Lecture 5
More Java API Classes

ArrayList, Date, and more!

Recap

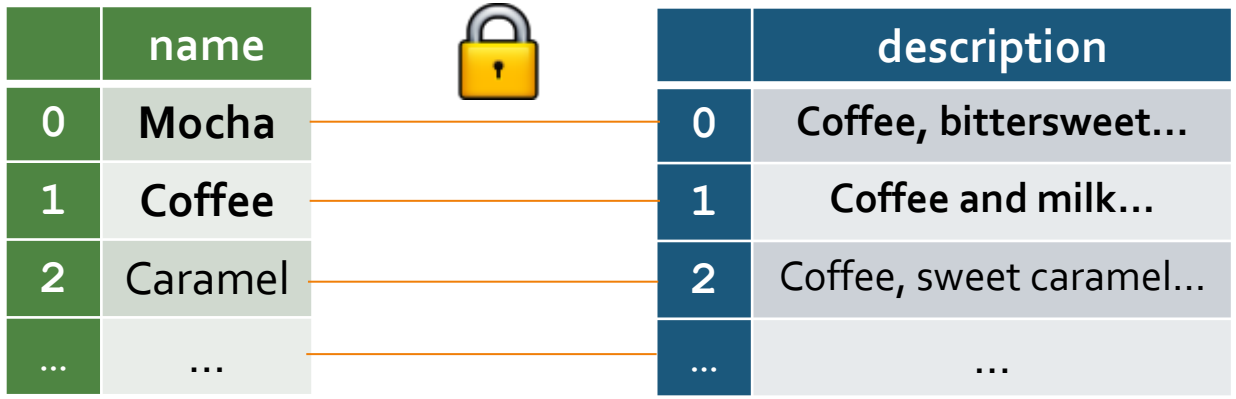
Dealing with (multiple and single) Arrays

Arrays are just a way to organize related data

- Arrays are just a way of managing a **set of something**:
  - SetOfSeats[]
  - SetOfRooms[]
  - SetOfGrades[]
  - SetOfFoodItems[]

- An index is like a **key** that we can use to get a **single sample of that something**:
  - [SeatPosition]
  - [RoomNumber]
  - [StudentNumber]
  - [ItemNumber]

Processing Sets of Related Data




```
public static void printExact(String search){
  for(int i = 0; i < name.length; i++){
    if(name[i].equals(search)){
      System.out.println(name[i]);
      System.out.println(description[i]);
      …
    }
  }
}
```

More Java API Classes

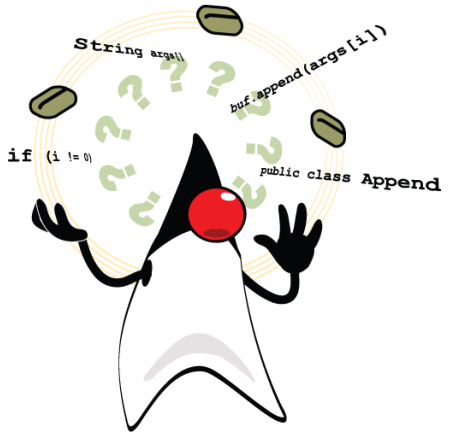
The Java API

- **A**pplication **P**rogramming **I**nterface

  A collection of existing code (classes) that we can reuse as building blocks to easily and quickly build our applications.

- Examples:
  - String
  - Array
  - Scanner
  - System

Basically, **every method**/function in your exercises that you have used but did not make is probably part of the Java API.



Understanding the API Reference

- http://docs.oracle.com/javase/7/docs/api/overview-summary.html
- In Java, we refer to this documentation as the Javadocs.

We've used some before for your Java String exercises!

Today, you are going to:

- Find the API Javadocs for the Java ArrayList.
- In our previous menu exercise, replace the Name Array with a Name ArrayList.
- Make all the code affected by the change work.

Java ArrayList: What to look out for

- Figure out the following:
  1. How to **create** an ArrayList?
  2. How to **initialize** an ArrayList?
  3. How to **store** data in an ArrayList?
  4. How to **read** data from an ArrayList?
  5. How is an ArrayList **different** from an Array?

Take note of any other questions you may have.

Java Date API

- Find the API Javadocs for the Java Date class and the SimpleDateFormat class.
- Modify your exercise code so that when you print the menu it includes a header that has the current Date.
- Make sure that the Date is **formatted** like the following sample: `October 14, 2013`

Can you make **your own** guide questions?

Java Date API

- Prompt the user for a date using the format you used to print the current day (previous slide).
- Convert the input String into a Date.
- Store this Date and print it out instead of the current day when showing the menu.

Seatwork

- Create a program that manages Reminders.
- Each reminder has the date when it was written, a title, the reminder message, the deadline date, and a status.
- A reminder's status can either be "Not Done", "Done" or "Elapsed". All reminders start out as "Not Done"

Assignment

- Create a method `printDueToday` that accepts a Date parameter and prints out all reminders whose deadlines are due on that day.
- Create a method `checkDeadlines` that accepts a Date parameter and checks the list for reminders that were not done and whose deadlines fall after the given date. It should then marks these as "Elapsed".
- Create a method `printToDo` that prints out all reminders that are not yet done. These should be ordered from the closest deadline to the furthest.