CSE 121 – Lesson 11

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Summer 2023

Music: 🌸k-pop girlies playlist🌸

sli.do #cse121

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Announcements, Reminders

- Programming Assignment 2 out Wed, due next Tues 11:59 PM

- Resub 3 due yesterday, Resub 4 out now due next Thurs

- Quiz 2 (Take-home): Monday Aug 7th (8/7)
  - Topics: File I/O (Scanner, PrintStream), Arrays, Reference Semantics, Array Patterns

- **Reminder:** Final exam Wednesday Aug 16 4:30 – 6:30 PM in PAA A102

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(PCM) Scanner & File for File I/O

File is defined in the java.io package

```
import java.io.*;
```

```
File newFile = new File("newFile.txt");
Scanner fileScan = new Scanner(newFile);
```

Scanner Methods	Description
`nextInt()`	Reads the next token from the user as an `int` and returns it
`nextDouble()`	Reads the next token from the user as a `double` and returns it
`next()`	Reads the next token from the user as a `String` and returns it
`nextLine()`	Reads an *entire line* from the user as a `String` and returns it
`hasNextInt()`	Returns `true` if the next token can be read as an `int`, `false` otherwise
`hasNextDouble()`	Returns `true` if the next token can be read as a `double`, `false` otherwise
`hasNext()`	Returns `true` if there is another token of input to be read in, `false` otherwise
`hasNextLine()`	Returns `true` if there is another line of input to be read in, `false` otherwise

(PCM) Typical Line-Processing Pattern

```java
while (fileScan.hasNextLine()) {
    String line = fileScan.nextLine();
    // do something with line
}
```

(PCM) Typical Token-Processing Pattern

```
while (fileScan.hasNext__()) {
    __ nextToken = fileScan.next__();
    // do something line nextToken
}
```

(PCM) Typical Hybrid Pattern

```java
while (fileScan.hasNextLine()) {
    String line = fileScan.nextLine();
    Scanner lineScan = new Scanner(line);
    while (lineScan.hasNext__()) {
        __ nextToken = lineScan.next__();
        // do something with nextToken
    }
}
```

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(PCM) Scanning Numeric Data

On Wednesday, we primarily used `String`-based `Scanner` methods to read input from a file. Let's work with some numeric data now!

We're going to make more use of

- `hasNextInt()`
- `hasNextDouble()`
- `nextInt()`
- `nextDouble()`
- Assumptions about our file's format!

Poll in with your answer!

What would be the result of running the FindMinAndMax program with this as input?

$$2.3 \quad 9.2$$
$$17 \quad\quad\quad 0.73$$
$$3.14 \quad 4.83 \quad -1.0005$$

A. Error

B. minimum was -1.0005 and maximum was 17.0

C. minimum was 0.73 and maximum was 17

D. minimum was 0.73 and maximum was 17.0

Poll in with your answer!

What would be the result of running the FindMinAndMax program with this as input?

```
2.3 9.2
    17
            0.73
```

A. Error

B. minimum was 0.0 and maximum was 17.0

C. minimum was 0.73 and maximum was 17.0

D. minimum was 0.73 and maximum was 17

(PCM) PrintStream

PrintStream is defined in the java.io package

```java
import java.io.*;
```

```java
File outputFile = new File("out.txt");
PrintStream output = new PrintStream(outputFile);
```

Scanner Methods	Description
print(…)	Prints the given value to the set output location.
println(…)	Prints the given value to the set output location, and then terminates the line.