

Multi-Valued Attribute

Q1. What is a multi-valued attribute (MV)?



According to ScienceDirect: "It is an attribute that can have more than one value associated with the key of the entity."

Q2. How many types of multi-valued (MV) attribute are there?

There are two types of MV:

1. Simple Multi-Valued Attribute [e.g. Pre-Requisite]
2. Composite Multi-Valued Attribute [e.g. Skills]



Composite Multi-Valued

Table Name: Employee
Multi-Valued Attribute: Skill

Emp ID	Emp Name	Skill
10001	Ahmad	1 C++ Programming 2 Java Programming
10002	Zia	1 Filmora Video Editing
10003	Saad	1 Unity Programming 2 Blender Designing

An employee can have one or many skills. Employee number 10003 i.e. Saad has two skills i.e. Unity and Blender. Skill is composite as well. It can be further broken into three attributes i.e. skill id, skill name, and skill category.

For example:

1. Pre-Requisite attribute
2. Skills attribute,
3. Degrees attribute



Simple Multi-Valued

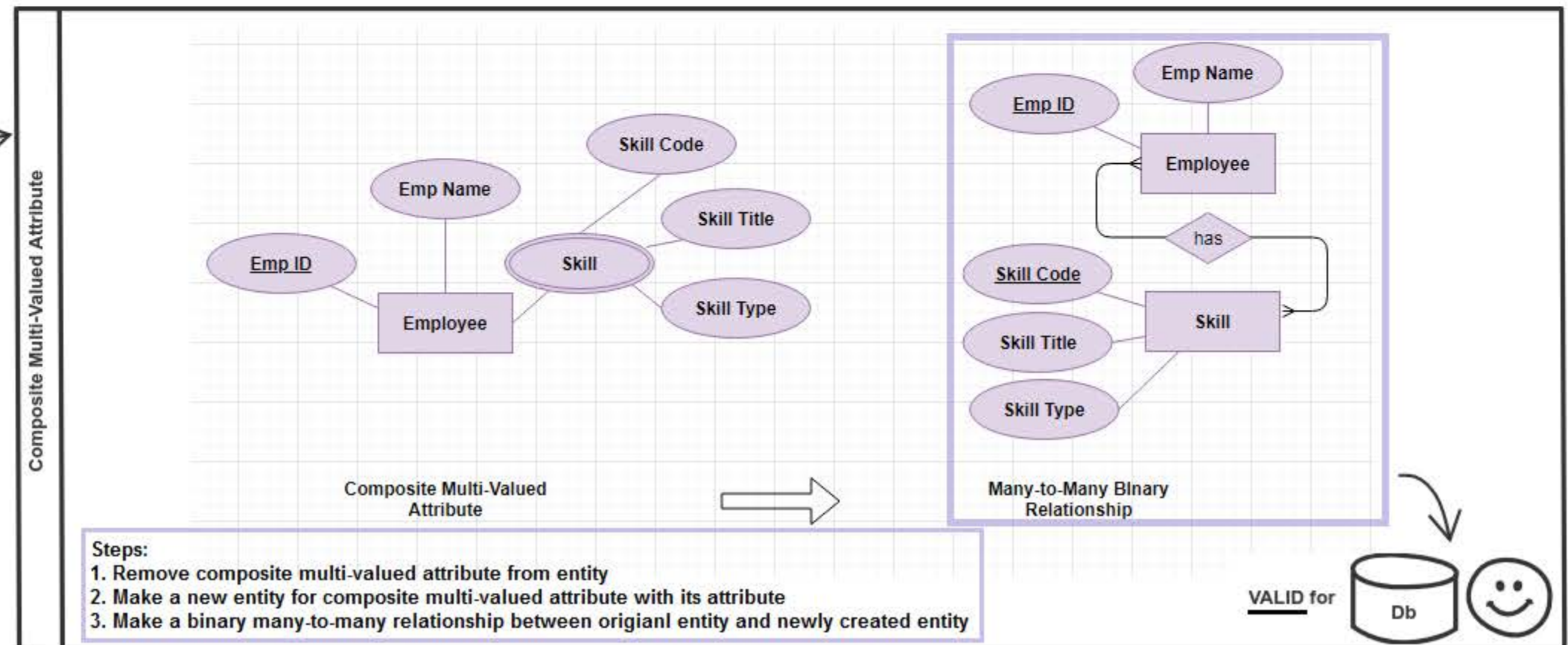
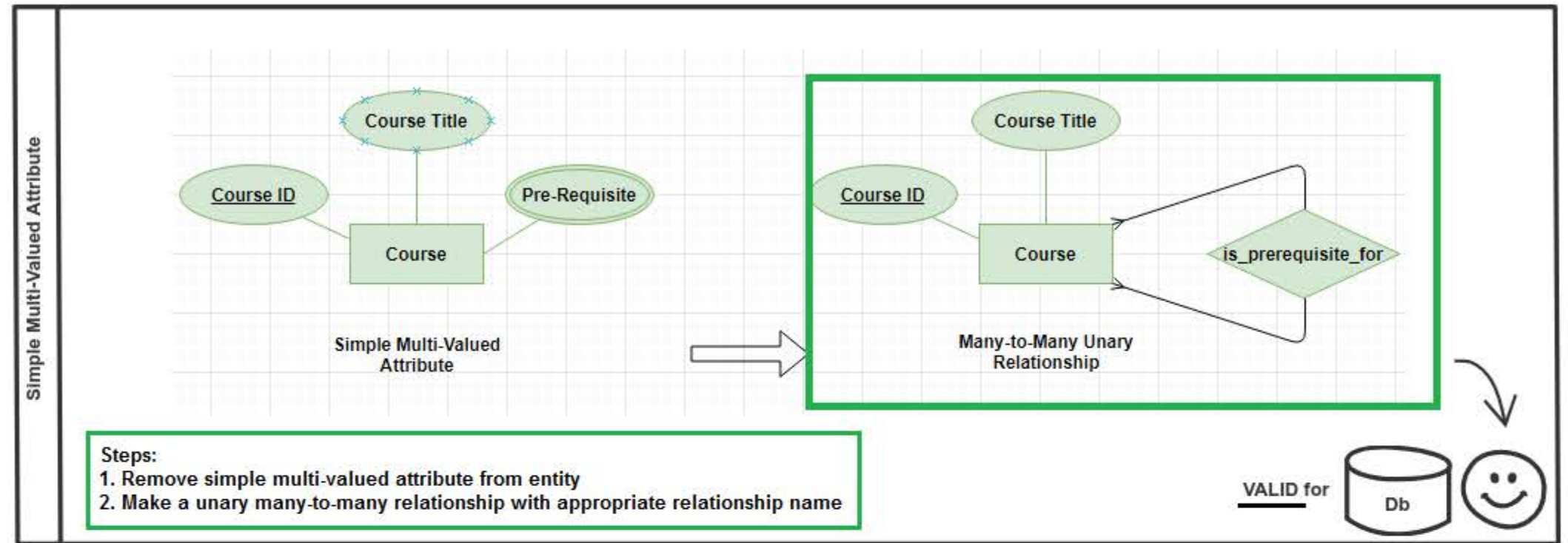
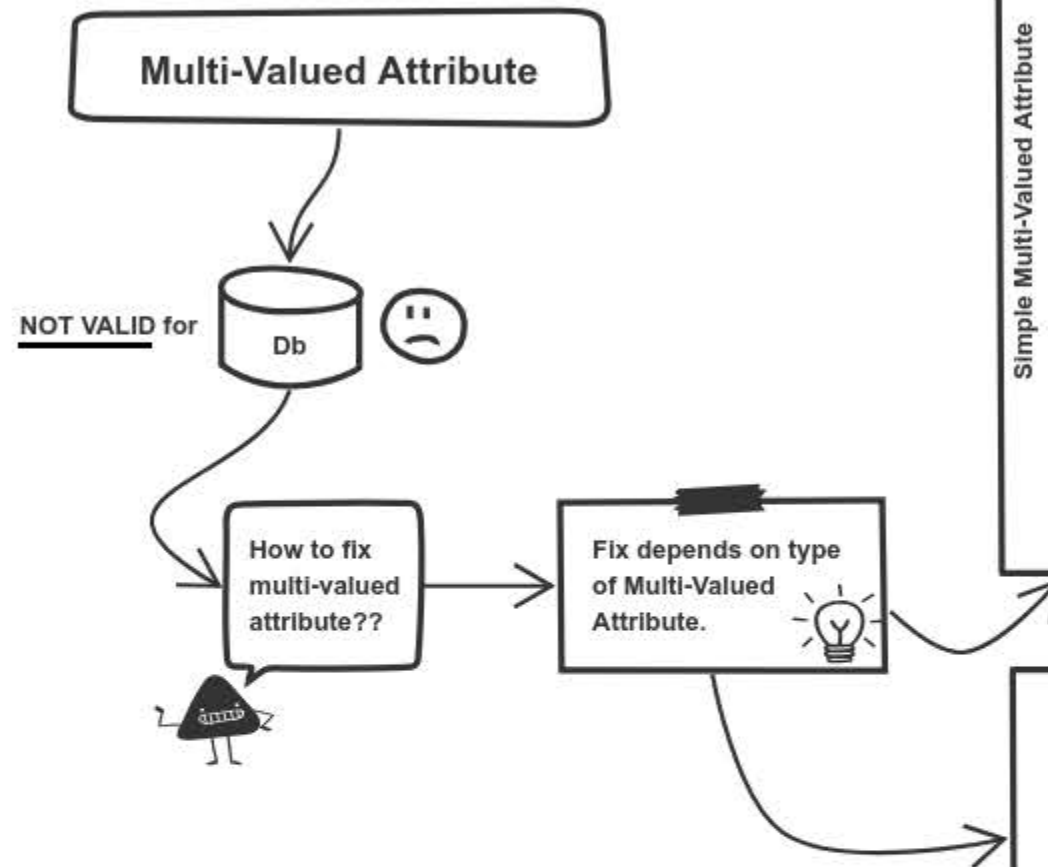
Table Name: Course
Multi-Valued Attribute: Pre-Requisite

Course ID	Course Name	Pre-Requisite
101	Computer Programming	
102	Object-Oriented Programming	101
103	Data Structure & Algorithms	102, 101

A course can have none or many pre-requisites. Course number 103 i.e. Data Structures & Algorithms has two pre-requisites i.e. Computer Programming and Object-Oriented Programming. Pre-requisite is a simple attribute. It can not be further divided.

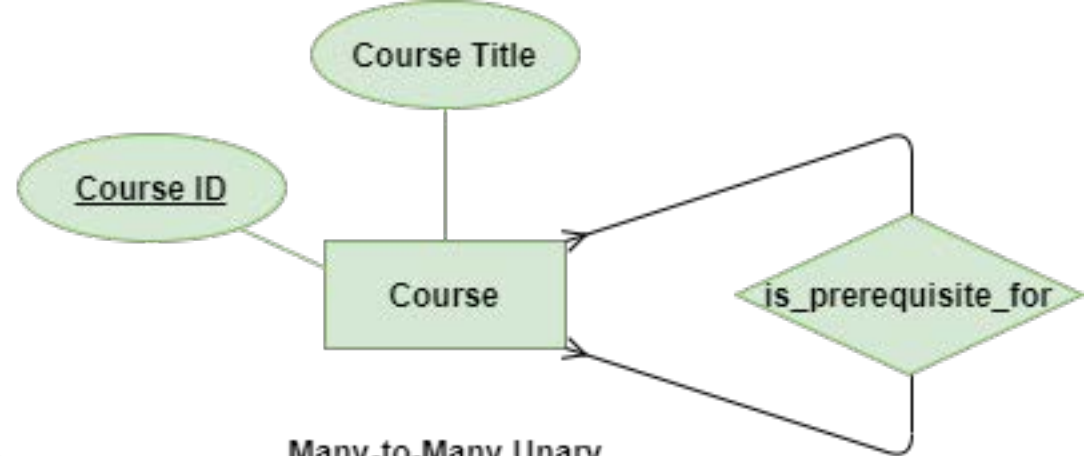
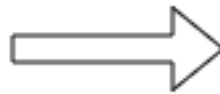
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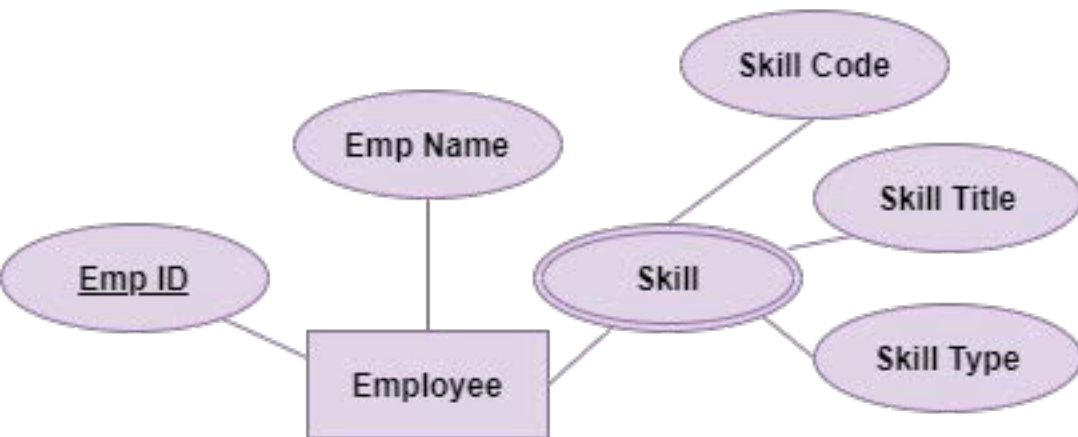




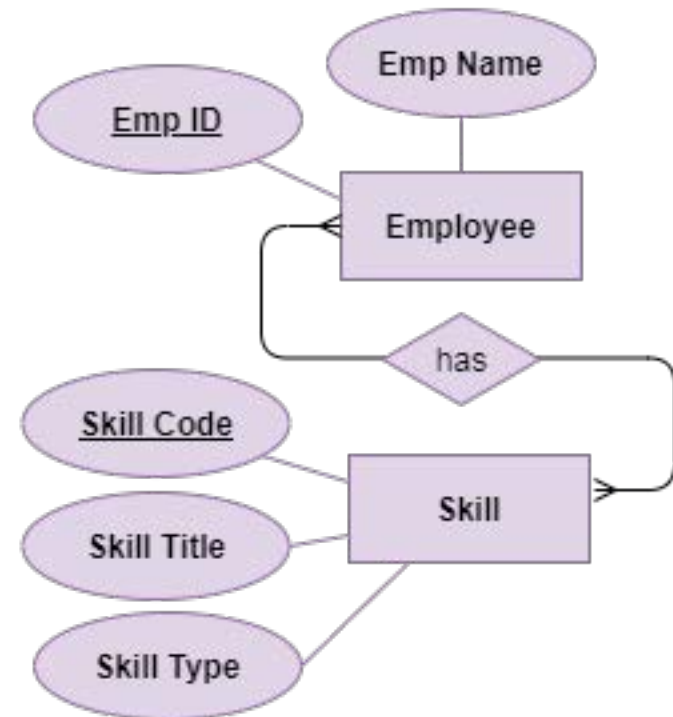
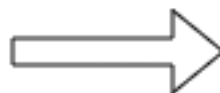
Simple Multi-Valued Attribute



Many-to-Many Unary Relationship



Composite Multi-Valued Attribute



Many-to-Many Binary Relationship