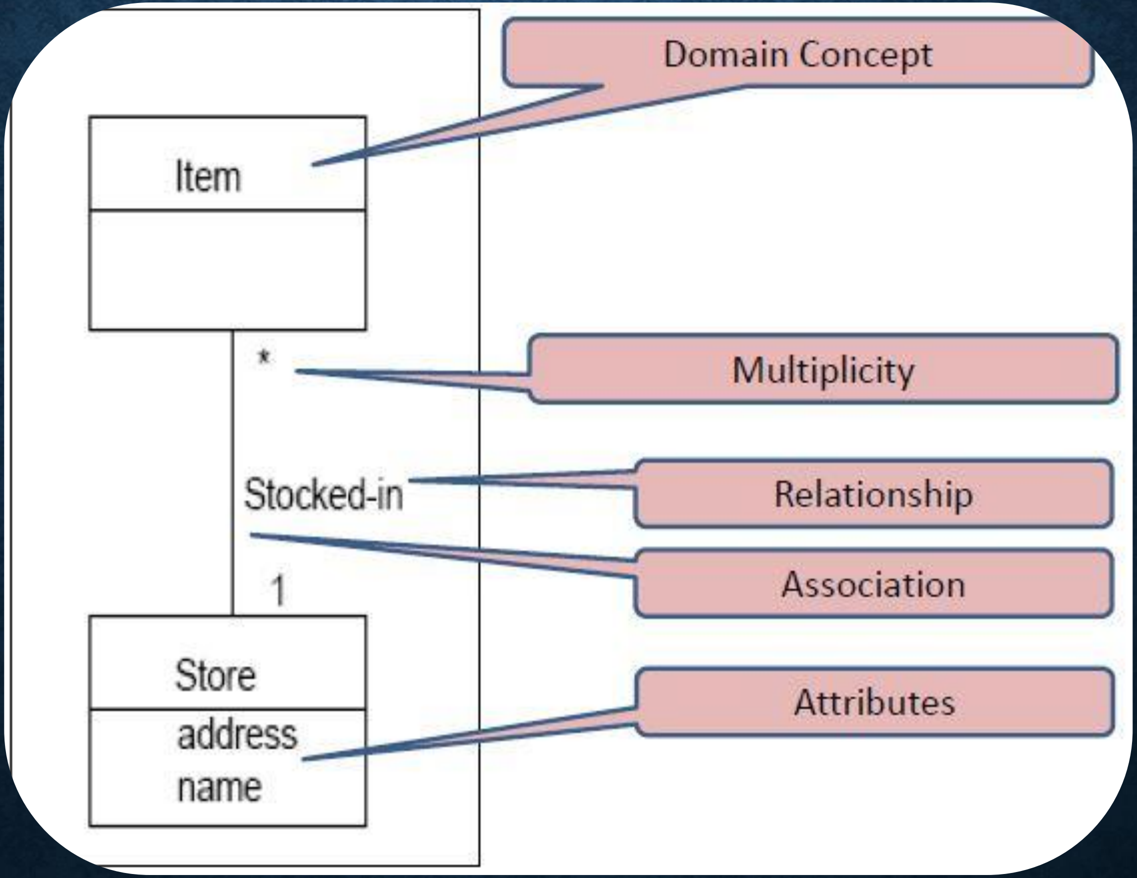
DOMAIN MODEL



DOMAIN MODEL:

- A domain model is a visual representation of conceptual classes or real world objects in a domain of interest.

- In iterative development, Domain model is incrementally build in several iterations of elaboration

- In a domain model we identify
  - Conceptual classes
  - Associations
  - Attributes

CONCEPTUAL CLASS:

- Domain model illustrates conceptual classes or vocabulary in the domain
- It is an idea, thing, or object.
- A conceptual class may be considered as a symbol, intension, and extension
  - **Symbol**: words or images representing a conceptual class
  - **Intension**: the definition of a conceptual class
  - **Extension**: the set of examples to which the conceptual class applies

CONCEPTUAL CLASS IDENTIFICATION:

- Widely used techniques are
  - Use a conceptual class category list
  - Identify noun phrase from use cases text, scenario
- It is better to over specify a domain model

NOUNS AND NOUN PHRASES:

A customer arrives at the checkout with a basket of goods. The cashier scans each product. The price of each item is determined by the system, and the price of each transaction is displayed to the customer and recorded on the receipt. The total is shown to the customer, who makes a payment, perhaps using a credit card.

- Use a small number of related Use Cases
- Identify all the nouns and noun phrases
  - Highlight, Underline, Copy to whiteboard
- At this stage, don’t do any other processing
  - Removal of duplicates, looking for synonyms, identifying hierarchy
- Provides a good list of candidate classes

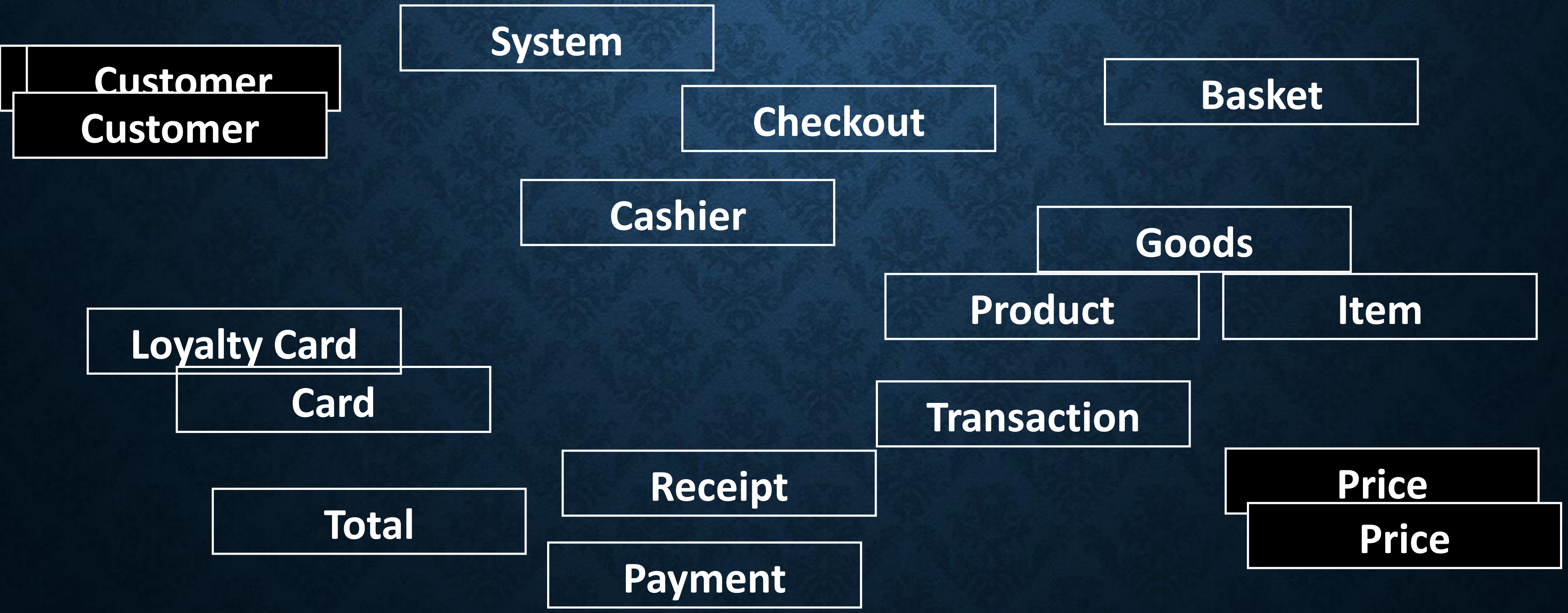
MAP MAKER STRATEGY: WHITEBOARD

A customer arrives at the checkout with a basket of goods. The cashier scans each product. The price of each item is determined by the system, and the price of each transaction is displayed to the customer and recorded on the receipt. The total is shown to the customer, who makes a payment, perhaps using a credit card.

Customer	Checkout	Basket	Goods
Cashier	Product	Price	Item
System	Price	Transaction	Customer
Receipt	Total	Customer	Payment
credit Card	Basket of Goods	Card	

ORGANISE SPATIALLY:

- Move related items closer, unrelated items further apart
- Enables removal of duplicates
- Identification of synonyms



System

Customer

Customer

Checkout

Basket

Cashier

Goods

Product

Item

Loyalty Card

Card

Transaction

Price

Price

Receipt

Total

Payment

REMOVE SYNONYMS:

- Similar terms are often used to describe the same thing
  - Need to choose the most descriptive, least open to interpretation
- May require a more detailed description
  - Electrical product / frozen product . . .
  - Only if within scope of current Use Cases

Loyalty Card

Card

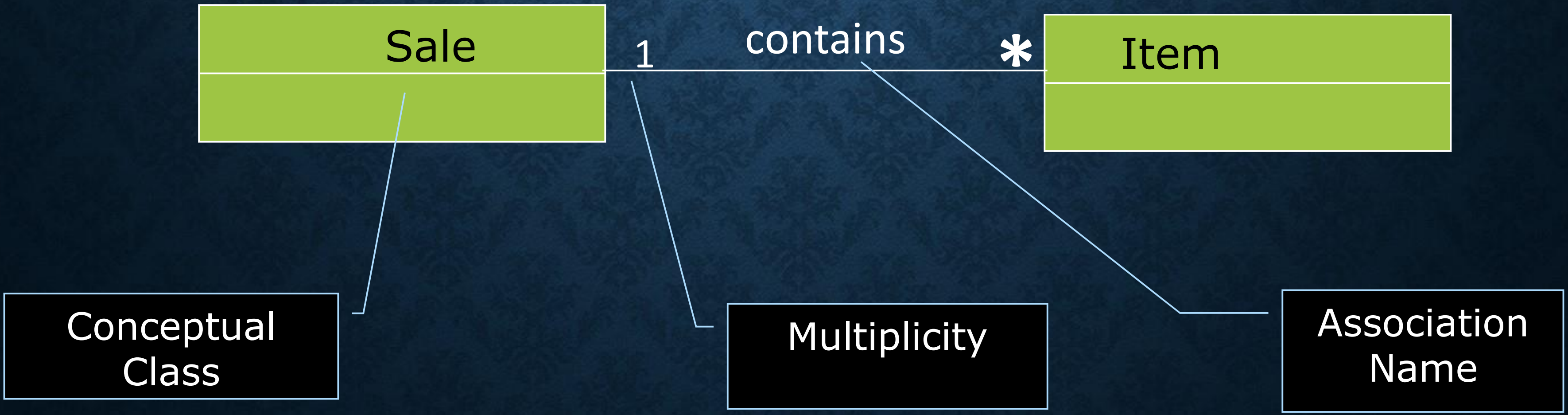
Goods

Product

Item

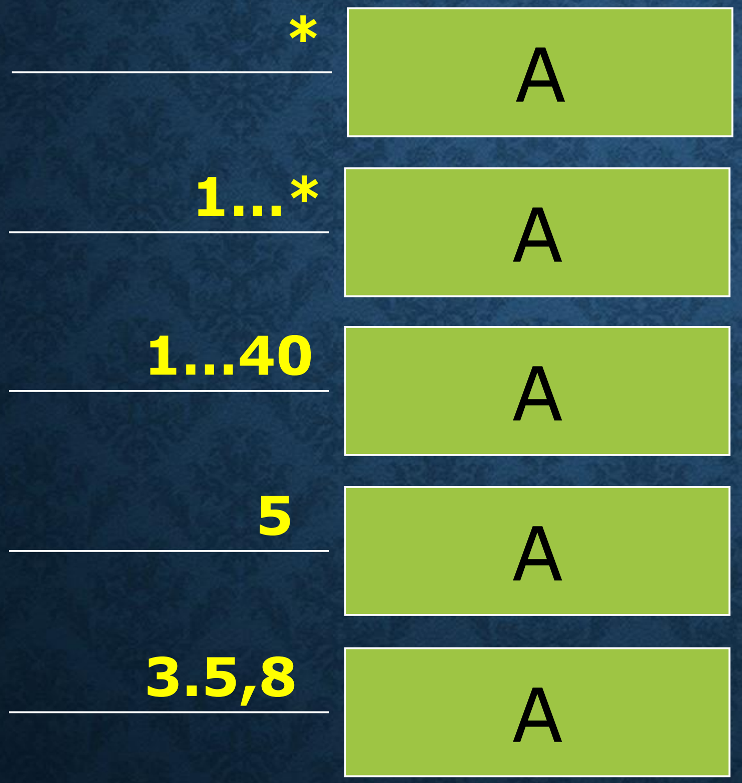
ASSOCIATIONS:

- The semantic relationship between two or more classifiers that involves connections among their instances
- Association can be found from
  - Association List
  - Include following High Priority Association
    - A is a Physical or Logical part of B
    - A is a Physically or Logically contained in B
    - A is recorded in B
- An association is represented as a line between classes with an association name



Multiplicity:

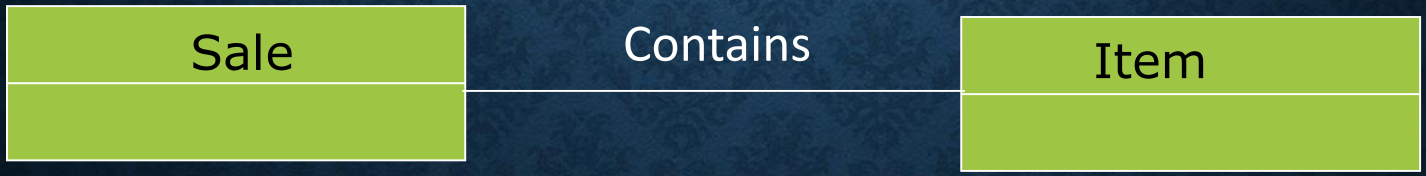
- How many instances of a class A can be associated with the instance of a class B in a particular moment



*	A	Many
1…*	A	One or More
1…40	A	One to 40
5	A	Exactly 5
3.5,8	A	Exactly 3.5 or 8

Association Name:

- Should be a verb phrase that is readable and meaning full in model context
- Should start from a capital letter such as
  - Records
  - Houses
  - Paid by



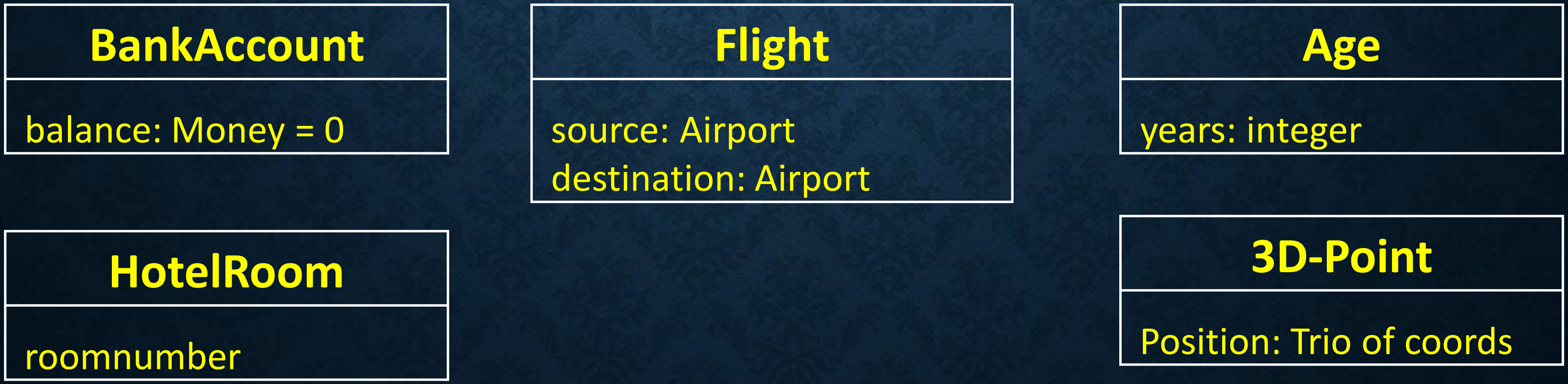
Sale

Contains

Item

ATTRIBUTES:

- An attribute is a logical data value of an object
- An attribute is defined by
  - **Name**
  - **Data Type**
  - **Initial value**
- Type and initial value are optional



BankAccount

balance: Money = 0

Flight

source: Airport
destination: Airport

Age

years: integer

HotelRoom

roomnumber

3D-Point

Position: Trio of coords

REFERENCES:

- Applying UML and Patterns by Craig Larman
  - Chapter 10.1, 10.2, 10.4
  - Chapter 11.2, 11.3, 11.4, 11.7
  - Chapter 12.1, 12.3, 12.4