# Review Exercise: Construction Estimate

By: Megan Avery
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# Before We Begin

- Make sure you have Java & Java JDK downloaded on your computer
  - can run **`java -version`** in terminal to check
- Make sure you have IntelliJ downloaded on your computer

- *Suggested:* Watch previous Java tutorials

# What We've Covered So Far

- Java Program Syntax
- Printing in Java
- Types, Variables, & Expressions
- Binary & Hexadecimal Numbers
- Static Methods
- Parameters, Return Values, & Math Methods

# Review Exercise

# Goal

Write a Java program that calculates the construction cost of a house. The price of this house will be calculated and printed based on the following rules:

- The house will take up half the plot of land
- The cost of the house plans should consist of the roof and floor costs
- The roof will cover the whole area of the house, $3.5 per square foot
- The floor will cover 90% of the area of the house, $7.5 per square foot

**An itemized list of estimates should also be printed along with the final estimate**

**The size of the plot of land will be hard code in for this exercise*

# Program Walkthrough

# Starting Point

1. Create Java class called ConstructionEstimate

2. Add main method to class

# Write method to calculate an area

**Time Limit:** 5 minutes

- Should be based on a length and a width
- Length and width can be non whole numbers
- Area = length x width
- Area should be a non whole number

# Write method to estimate cost of roof

**Time Limit:** 7 minutes

- Should be based on length and width of roof
- Length and width can be non whole numbers
- Cost of roof = area of roof x cost per sq ft
  - Cost per sq ft = $3.5
- Cost of roof can be a non whole number

# Write method to estimate cost of floor

**Time Limit:** 7 minutes

- Should be based on length and width of land house sits on
- Length and width can be non whole numbers
- Cost of roof = area of floor x cost per sq ft
  - Area of floor = 90% of the area of the land the house sits on
  - Cost per sq ft = $7.5
- Cost of floor can be a non whole number

# Write method to estimate cost of building the entire house

**Time Limit:** 10 minutes

- Should be based on length and width of land plot
- Length and width should be whole numbers
- House should take up half the plot of land
- Roof should cover the whole house
- Cost of house = Roof + floor
- Print itemized “receipt” of estimates and the final estimate for all the construction

# Call estimate method from main

**Time Limit:** 2 minutes

- Call once with one set of length and width
- Call again with another set of length and width
- Put a newline between the 2 calls

# Run Program
# Celebrate!

# Practice for Later: Program Expansion

Expand the construction estimate to include:

- Cost of backyard fence
  - Fence should cover 3 sides of the area of the backyard
  - Backyard is the same size as the front yard
  - Fence costs $12.50 per ft
- Cost of bathrooms
  - There is 1 bathroom per house plus 1 extra bathroom per 1,000 sq ft
  - Each bathroom costs $800
- Cost of front yard fence
  - Fence will cover 3 sides of the front yard plus a gate
  - Fence costs $6.25 a ft since it’s a half tall picket fence plus $50 for a nice gate

# The End