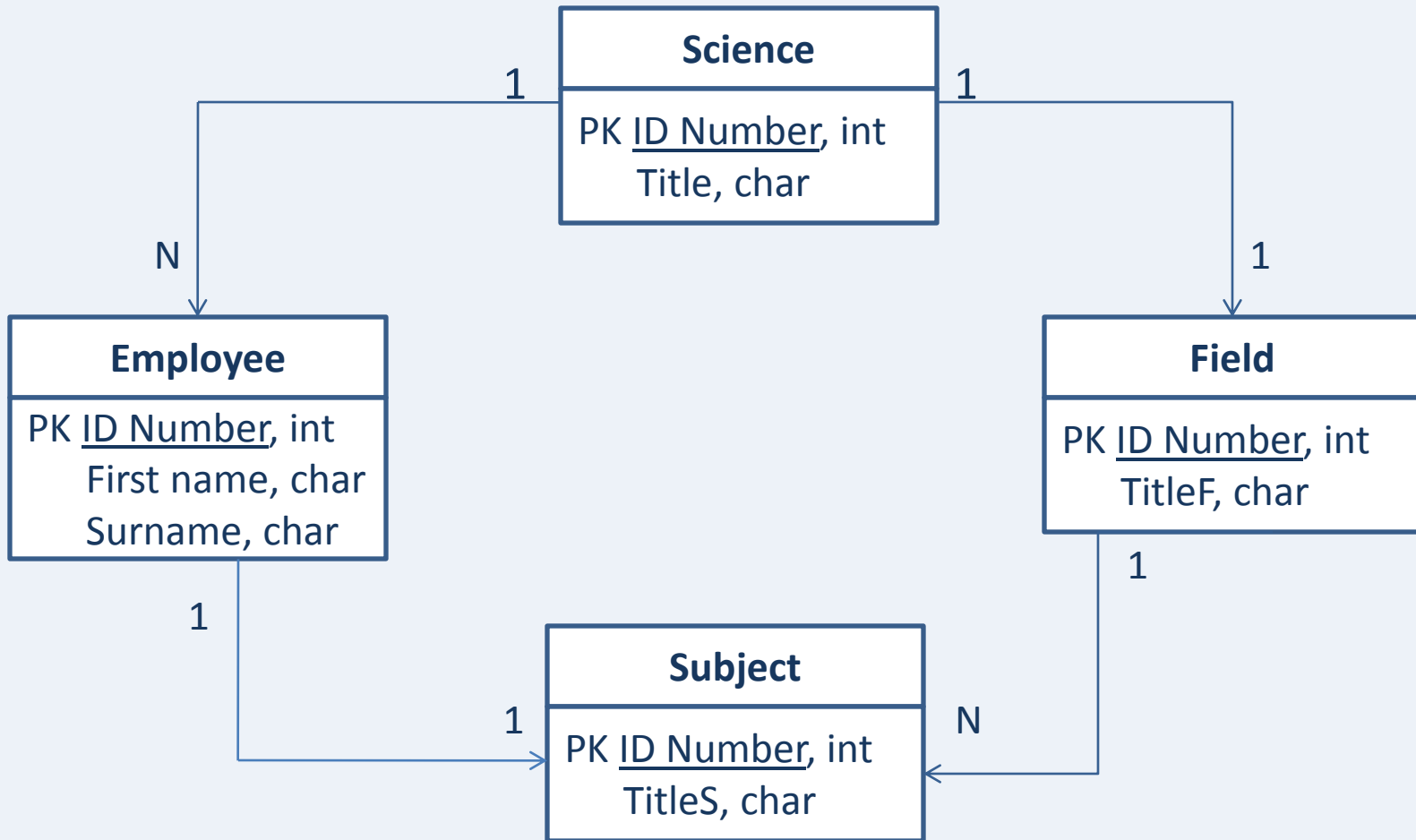
Set of teachers

Employees

External



Relational Model



Object Model

Relational Model	Object Model
table row	element (object set)
table	<ul style="list-style-type: none">- class of objects (such as data type)- set of objects (even of different classes)
attribute (line item in the table)	<ul style="list-style-type: none">- data component object- method of the object that provides data
primary key (does not factor into memory)	Object Identifier (OID) (pointer to memory)

Diskuse.

Questions.

Thank you for your attantion.