

Lesson 64: Abstract Classes (W21D3)

Balboa High School

Michael Ferraro

January 21, 2016

Make sure you're able to provide sensible definitions for these terms:

- class
- subclass
- inheritance
- field
- constructor
- IS-A
- extends
- polymorphism

Students will review the basics of class inheritance in Java, (re)learn the compound interest formula for use with §3.1 of PS #11, and extend the `BankAccount` classes from PS #2.

Review: Basics of Class Inheritance

- You were to finish §§1-2 of PS #11 for HW
- What are the important points about class inheritance in Java that you can now recall (that we perhaps didn't mention when going over the Do Now)?

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
---------	-------

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
1 year	$\$300 \times 1.04$

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
1 year	$\$300 \times 1.04$
2 years	$(\$300 \times 1.04) \times 1.04$

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
1 year	$\$300 \times 1.04$
2 years	$(\$300 \times 1.04) \times 1.04$
3 years	$((\$300 \times 1.04) \times 1.04) \times 1.04$

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
1 year	$\$300 \times 1.04$
2 years	$(\$300 \times 1.04) \times 1.04$
3 years	$((\$300 \times 1.04) \times 1.04) \times 1.04$ $\$300 \times 1.04^3$

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
1 year	$\$300 \times 1.04$
2 years	$(\$300 \times 1.04) \times 1.04$
3 years	$((\$300 \times 1.04) \times 1.04) \times 1.04$ $\$300 \times 1.04^3$
n years	$\$300 \times 1.04^n$

Compound Interest

You invest \$300 in an interest-bearing account. Assuming the account accrues 4% interest, annually, how much do you have after 1 year, 2 years, and 3 years?

0 years	\$300
1 year	$\$300 \times 1.04$
2 years	$(\$300 \times 1.04) \times 1.04$
3 years	$((\$300 \times 1.04) \times 1.04) \times 1.04$ $\$300 \times 1.04^3$
n years	$\$300 \times 1.04^n$ $P \cdot (1 + r)^n$

Implement `getFutureBalance()`

- Now that you've had a review of the compound interest formula, work on PS #11, §3.1.
- Afterward, work on §§3.2-3.5, inclusive.
 - **Read the sections VERY carefully!** If you read past a few details you don't get, re-read. You're supposed to learn about the reasons for having abstract classes along the way, and the details in the problem set help you to learn them.
 - For §3.5, see reading [here](#).

Finish PS #11, §§1-3.5, inclusive. Be ready to start §3.6 next class!