

Based on Allen Holub's article "**Why getter and setter methods are evil?**" and supplemental research, here's a mind map summarizing the key points:

**1. Encapsulation Violation**

- Getters and setters expose implementation details.
- Encapsulation ensures that an object's data is hidden, supporting modularity.

**2. Object-Oriented Principles**

- Getters/setters don't align well with object-oriented (OO) design.
- OO encourages data abstraction and the "tell, don't ask" approach—i.e., ask objects to do work rather than accessing their data.

**3. Maintenance Issues**

- Changes in data types require extensive code updates.
- High maintainability is achieved when implementation changes minimally affect other code.

**4. Procedural Influence**

- Getters/setters often stem from procedural programming habits.
- Procedural thinking encourages direct data manipulation, which conflicts with OO design.

**5. JavaBeans Exception**

- Getters/setters are used in JavaBeans for UI tools, but ideally, other interfaces handle these needs.
- Direct calls to accessors for properties complicate code unnecessarily.

**6. Design Strategy (CRC Cards)**

- Use CRC (Class-Responsibility-Collaborator) cards to define object roles and interactions.
- Focus on message-passing between objects instead of data access.

**7. When Acceptable**

- Some boundary layer classes (like database connectors) may require accessors due to flexible interface demands.
- Encapsulated returns are acceptable if they're interfaces, keeping details hidden.

