Study.com

Domain Model vs. Data Model

Lesson Transcript

What are domain models and data models and why do we use them? What is the difference between each of the these models? Let's look at each and see them drawn out to explore these valuable tools.

What Is a Domain Model?

A **domain model** is used in software engineering. It is a common tool for object-oriented programming languages like Java. A domain model is a representation of the organization's data, independent of the way the data is stored in the database.

A domain model is a structural model of basic domain concepts and the relationships between them. A domain model may contain domain objects, conceptual classes, associations, or attributes, which we'll take a closer look at now.

Key Terms for Domain Modeling

The **domain** in a domain model is the collection of all of the objects in that system. This domain contains all of the data and a representation of how that data behaves and interacts with each other.

A **class** is any set of objects that behave in the same way or have the same properties.

A **conceptual class** is a thing, behavior, or object within the domain.

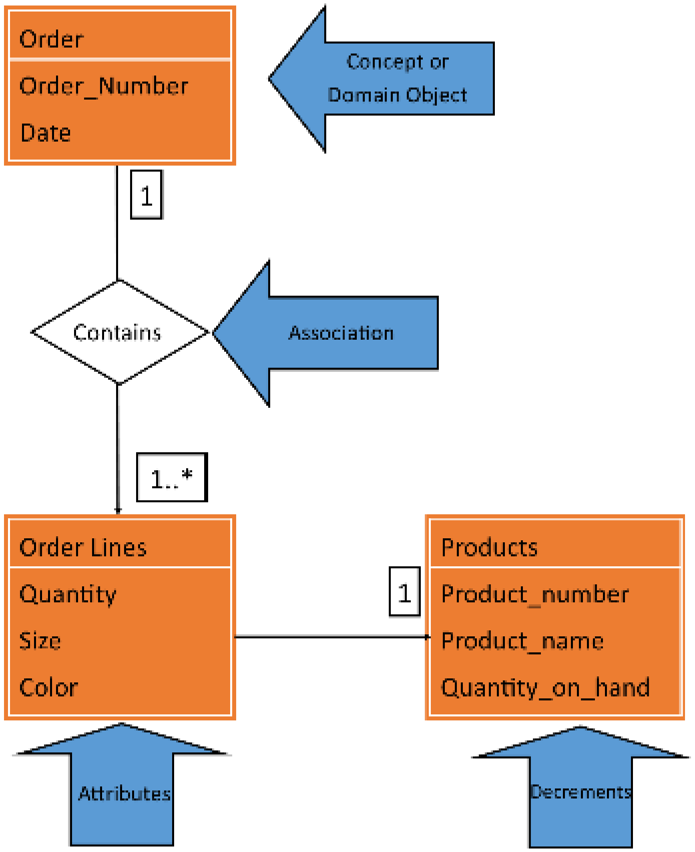
Attributes describe the class. They are the individual pieces of information you want to store about the classes.

Associations record the relationships between the conceptual classes.

How to Build a Domain Model

To construct a domain model, we first identify all our conceptual classes. Then, we add associations between the conceptual models to represent the relationships between them. We then add the attributes we need to store the information we want to use.

Domain Model Example



Domain Model Diagram

This example models the deduction of items on orders from inventory. Everyone has placed an order, so the first two objects should look familiar.

The 'Order' object contains information about the order stored in its attributes. The Order object is associated with the 'Order_lines' object. The Order_lines object is associated with the 'Products' object. Since products are placed on the lines of an order, the number of that product is decremented in the product's quantity on hand.

The notion of 1..* denotes that there can be one product on the order, or an unknown quantity, because there is (usually) more than one product on an order. This is very flexible, since it allows us to process orders when we don't know how many products will be on that order. For each order in the Order_lines object there will be one product it is associated with and one order.

What Is a Data Model?

A **data model** is used in database design and development. It is a common tool for relational database design, the most popular type of database in use today. Some names of products that use relational databases are Oracle and Microsoft SQL Server.

In data models, the collection of all of the objects in that system that contain all of the data and a representation of how that data behaves and interacts with each other is called the **schema** instead of the domain.

Key Terms for a Data Model

An **entity** is the basic construct in a data model. An entity is a person, place, thing, or event that must be represented in the database. These will become the tables or rows in a database.

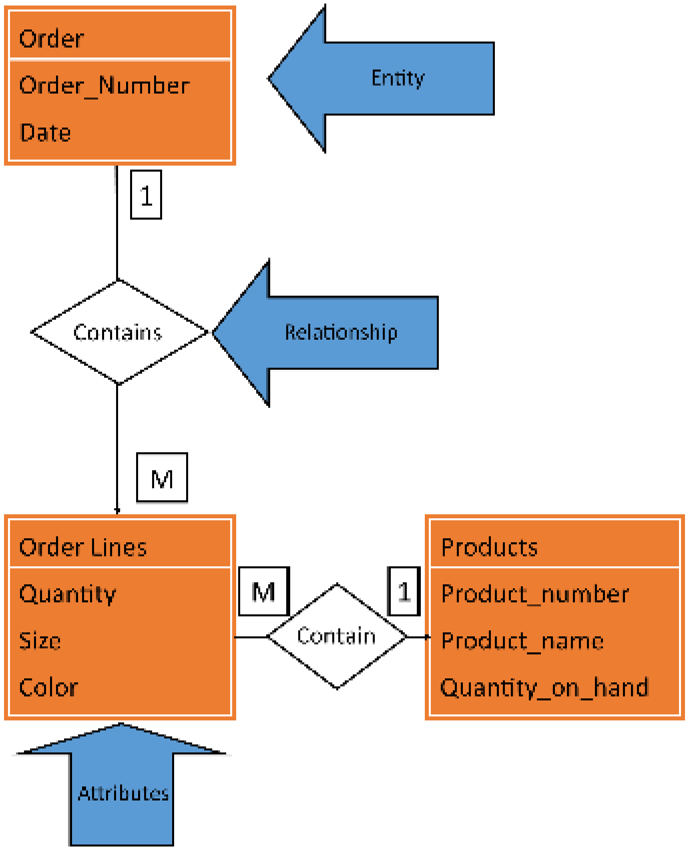
Relationships between the entities are modeled next to show which entities will interact with the others.

Attributes are the individual pieces of information you want to store about the entities. These become the columns in the database.

How to Build a Data Model

To construct a data model, we first identify all our entities. Then, we add relationships between the entities to represent which other entities will interact with them. We then add the attributes we need to store the information we want to use.

Example of a Data Model



Data Model Diagram

This diagram may look the same and use the same symbols, but it's not.

The entity Order has a relationship with the entity Order_lines, which has a relationship with the Products entity or table. In the data model, relationships go both ways. See the notation of 1 and M? This symbolizes either 1 or many.

Domain Model vs. Data Model Related Study Materials