

1. Check if player and obstacle collide
2. Move the obstacles (bouncing off walls)
3. Move the player (e.g. change its position)

- **Move** (b) the **player (r)** (i.e., change the player's position)
- **Move** (b) the **obstacles (r)**, including bouncing off the walls
- **Check (b)** if a **player (r)** and **obstacle (r)** collided

Your program for managing a bookstore has a Book class and an Author class. Which of the following best describes the relationship between those classes?

- A. "is a", Author should derive from Book
- B. "is a", Book should derive from Author
- C. "has a", Author should have a Book attribute
- D. "has a", Book should have an Author attribute

Answer: D (but also C)

We would say a Book "has an" Author, so Author should be an attribute/instance variable of the Book class. We could also say a Author "has a " (has written) a book or books. That is if we wanted to look for all or the other books by an author we could use that attribute.

Adapted from: <https://runestone.academy/ns/books/published/csawesome/Unit9-Inheritance/topic-9-1-inheritance-day2.html>

You are building a program to manage a library containing books and movies. Each kind of circulating item has at least an id, title, and a published date. Which of the following would be the best design for this application?

- ☒ A. Create one class CirculatingItem with a kind and the listed attributes
- ☒ B. Create one class Library with the listed attributes
- ☒ C. Create a Book and Movie classes, each with the listed attributes
- ☐ D. Create a CirculatingItem class with the listed attributes that is the base class for Movie and Book classes
- ☒ E. Create Id, Title and Published classes to store the relevant attributes

Answer: D

We would say a Book or a Movie "is a" CirculatingItem and thus should inherit from a shared base class that encapsulates the shared attributes. That way we can reuse code related those attributes. We don't just want one `CirculatingItem` as we would expect the different kinds of items to have other kind-specific information, like author(s) vs. director, etc.