

UNIT-III

Domain models

MADHESWARI.K

AP/CSE

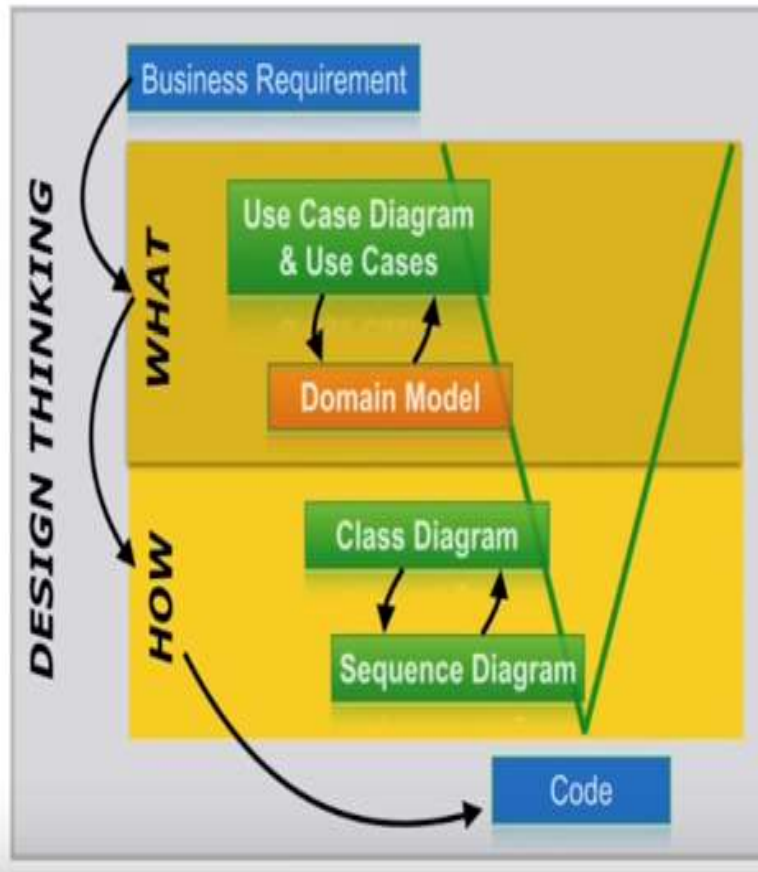
SSNCE



Why Domain model?

Domain Model

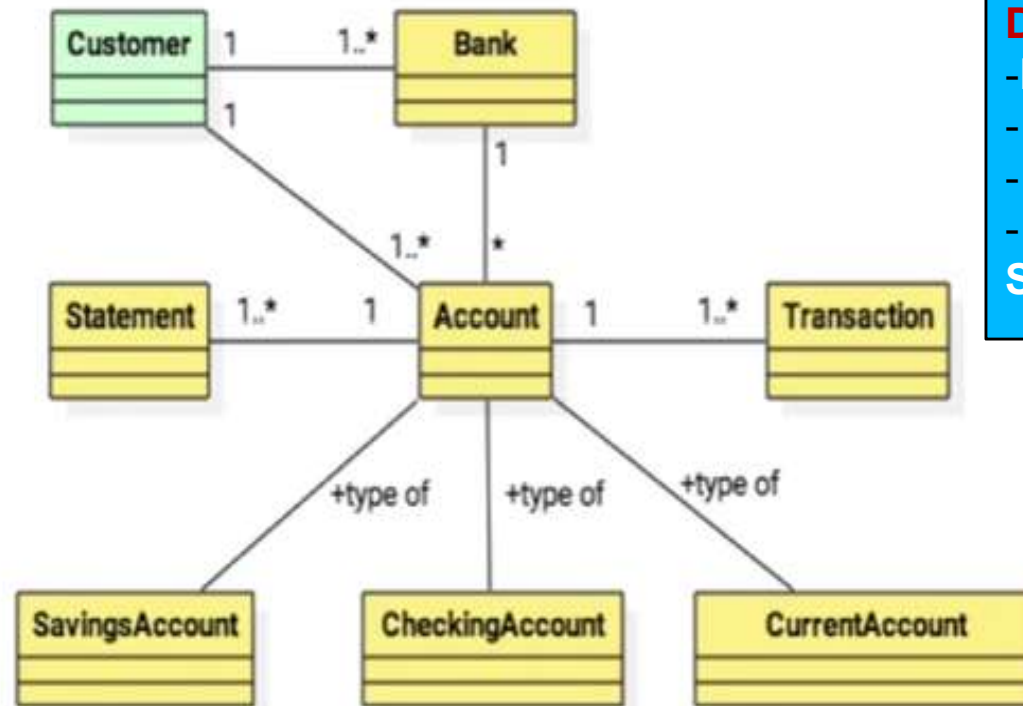
- Not part of UML
- Not often used ... unfortunately



- Gives information about the problem that we are trying to solve.
- Syntactical understanding of the given problem statement.
- Understanding the business domain and easiest way to communicate business domain to anybody
- Good understanding of problem domain

Example

Retail Banking - Domain Model



Domain Entity

- High level conceptual entity
- Invariant
- Example
- Transaction, Account, Statement, Bank

Business Rules

- Variant
- example

Domain model

- A **domain model** is a *visual* representation of **conceptual classes** or **real-world objects** in a domain of interest
- Also called **conceptual models**, **domain object models**, and **analysis object models**
- UP defines a Domain Model as one of the artifacts that may be created in the Business Modelling discipline
- Using UML notation, a domain model is illustrated with a set of **class diagrams** in which **no operations are defined**.
- It may show:

- domain objects or conceptual classes
- associations between conceptual classes
- attributes of conceptual classes

Domain model

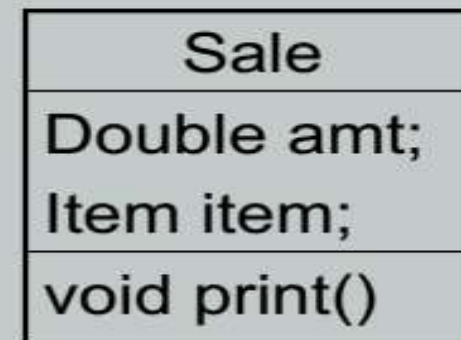
A Domain Model is Conceptual,
not a Software Artifact

Conceptual Class:



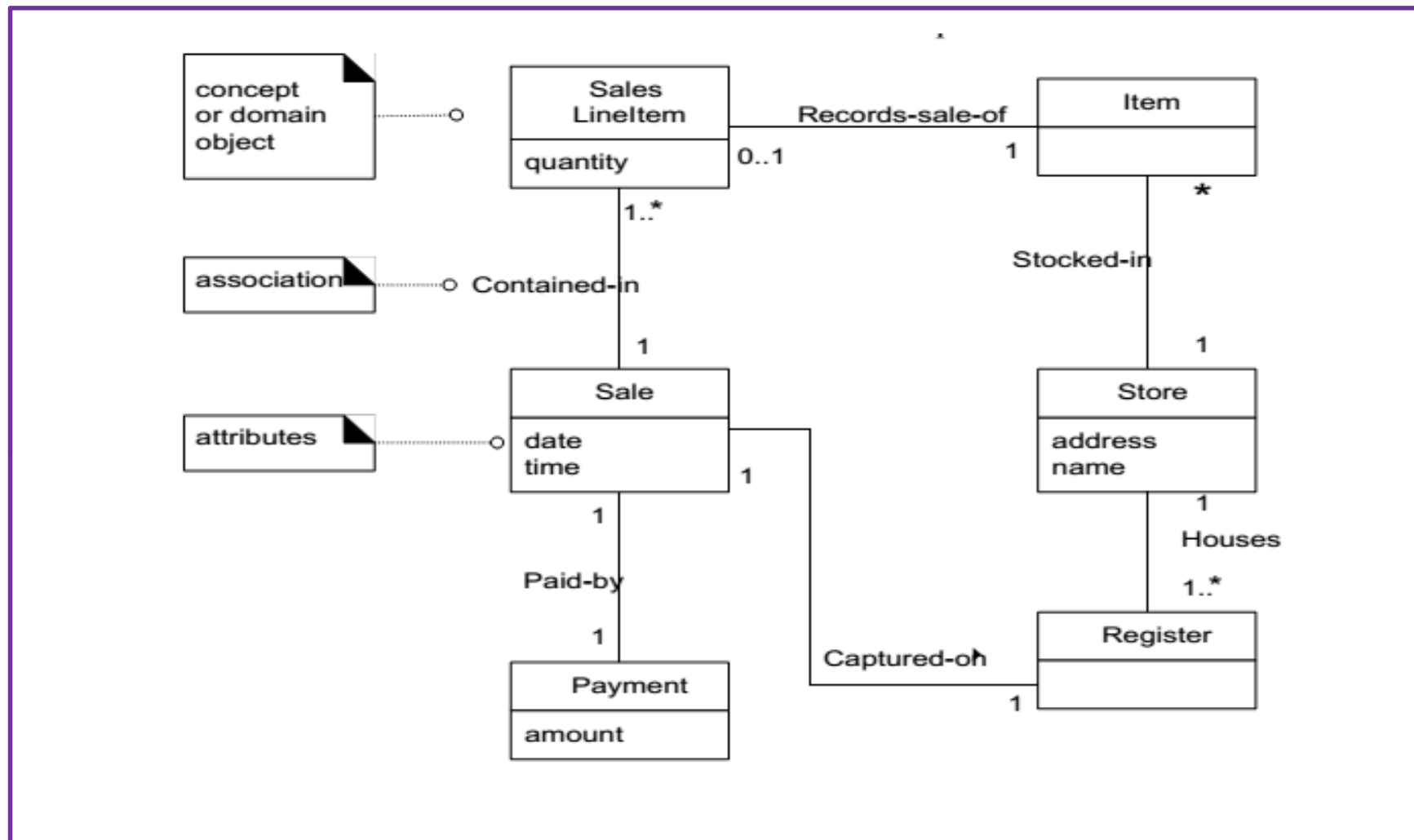
vs.

Software Artifacts:



What's the
difference?

Partial domain model—a visual dictionary



Domain Model—A Visual Dictionary of Abstractions

- Domain model shows the **abstraction of the conceptual classes**.
- The information in domain model can be expressed in **plain text**.
- But the **conceptual classes** and their **relationship with other classes** can be expressed using **visual language** using a domain model
- Hence domain model is referred as **visual dictionary**

Domain model – Picture of software Artifacts

- A domain model, is a visualization of things in the realworld domain of interest, *not of software components such as a Java or C++ class or software* objects with responsibilities.
- **Therefore, the following elements are not suitable in a domain model:**
 - Software artifacts, such as a *window or a database,* *unless the domain being modeled* is of software concepts, such as a model of graphical user interfaces.
 - *Responsibilities or methods.*

Domain model – Picture of software Artifacts

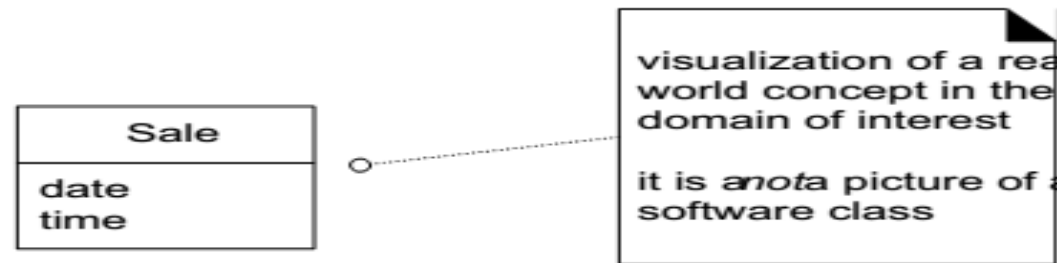


Figure 10.2 A domain model shows real-world conceptual classes, not software classes.

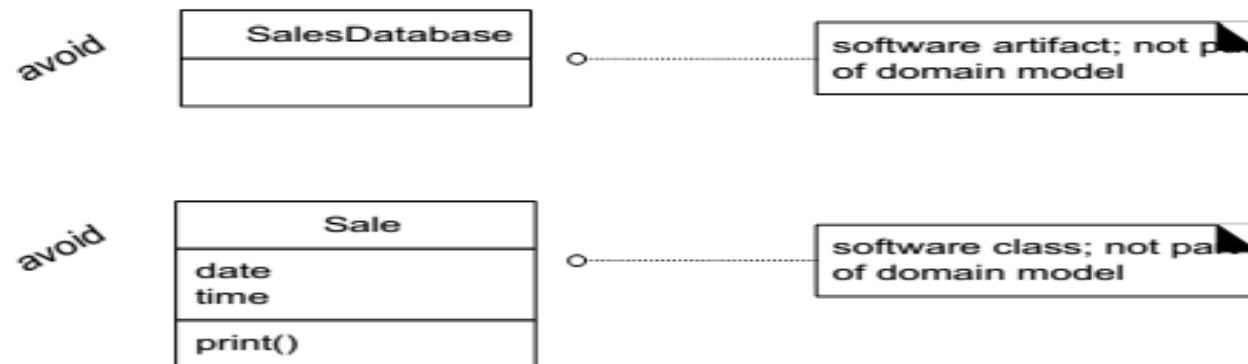


Figure 10.3 A domain model does not show software artifacts or classes.

Domain model – Advantages

Domain Model

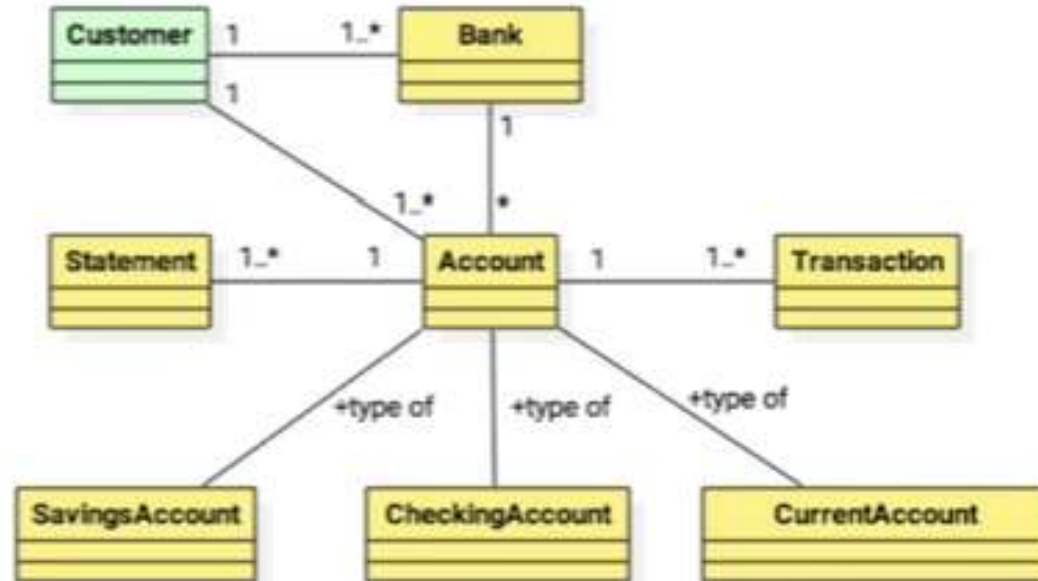
- Extremely useful:
 - Understanding a new domain / business / project
 - Used as a communication tool
 - Controlling complexity
 - Resolving countless ambiguity in requirements and the design intent
- Created to document the key concepts and the vocabulary of the system
- Being mentioned in a few Agile forum recently



How to write Domain model

Domain Model

- No standard notations
- Couple of class diagram notations
- Entities from problem space ... not solution space



How to write Domain model

Approach

- Noun / Noun Phrase approach
- Is this entity from problem space or solution space ?
- Is this entity an actor ?
- Is this a process ?
- I do not know where this entity fits ?... Is this entity required ?

How to write Domain model - example

Problem Statement

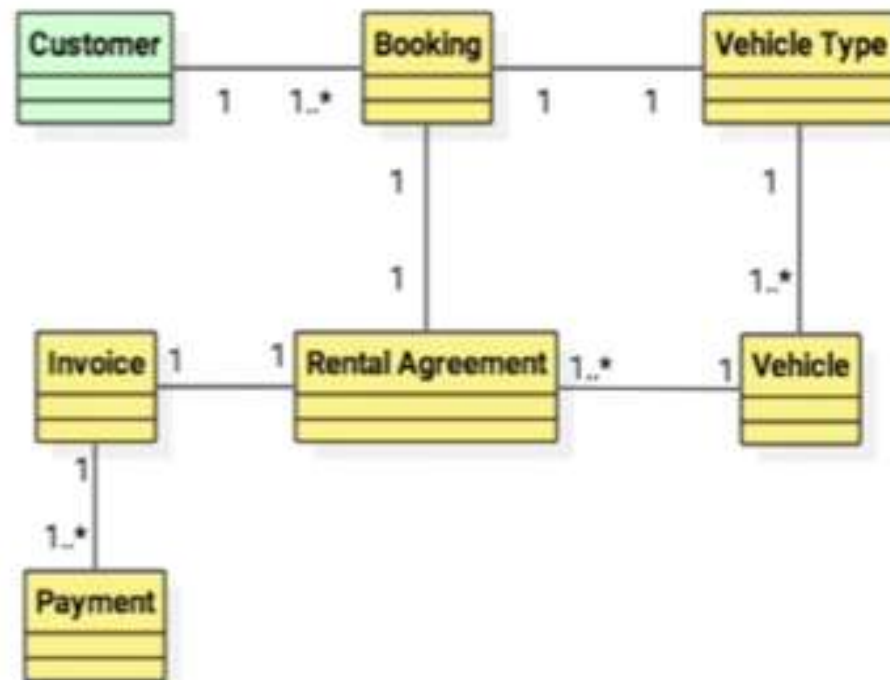
- ABC Car Rental (ACR) is an established car rental agency in the Timbuktu region, who have entrusted your team with designing and implementing their IT strategy for their entire business.
- 70% of their business revenue comes from ACR renting out cars / trucks to individual customers at various rental locations like the Airport, Bus & Train Stations.
- Assume appropriate cancellation policy and an early or later return policy and design the system for the retail renting model of ACR
- Assume the system will be used only by ACR employees to manage their business (i.e. System will not be accessed by end customers by themselves)



How to write Domain model- example

Domain Model

- Customer
- CSR
- Vehicle
- Rental Agreement
- Booking
- Payment
- Location
- Invoice
- Garage Rep
- DCR Employee



How to write Domain model- example 2

Problem statement

A “dice game” in which software simulates a player rolling tow dice. If the total us seven, they win; otherwise, they lose

Domain Identities

Dicegame

Player

Die



How to write Domain model- example 2

