Workshop #3 Prep: Turning CSV Data into Java Objects

Let's build this step-by-step. By the end, you'll have a working program that reads a CSV file and turns its rows into Product objects. Don't worry, we'll tackle it piece by piece.

Checkpoint 1: Project Setup

- Make a new IntelliJ project called Workshop3.
- Make sure it goes in your Bootcamp<LastName> folder.
- Why? Keeping your files organized will help with turn-ins and make your project easier to find.

Checkpoint 2: Understanding the Data

- Open the products.csv file (from your DataFiles.zip) and look at the header row.
- Based on the columns, what properties should go into your Product class?
- What data types make sense for each of those properties?

Checkpoint 3: Creating the Product Class

- Make a class called Product.
- Add fields based on what you discovered in the CSV.
- Make a constructor and generate getters and setters for each field.
- Remember: Java expects you to be specific about data types (e.g., int, String, double, etc.).

Checkpoint 4: Organizing Your Project

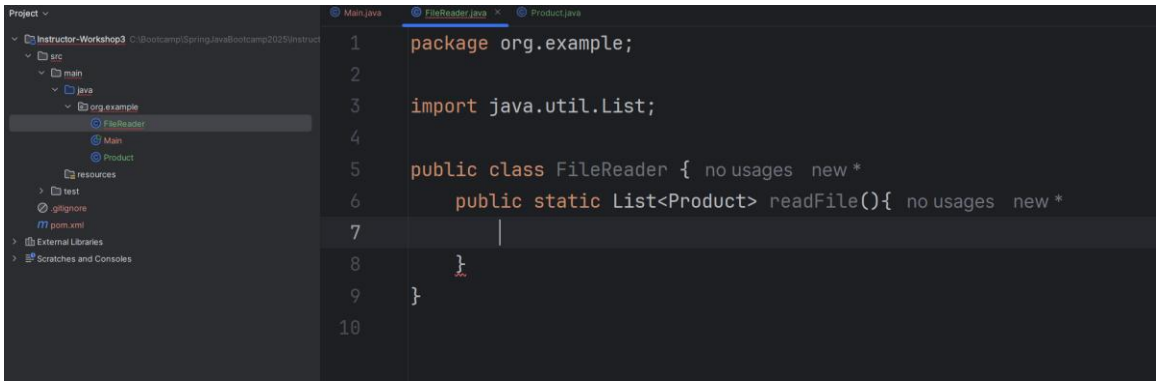
- Put the products.csv file into your resources folder.
- We'll read this file programmatically later.

Checkpoint 5: Creating the FileManager Class

- Create a new class called FileManager.
- What kind of responsibilities should this class have?
- Reading from files? Returning data?
- Jot down a sentence or two. What does it mean for one class to handle a responsibility?

Checkpoint 6: Plan the readFile Method

- Inside FileManager, write the method for readFile. Here is the way I'd like you to do it:



Be sure to import java.util.List for the list! If you're wondering why we're using the static keyword, I'll explain. The method will be red because we haven't finished it yet, but that's okay!

- Reflection: What should this method do, step by step? Write a bullet list. Plan what you think will happen.

Checkpoint 7: Reading the File

- Let's tell Java to read our products.csv file.
- Use FileReader and BufferedReader to read the file line by line.
- Remember: this requires a try/catch block for exceptions.
- By all means, work off the example from class.

Checkpoint 8: Parsing Each Line

- Skip the header row (first line). Hint: Before entering the while loop, do bufferedReader.readLine()
- For every other line:
- 1. Use .split("\\|") to break it up into an array.
- 2. Convert each piece of data to the correct type (Integer.parseInt, Double.parseDouble, etc.).
- 3. Create a Product object and fill it with that data.
- 4. Add the object to a List<Product>.

Checkpoint 9: Returning the Data

- Once you've read and parsed all lines:
- Return the List<Product> from your readFile method.

Final Checkpoint: Test It Out

- In your Main class, call FileManager.readFile() and print out the list of products to make sure it worked.