Lecture 3: Interfaces, References

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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 indicies

• 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?

```java
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);
}
```