Autoboxing and Unboxing in Java

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Autoboxing and Unboxing

• Is the following code legal?

```java
char a = 'a';
Character b = new Character('b');
b = a;
a = b;
char c = new Character('c');
Character d = 'd';
```
Autoboxing and Unboxing

• Yes!
• Java implicitly boxes primitive types into the appropriate wrapper class when necessary
• And also unboxes the primitive type from the wrapper class
• char to/from Character, int to/from Integer, double to/from Double, etc...
Autoboxing and Unboxing

• So what about this?

```java
int sum(int a, int b)
{
    return a + b;
}

Integer a = sum(new Integer(1), 2);
```
Autoboxing and Unboxing

• And this?

```java
Object Identity(Object x)
{
    return x;
}
double c = Identity(new Double(1.0));
```

• No! An Object is not necessarily a Double
• How do we fix it?
Autoboxing and Unboxing

• And this?

```java
Object Identity(Object x)
{
    return x;
}

double c = (Double)Identity(new Double(1.0));
```

• No! An Object is not necessarily a Double
• How do we fix it?