Casting

CS 272 Software Development

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Casting

- **Upcasting** (or **implicit** casting)
  - References an object as its superclass
  - Only access methods in the superclasses

- **Downcasting** (or **explicit** casting)
  - References an object as its subclass
  - Allows access to methods in the subclass

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Casting

- Does not change the **type** of object, only changes the **reference** (or identifier) to an object

- With **overridden** methods, will call the method associated with the object type (<u>not</u> the reference)

- Can use casting to create **generalized** methods that work on multiple subclasses

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Module java.base
Package java.lang

Class Double

java.lang.Object
    java.lang.Number
        java.lang.Double

All Implemented Interfaces:

Serializable, Comparable<Double>, Constable, ConstantDesc

```
public final class Double
extends Number
implements Comparable<Double>, Constable, ConstantDesc
```

The Double class wraps a value of the primitive type double in an object. An object of type Double contains a single field whose type is double.

https://www.cs.usfca.edu/~cs272/javadoc/api/java.base/java/lang/Double.html

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Casting Syntax

```
1.    // Upcasting Examples
2.    Number n = Double.valueOf(3.14);
3.    Object o = n;
4.
5.    // Downcasting Example
6.    Double d = (Double) n;
```

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Explicit Casting

```
1.    // Throws a ClassCastException
2.    Object a = new StringBuilder("3.14");
3.    Double b = (Double) a;
```

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Questions?

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