

CS 113 – Computer Science I

Lecture 03 – Input/Output

Tuesday 09/12/2023

Announcements

- HW00 – due last night
- HW01 – releasing later today
 - Due Monday 09/18
- Read & Follow Instructions
 - Don't just skim the labs & homework
- Office hours:
 - Monday: 2:45-4:00pm
 - Tuesday: 9:30-10:45am (I'll try to get there by 9:15)

Growth mindset

Feeling frustrated with programming doesn't mean I lack intelligence. I believe I can improve through persistent effort

not being too harsh on myself when making mistakes and, instead, seeing it as a way to improve and get better

not getting discouraged if something is challenging or even if I fail

I can succeed by persisting in my studies as opposed to giving up if things don't go according to plan

Outline

Review

Reading in data

Operators & Expressions

- Examples of operators:

• $+$, $-$, $/$, $*$, $\%$

- Expression

• $55 + c$

Operator

Operands

Order of operations

- $24 + 10 / 2;$
- $(24 + 10) / 2;$
- Operations between floats and ints:
 - $1 / 3$
 - $1 / 3.0$

String Operators (Textbook: 2.8)

What is the term for combining strings together?

- Concatenation

What is the concatenation operator?

- +

Exercise:

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

Exercise: Miles to Kilometers

Write a program called `MilesToKMs.java` that asks a user for miles and then prints out the distance in kilometers

- `java MilesToKMs`

50 miles is 80 kilometers

Reading in
Data

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