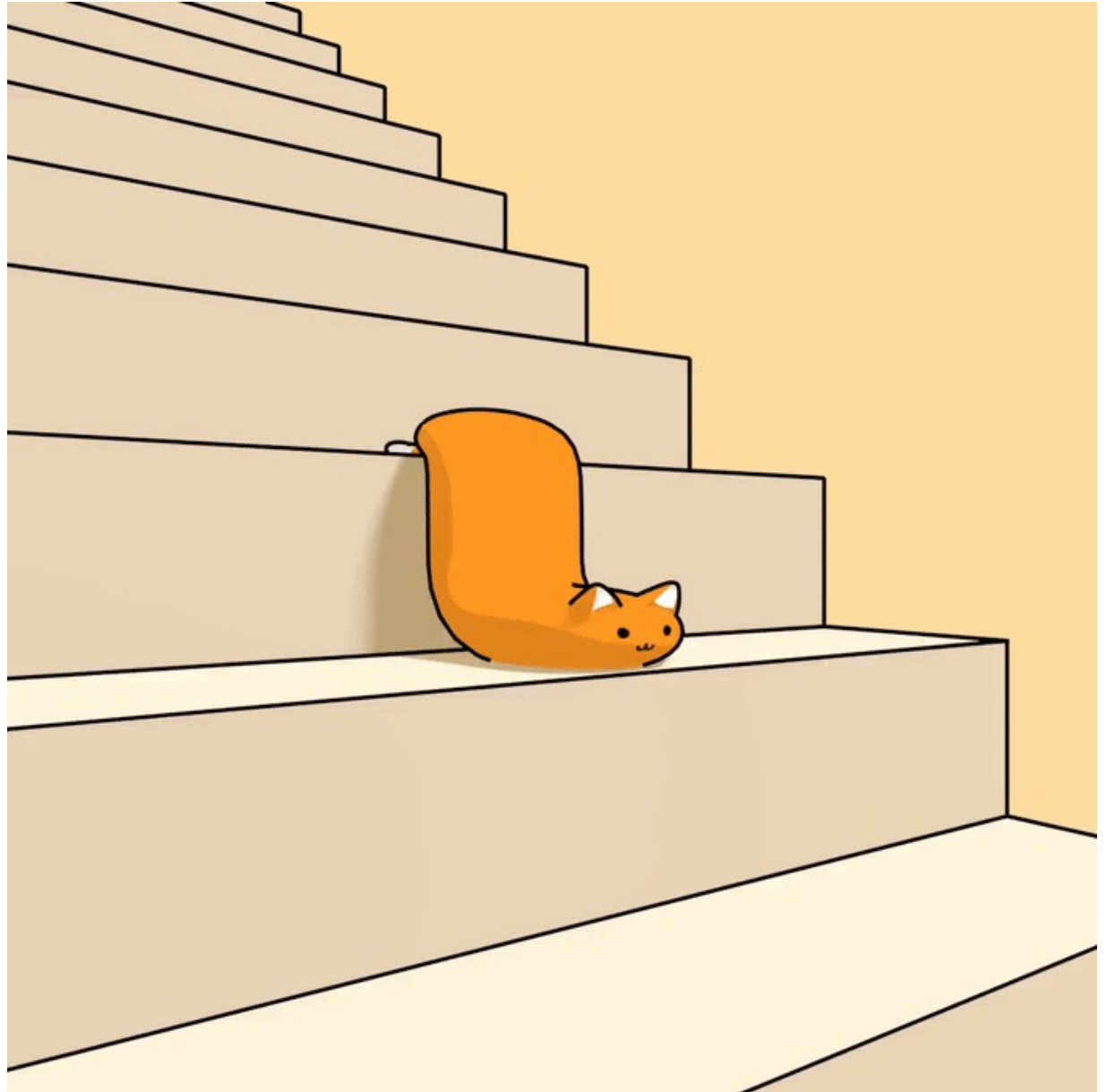


# Lecture 3: Interfaces, References

---

06/27/22



# Abstract Data Type

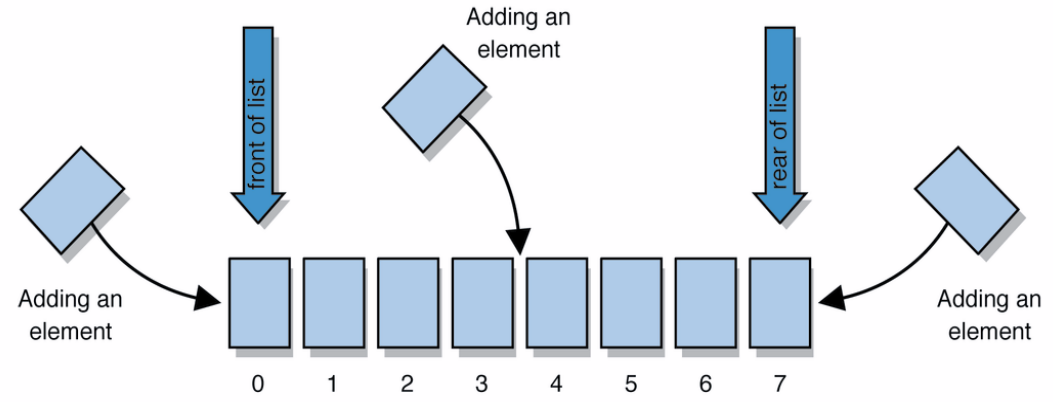
## Abstract Data Type (ADT)

- Composed of:
  - A collection of data
  - The operations that can be performed on that data
- Describes what a collection does, not how it does it
- Not specific to Java!

# List ADT

## List

- Has indices
- Elements can be added anywhere in the list (and removed, modified, etc.)
- Has a size (number of elements that have been added) and that size can be as big as you want it to be



# Interface

- Java's way of representing an Abstract Data Type
- Describes all the methods a class must have in order to be that data type
- Doesn't implement the methods
  - A class with all the guts ripped out

How many Point objects are in this method?  
What is the output of this method?

```
public static void poll1() {  
    Point p = new Point(1, 2);  
    Point q = p;  
    Point r = q;  
    q = new Point(4, 5);  
    r.setX(3);  
    System.out.println("p = " + p);  
    System.out.println("q = " + q);  
    System.out.println("r = " + r);  
}
```