

Software Engineering – Class diagrams

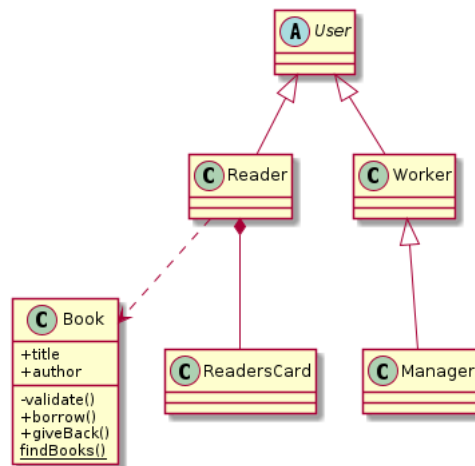
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1 Class diagrams

Class diagrams allows to visualize the structure of our system. There are several important informations that are shown on this diagrams:

- Classes that was identified in the system
- Responsibility of each class (methods that can be invoked on class objects and its fields)
- Relations between classes

Example class diagram:



Class is represented by a rectangle that is divided into three areas. First area represents class name and some optional class features (like: is this class abstract?). Second area represents the attributes of class (its fields). Third represents operations (methods). Even if one of this area is empty we should always let the empty space it indicate it is a class.

If we want to visualize that class element (or class itself) is abstract we write its name using italic font. In case an element is abstract we use underline.

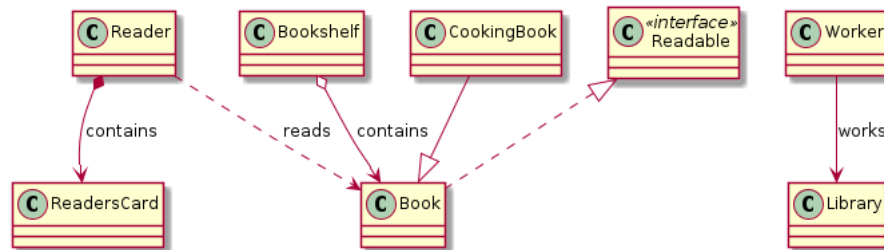
Operations and attributes should have its visibility marked:

- + – public element

- - - private element
- ~ - package element
- # - protected element

If we want to mark that some rectangle is an interface we use «interface» stereotype.

Relations are very important part of each class diagram.



- Dependency – marked with dashed line with normal arrow. Between Reader and Book classes. It means that at some time during the lifetime of an class object it uses object of the second class.
- Association – marked with solid line with normal arrow. Between Worker and Library. It means that for the whole lifetime of object it uses other object.
- Aggregation – marked with solid line with unfilled diamond. Between Bookshelf and Book. It means that one class contains object of second class.
- Composition – marked with solid line with filled diamond. Between Reader and ReadersCard. Also means containing but this time objects can not exist without each other.
- Generalization – marked with solid line with triangular, unfilled arrow. Between BookingBook and Book. It means inheritance.
- Implementation – marked with dashed line with triangular, filled arrow. Between Book and Readable. It means interface implementation.

2 Tasks to complete

1. Create class diagram for project. Results put in element <article id="class-diagram">.