Fruit Ninja™

The greatest fruit-slicing game in the world!
Agenda

I. Icebreaker 🌨

II. Inheritance Review 🕒

III. Polymorphism (Interfaces) Review: 🍏

IV. Program Structure (Fruit Ninja): Knowing the relationships between Fruit, Bomb, and Choppable. 🍊

V. Switch Statements Review 🍓
Icebreaker & Check-In

[whispering]
HAVE YOU BEEN INTRODUCED
TO KEVIN?
Inheritance Review

- What is inheritance?
- Can you give an example of a parent class/subclass relationship?
- Why is inheritance useful?

(Jim inheriting Dwight’s methods)
Inheritance Activity!

```java
public class GuitarPlayer {
    private Guitar _guitar;

    public GuitarPlayer() {
        _guitar = new Guitar();
    }

    public void playGuitar() {
        this.plugIn(_guitar);
        this.strum(_guitar);
        this.tapFoot();
    }
}
```

Say we have a parent class for GuitarPlayer. We want to make a subclass, Andy, who knows how to play guitar! We want him to do everything a GuitarPlayer does, but then say “Call me the Nard-Dog.” in his playGuitar() method.
public class Andy extends GuitarPlayer{
    public Andy(){
        super();
    } ← Why do we call super() from a subclass's constructor?
    public void declareNardDog() {
        //code elided
    }

    /*We want Andy’s playGuitar() method to do everything the GuitarPlayer method does, and then declare that he is a Nard Dog*/
    @Override ← Why do we include @Override here? Is it a partial override?
    public void playGuitar(){
        super.playGuitar();
        this.declareNardDog();
    }
}
Interface Review

- Interfaces should be used when classes **share similar actions** (methods)
  - These actions can be grouped together and put in an interface
  - The interface makes it so that a class implementing that interface **must** be able to perform these actions
  - Several classes can implement the actions/methods in an interface in different ways.
- You can implement multiple interfaces, but extend only one class.
- You cannot instantiate an interface.
Diagram Activity!

- All of the office workers in the Party Planning Committee know how to plan parties
- We are trying to implement two committee members, Angela and Phyllis
- We want to implement an interface so that we know both members can plan parties!
- What might that interface look like?
Diagram!

Party Planner

Office Worker

Angela

Phyllis
FruitNinja
Project Design
Our Design

CS15Bomb

Extends

Choppable

Fruit

CS15Fruit

Extends

Game

Extends

CS15Game

Extends

Fruit

Extends

Extends

Extends

Lemon

Pear

Apple

Peach
Switch Statement Review

- A switch statement takes in a variable, let's use `x`. Depending on what `x` is, the switch statement chooses an outcome that happens only if `x` is a certain value.
- If you have a lot of different cases, while you could use many if statements, it is not necessarily the best design choice.
- Switch statements are faster when you have many cases because you don't have to visit each if statement.
Switch Statement Example

Say you had a really dope cannon. Say cannon could `fire()` a whole array of different objects at enemy ships. IE: toiletPaper, melons, porcupines, and rottenEggs. How can we use a switch statement to randomly shoot stuff?

Code:

```java
int gRN (generated Random Number from 1 - 4)

switch(gRN){
    case 1:
        this.fire(toiletPaper);
        break;
    case 2:
        this.fire(melons);
        break;
    case 3:
        this.fire(porcupines);
        break;
    case 4:
        this.fire(rottenEggs);
        break;
    default:
        break;
}
```
Debugging Exercise #1!

```java
public class Vehicle {
    private int _milesTraveled;
    ...
    public Vehicle(){
        _milesTraveled = 0;
    }
    ...
}

public class Car extends Vehicle {
    public Car(){
        super();
    }
    public int readOdometer(){
        return _milesTraveled;
    }
}
```

When you remember to write a getter method in your parent class

```java
Solution: Car is trying to access its superclass' private variables. Add a getMiles() method to Vehicle.
```
public class Library{
    private String _librarian;
    private String _location;

    public Library(String location){
        _librarian = null;
        _location = location;
    }

    public void setLibrarian(String librarian){
        _librarian = librarian;
    }

    public String getLibrarian(){
        return _librarian;
    }

    public void setLocation(String location){
        _location = location;
    }
}

public class SciLi extends Library {
    public SciLi(){
        super.setLibrarian("Dwight");
    }
}

Solution: super() needs to be called in SciLi’s Constructor with the right argument.
Responsible CS: AI Text Generation

- Prompt will be given at the top
- There are four responses to the prompt:
  - Two are human-written
  - Two are machine-generated
- As a section, try to figure out which two are machine-generated
- Prompts are taken from OpenAI’s website and are human written, at:
  https://openai.com/blog/better-language-models/#sample2
Prompt: In a shocking finding, scientists discovered a herd of unicorns living in a remote, previously unexplored valley, in the Andes Mountains. Even more surprising to the researchers was the fact that the unicorns spoke perfect English.

- It is surprising, to say the least, that this species remained hidden from the scientific world for such a long time. Many people are outraged by the idea that humans may no longer be the most intellectual species roaming this planet.
- The discovered unicorn herd seemed to be genetically linked to both the Alaskan Reindeer and the Antarctic Narwhal. Scientists are very excited by this discovery that can potentially uncover animal migration patterns that have remained a mystery for centuries.
- The scientist named the population, after their distinctive horn, Ovid’s Unicorn. These four-horned, silver-white unicorns were previously unknown to science.
- Dr. Jorge Pérez, an evolutionary biologist from the University of La Paz, and several companions, were exploring the Andes Mountains when they found a small valley, with no other animals or humans. Pérez noticed that the valley had what appeared to be a natural fountain, surrounded by two peaks of rock and silver snow.
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Prompt: Miley Cyrus was caught shoplifting from Abercrombie and Fitch on Hollywood Boulevard today.

- Miley looked surprised when the store owners approached her. She claims that she was just looking for her wrecking ball and sledge hammer and that she just wanted to slide away.
- It is unclear how her singing career will be affected by this incident. A “Lock her up” chant broke out at a Taylor Swift concert last night.
- The singer was wearing a black hoodie with the label ‘Blurred Lines’ on the front and ‘Fashion Police’ on the back.
- Scroll down for video.
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Closing

- Make sure your logins are on your mini-assignment before turning in
- Come talk to us if anybody needs their video labs checked off~