



CS 113 – Computer Science I

Lecture 3 – Strings, Reading in data

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Announcements

- Assignment 00 – due last night
 - Autograder broken, I'll fix it
- Assignment 01 – due 01/30
 - Will be released tonight or tomorrow am
- Office hours:
 - TAs: still TBD
 - Tonight 7-9pm



Agenda

- Announcements
- Recap
- Strings
- Reading in data

Recap

- “Terminal as a window in your own computer”
- Command line programs
 - `ls, cd, pwd, javac, java, mkdir, rm, cp, mv`
- Data Types
 - String, int, double
- Attributes of variables
 - Name, value they store, location in memory
- Variable declaration and assignment

Recap: Rules for naming variables

- Case sensitive
- Can't:
 - start with a number
 - Contain special characters: *, +, -, /, %, \$, #, etc.
 - No spaces
 - Special words:
 - `String, int, main, for, while, ...`

Recap: Converting Types (Numbers)

- Double to integer:
 - `(int) 3.14;`
 - `int a = (int) 3.14; //` Store the converted double in a var
- Storing an integer as a double:
 - `double b = 6;`



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String Operators (Textbook: 2.8)

What is the term for combining strings together?

- Concatenation

What is the concatenation operator?

- +

Converting Types (Strings & Numbers)

- Integer to String

- `int a = 23;`

- `String numMajors = String.valueOf(a);`

- String to integer

- `int x = Integer.parseInt("40");`

- String to double

- `double a = Double.parseDouble("40.11");`

Exercise:

Expression	Value	Data Type
-4		
3.76		
"42.64"		
10 + 3.3		
9 - 5 * 1		
"hot" + "dog"		



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Reading in data

How did we print data?

- `System.console.println();`

We can similarly read in data

- `System.console.readLine();`

Scanner class

Another way for reading in data

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

System.in specifies we are reading from user input

What type is “sc”? Is it an int, double, or string?

It's a Scanner type.

Using Scanner object

Javadocs:

<https://docs.oracle.com/javase/8/docs/api/java/util/Scanner.html>

Reading in an integer:

```
nextInt();
```

Reading in a string:

```
nextLine();
```

Formatting Strings

<code>%d</code>	Integer in base 10 (“decimal”)	12345
<code>%,d</code>	Integer with comma separators	12,345
<code>%08d</code>	Padded with zeros, at least 8 digits wide	00012345
<code>%f</code>	Floating-point number	6.789000
<code>%.2f</code>	Rounded to 2 decimal places	6.79
<code>%s</code>	String of characters	"Hello"
<code>%x</code>	Integer in base 16 (“hexadecimal”)	bc614e

Table 3.1: Example format specifiers

Summary

String concatenation
with strings and numbers

Reading in data
`System.console.readLine();`
Scanner
use this for the semester

Formatting Strings