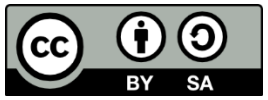
# Abstract Data Types and Interfaces



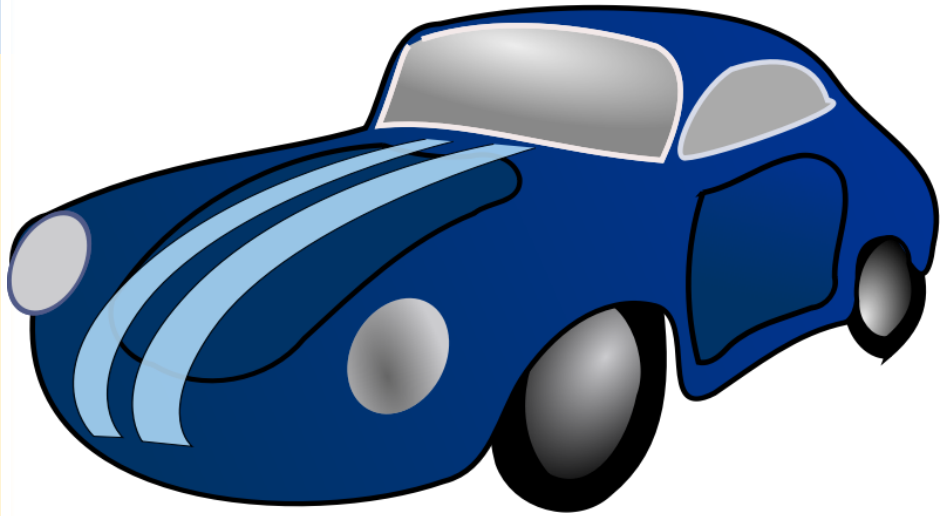
# By the end of this video you will be able to…

- 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

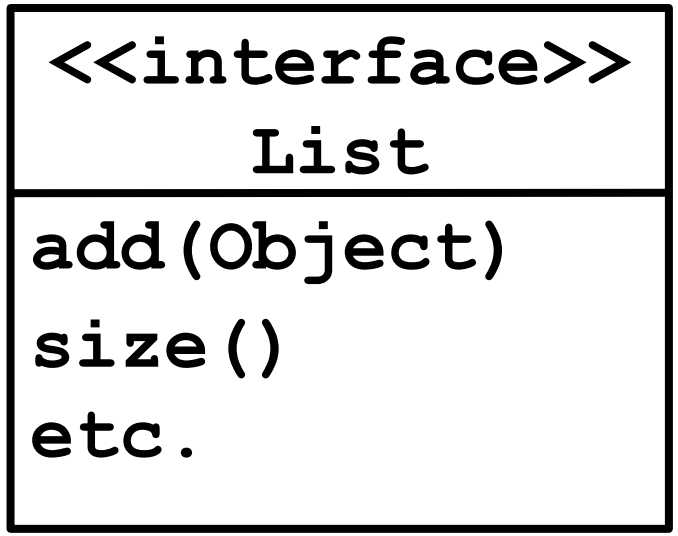


**Behavior specified**

**Abstraction Barrier**
sets the rules of interaction


**Implementation specified**

# Data Abstraction

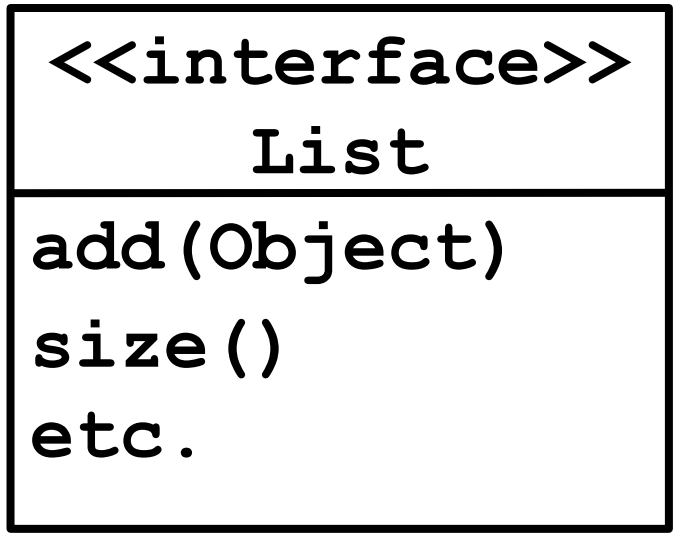



**Abstract Data Type (ADT)**
***No implementation***

**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