Engineering of Software Subsystems
Domain Modeling

"Domain model" by Kishorekumar 62
https://commons.wikimedia.org/wiki/File:Domain_model.png
Domain modeling provides the initial analysis of the application problem space.

Application Domain
What are the entities and associations within this domain?

Domain Model
What entities and associations are important for this application?

Use the language of the application and user! It does not define the implementation.

Class Model
What software structure and relationships will provide the implementation of this application?

The domain model influences the naming and structure in the software class model.
The domain model identifies important aspects of the application not the implementation.

- Only use vocabulary from the problem statement
  - *For example, a unique identifier needed to store data with no meaning to the user would not be in a domain model.*

- Establishes a common understanding of the problem for customer/user and software team
The domain model is typically drawn using a simplified class diagram notation.

- Show the following information
  - *Domain entities*
  - *Attributes in domain entities*
  - *Associations between domain entities*

- Use user vocabulary
  - *Attributes do not indicate data type*

- Associations come from the problem statement
  - *Place label on the association line*
  - *Usually completes a phrase between two domain entities: DE₁ association DE₂ (LineItem records-sale-of Product)*
  - *Indicate multiplicity, if known*
  - *Use inheritance, if appropriate*
An association should describe the relationship between two domain entities.

- All associations should have an arrow to indicate the direction to read the association.
- Use the active voice for the verb when possible.
- An association of "has" or "contains" does not describe much about the relationship.
  - *Reverse the direction and rephrase the association*

```
+------------------+
| Customer         |
| *                |
|                   |
+------------------+
  is shipping has  
  location for     
  1                
                   
+------------------+
| Address          |
|                  |
+------------------+
```
This partial domain model for a game of Monopoly demonstrates these ideas.

Arrows indicate direction for reading the associations.