

Abstract Data Types and Interfaces



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by Christine Alvarado, Mia Minnes, and Leo Porter, 2015.

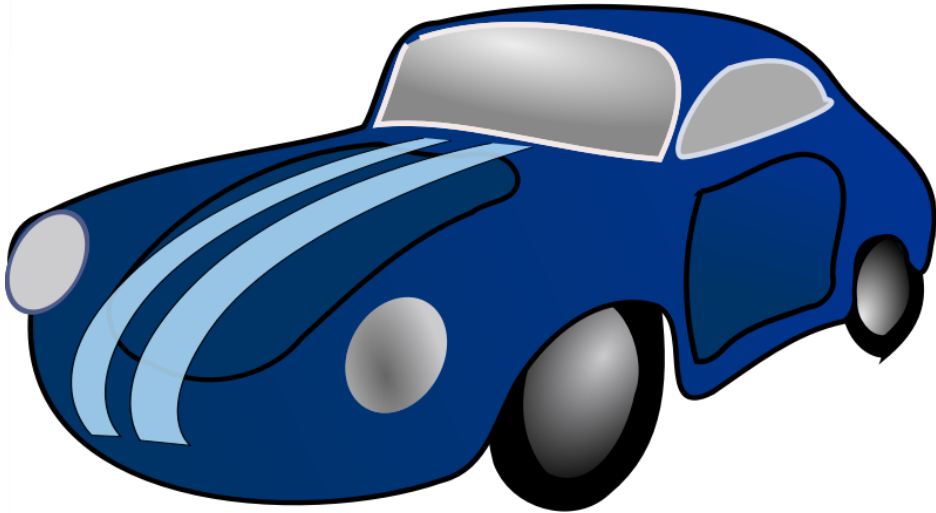
By the end of this video you will be able to...

- Explain the idea of abstraction and why it is important
- Give an example of abstraction in the real world and in Java
- Describe the difference between an Abstract Data Type (ADT) and a Data Structure

Key CS Idea: Abstraction

Hiding irrelevant details to focus on the essential features needed to understand and use a thing

Abstraction example: car brakes



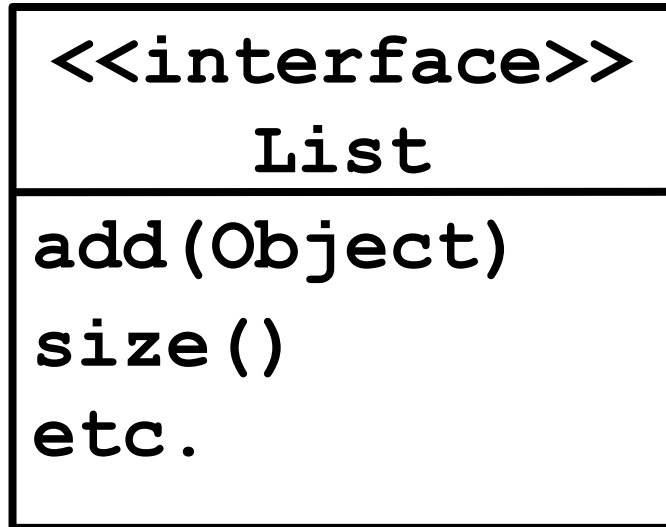
Behavior specified

Abstraction Barrier
sets the rules of interaction



**Implementation
specified**

Data Abstraction



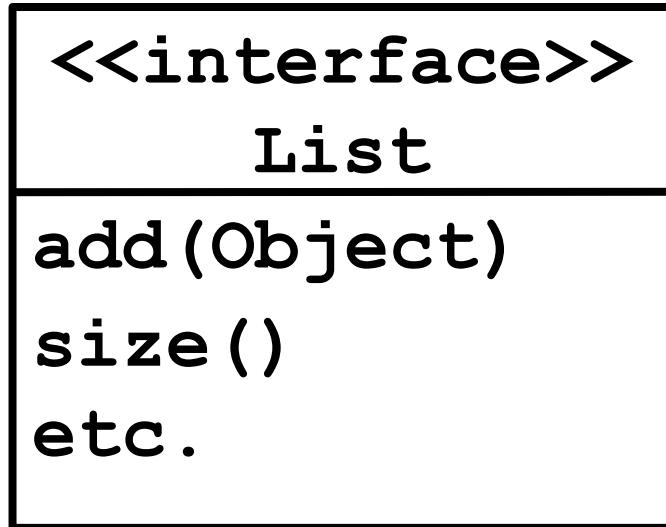
**Abstract Data Type
(ADT)**
No implementation

Abstraction Barrier
sets the rules of interaction



Data Structure
Specific implementation

Two sides of abstraction



**User of
libraries**

Abstraction Barrier
sets the rules of interaction



**Library
developer**