ICS 141 Programming with Objects

Jessica Maistrovich

Metropolitan State University

Java API

Includes prebuilt classes with fields and methods

Java Application Programming Interface (API)

- `Java API` or `Java Class Library`
  - https://docs.oracle.com/javase/8/docs/api/

- A great strength of Java is the Java API's thousands of classes.

- Provides a rich collection of predefined classes that contain methods for performing common operations:
  - Mathematical calculations
  - String manipulations
  - Character manipulation
  - Input/Output operations
  - File processing

Try it!

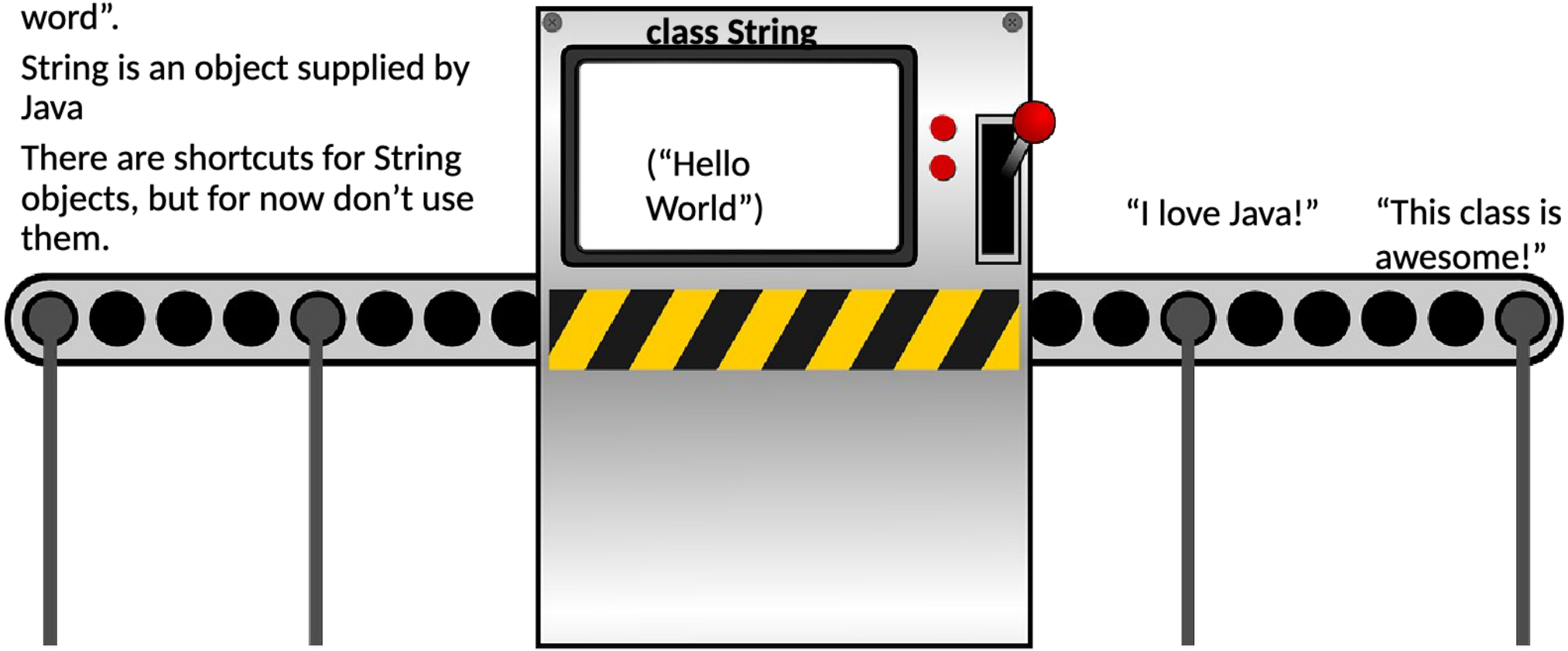
- Explore a class in Oracle documentation.
- What are the fields.
- Can you find a useful method?
  - describe parameters (inputs)
  - describe return type (outputs)

class String

https://docs.oracle.com/javase/7/docs/api/java/lang/String.html

Somewhere in Java world – class String

- Probably got an error with char if tried to write “some word”.
- String is an object supplied by Java
- There are shortcuts for String objects, but for now don’t use them.



Try it!

- Add a name variable to the dog class. What data type should this be?
- Update the constructors to initialize the name variable.

- Update the instantiations in the driver class to name myDog and yourDog.

class System

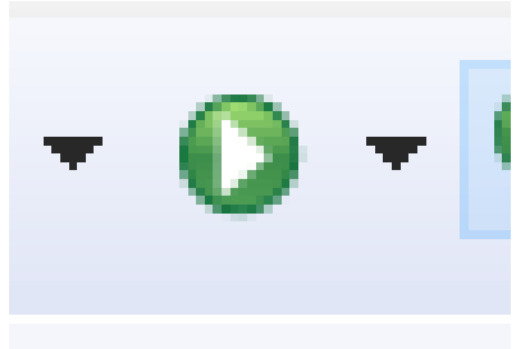
https://docs.oracle.com/javase/7/docs/api/java/lang/System.html#out

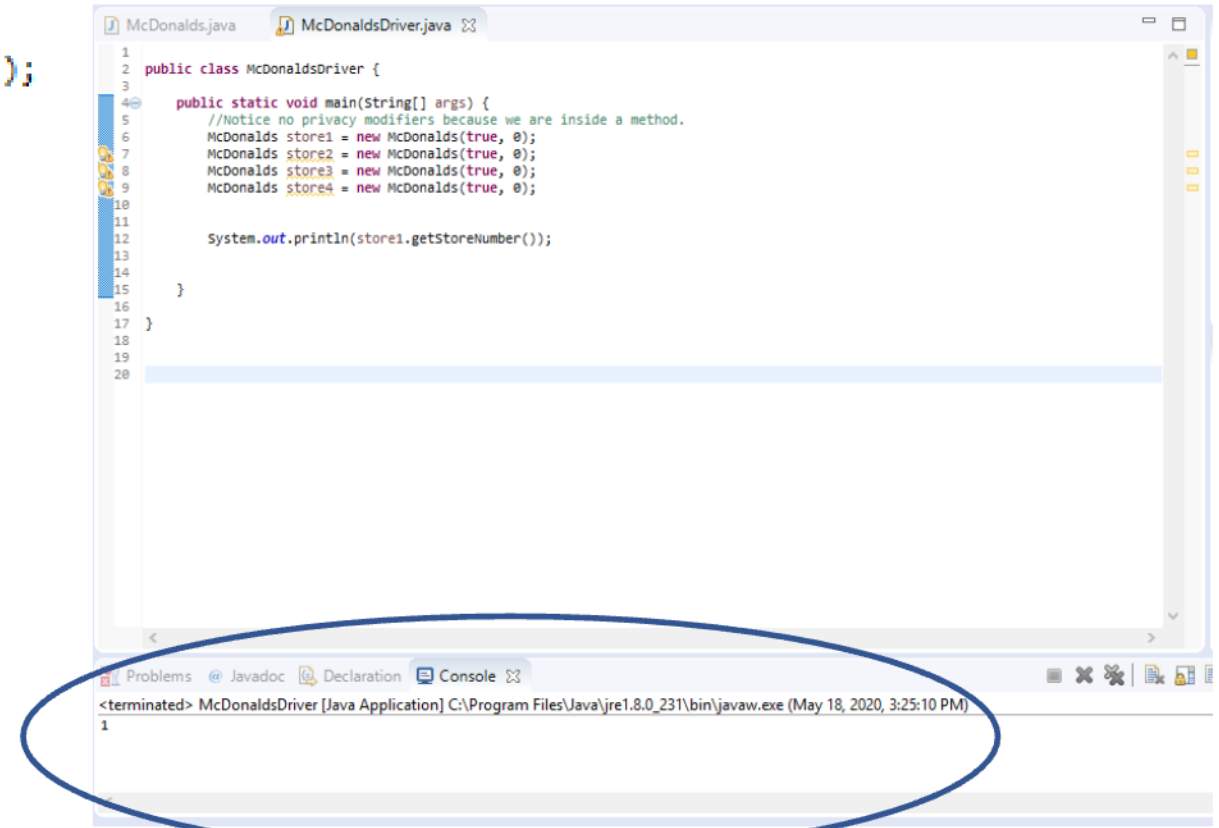
Another object supplied by Java

- System
  - System roughly translates to your computer.
    - Has an OutputStream field “out” and an InputStream field “in”
    - These are used by the application to send information somewhere and retrieve information. It is application dependent.
    - For Eclipse, both out and in are referring to the console
  - A method defined for an OutputStream is println(somethingToprint).
    - https://docs.oracle.com/javase/7/docs/api/java/io/PrintStream.html
  - Therefore, System.out.println() prints to the console whatever is inside the ().

McDonalds.java | *McDonaldsDriver.java

```
1
2  public class McDonaldsDriver {
3
4      public static void main(String[] args) {
5          //Notice no privacy modifiers because we are inside a method.
6          McDonalds store1 = new McDonalds(true, 0);
7          McDonalds store2 = new McDonalds(true, 0);
8          McDonalds store3 = new McDonalds(true, 0);
9          McDonalds store4 = new McDonalds(true, 0);
10
11
12         System.out.println(store1.getStoreNumber());
13
14
15     }
16
17 }
```





Try it!

- Print something about your dog.
- Label the output so that it is readable
  - “Store number 1” rather than “1” for example

Class Scanner

https://docs.oracle.com/javase/7/docs/api/java/util/Scanner.html

Another object supplied by Java

- Scanner lets you read an InputStream
  - `next()`
  - `nextLine()`
  - `nextInt()`
  - `nextDouble()`
- Has to be imported

Try it!

- In the main method of the driver class in the dog application, declare and instantiate a Scanner object.
- Print a prompt to the console asking for the name of their dog.
- Collect the input with your scanner and store in a variable.
- Print a prompt to the console asking for the age of their dog.
- Collect the input with your scanner and store in a variable.
- Create a new dog with that name and age. Assume it is not a bulldog.