

Java for Nothing—null

When You Don't Have an Object

What Is “Nothing” in Java?

- ① Start with largestSoFar as **nothing**
 - ① For each row (currentRow) in the CSV File
 - ① If largestSoFar is **nothing**
 - ① Update largestSoFar to be currentRow
 - ① Otherwise
 - ① Check if currentRow's temperature > largestSoFar's
 - ① If so update largestSoFar to currentRow
 - ② The largestSoFar is the answer
- Algorithm references **nothing**
 - How do you turn that into code?

New Concept: null

- Java has **null**
 - Means “**nothing**” or “**no object**”
 - `CSVRecord largestSoFar = null;`
 - `return null;`
 - `if (largestSoFar == null)`

Cannot Call Methods on null

- No object: cannot call methods on it

```
CSVRecord largestSoFar = null;  
largestSoFar.get("TemperatureF");
```

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Exception in thread "main" java.lang.NullPointerException

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Something went wrong with your program

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largestSoFar.get("TemperatureF");
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Exception in thread "main" java.lang.NullPointerException

It tried to do something with null
that needed an actual object

What Type Is null?

- All expressions have types
 - Have learned: important to know what type
- What type is null?
 - CSVRecord largestSoFar = null;
 - Seems like CSVRecord... but really?
- Special null type
 - Type cannot be named in a program
 - Literal **null** has this type
 - Can be converted to any object type

Primitives Versus Objects

- **Primitive Types:** *cannot* be null
 - Four you have seen: int, double, char, boolean
 - Four others we have not seen:
 - byte, short, long, float
- **Object Types:** *can* be null
 - FileResource, String, CSVRecord, Pixel, ...
 - Anything with methods
 - Any class you write