

Intro to Data Structures

Lecture #4 – String API, I/O & Arrays
August 31, 2014

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Outline for Today (Loose Ends)

- Yousuf's office hours (no Sunday 5-7)
- Let's look at the Java API (!)
- A quick look back at PiDemo (and Scanner)
- Arrays
- Quiz Thursday!

The Scanner class (Input from stdin)

Reading an int from the console (stdin):

```
Scanner s = new Scanner(System.in);
```

```
int i = s.nextInt();
```

(let's use this in our PiDemo code...)

Other useful Scanner methods:

`nextDouble()` - double

`next()` - String

The array

- Create an array using new:

```
int[] arr = new int[10];
```

- Or “on the fly” (the new is implicit):

```
int[] arr2 = {1, -5, 42, 9};
```

- Arrays are automatically filled with appropriate default values when created (which means...):
 - int[], double[], char[] is 0
 - boolean[] is false
 - Object[] is null (we’ll talk more about this later...)

The array

- Unlike Python lists, arrays in Java have a type, so all the elements must be the same type
- Arrays also have a length attribute
 - e.g., `array_variable.length`
 - note no ()'s after *length* → it's a field, not a method
 - `int[] arr2 = {1, -5, 42, 9}; arr2.length == ??`
- Let's use arrays to check our understanding of how `Math.random` should behave...