Recitation 1

OOP Basics

Abstraction is the key to managing software complexity

Object-Oriented Programming is now the dominant paradigm for large software systems

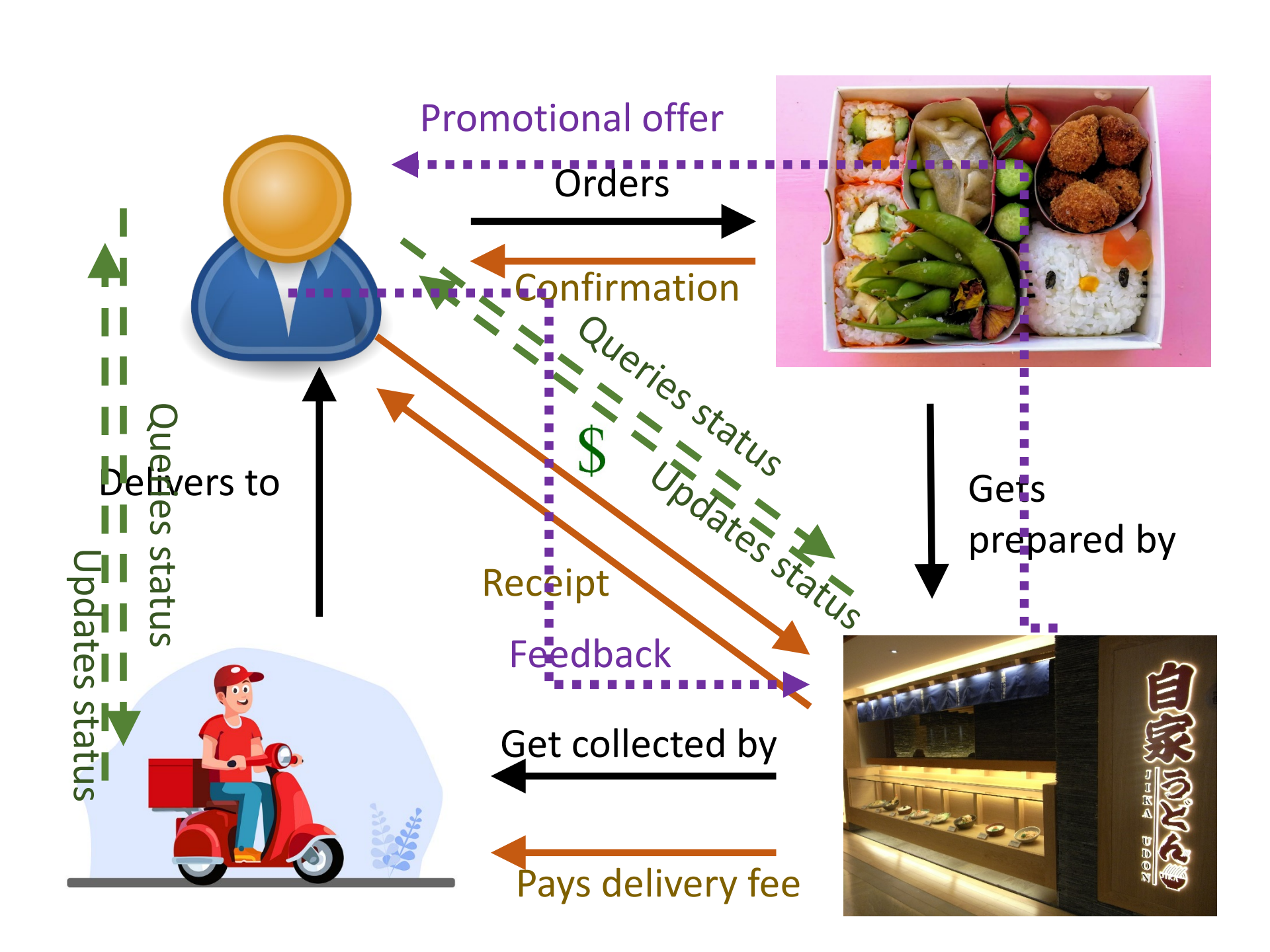
OOP is a useful way of creating abstractions that model flows of information in the real world

Orders

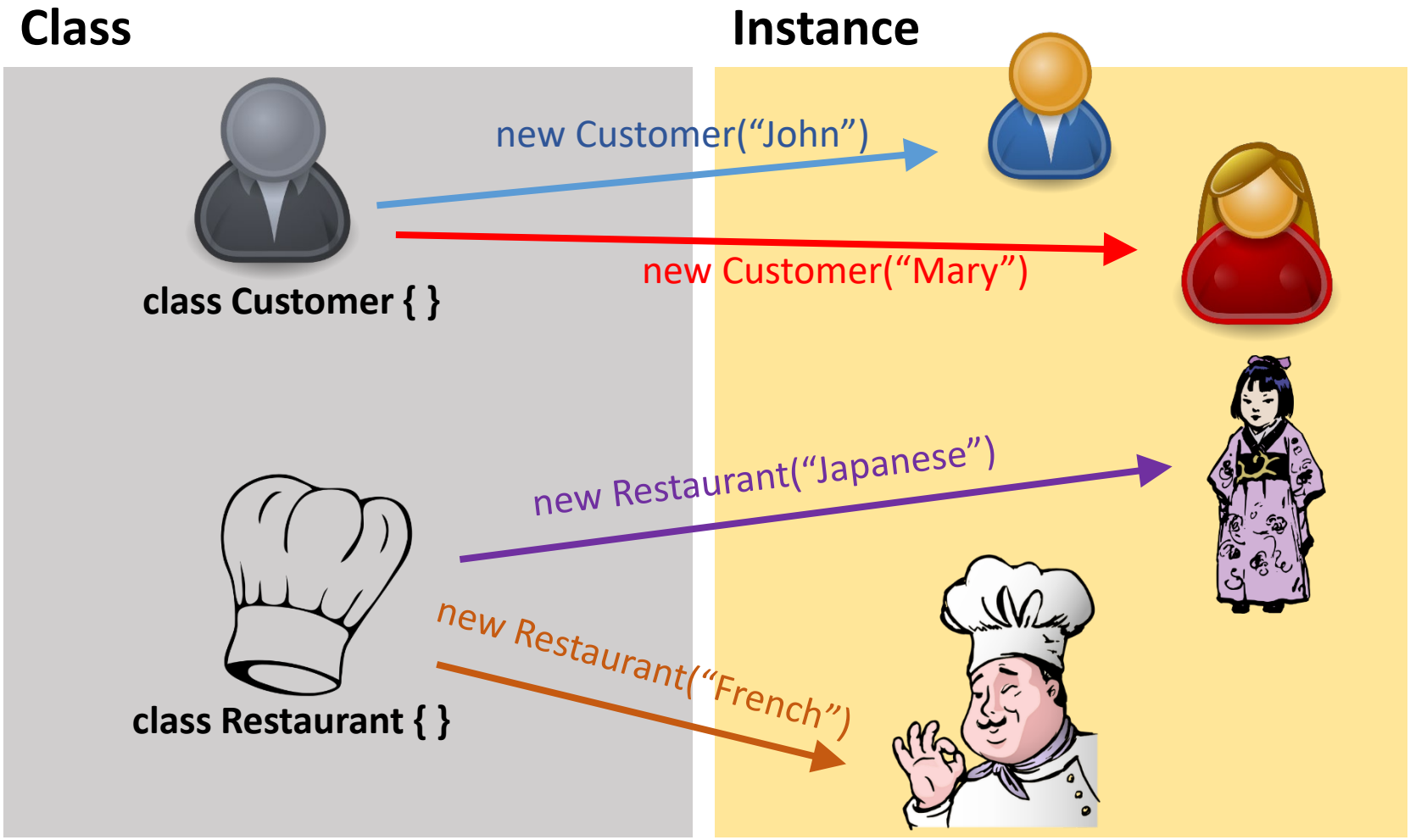
Gets prepared by

Get collected by

Delivers to


Promotional offer
Orders
Confirmation
Queries status
$
Updates status
Gets prepared by
Receipt
Feedback
Get collected by
Pays delivery fee
Delivers to
Queries status
Updates status

Object class vs Object instance



Object encapsulates properties & behavior

```
class Point {
    private final double x;
    private final double y;

    Point(double x, double y) {
        this.x = x;
        this.y = y; }
    double distance(Point otherpoint) {
        double dispX = this.x - otherpoint.x;
        double dispY = this.y - otherpoint.y;
        return Math.sqrt(dispX * dispX + dispY * dispY); }
    @Override
    public String toString() {
        return "(" + this.x + ", " + this.y + ")"; }
}
```

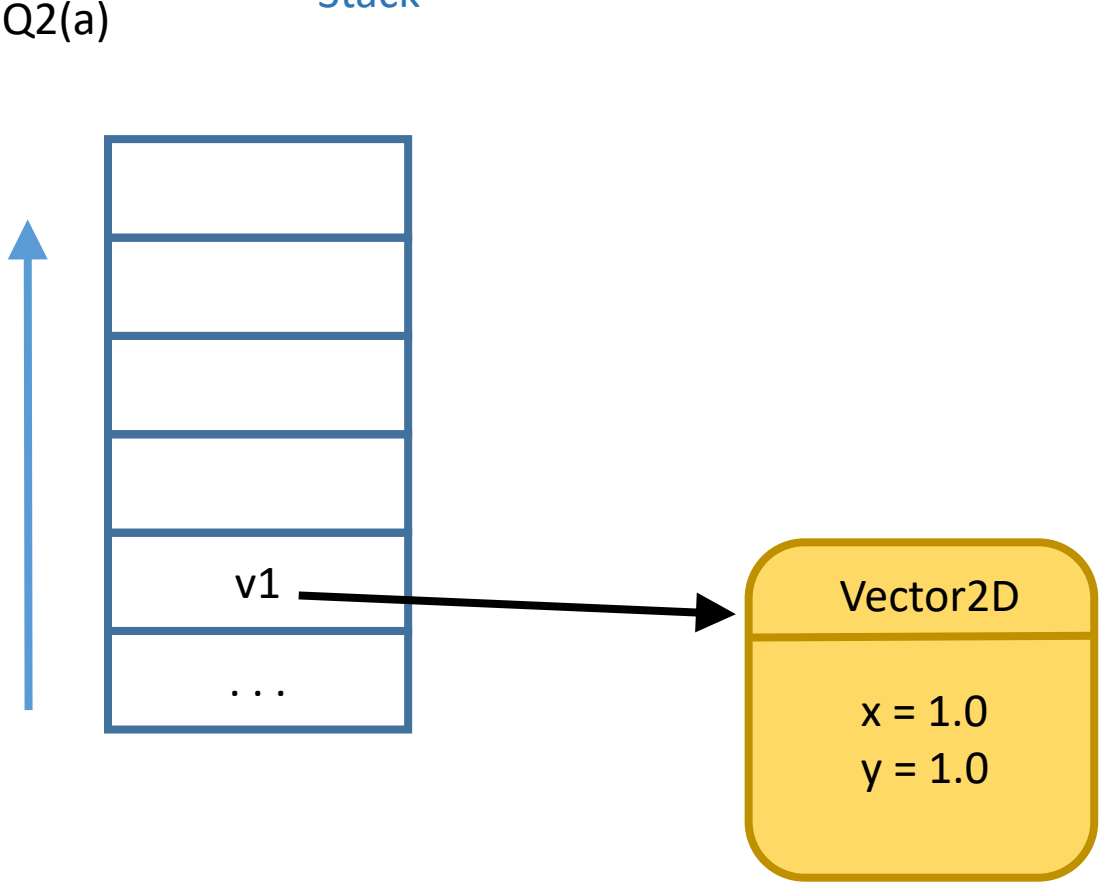
Attributes (properties)

Methods (behavior)

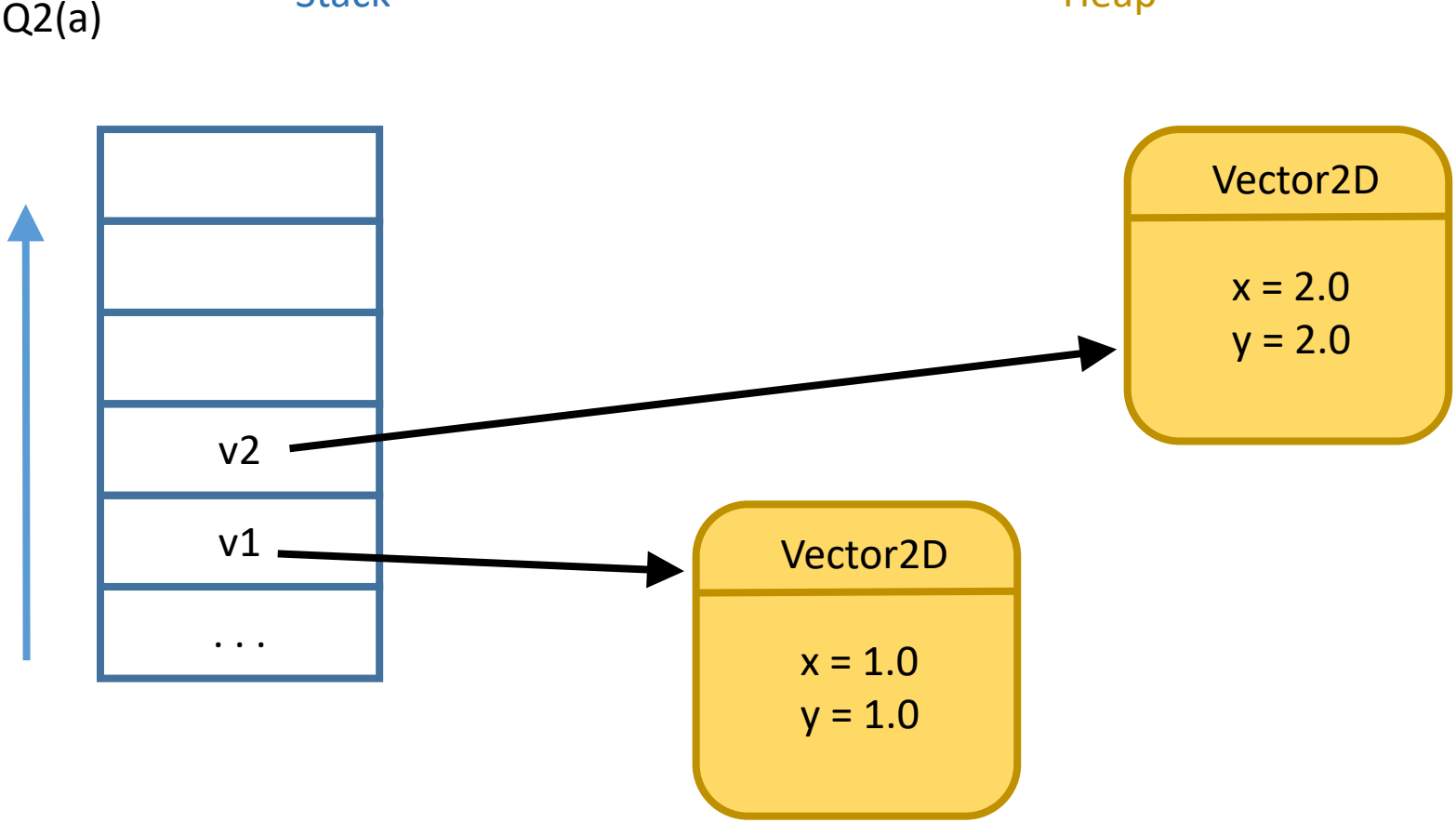
Attendance

- Take attendance now, using your phone and QR code
- Photos will also be taken where you sit
  - Remove your mask when photo is taken
- Sit 1m apart

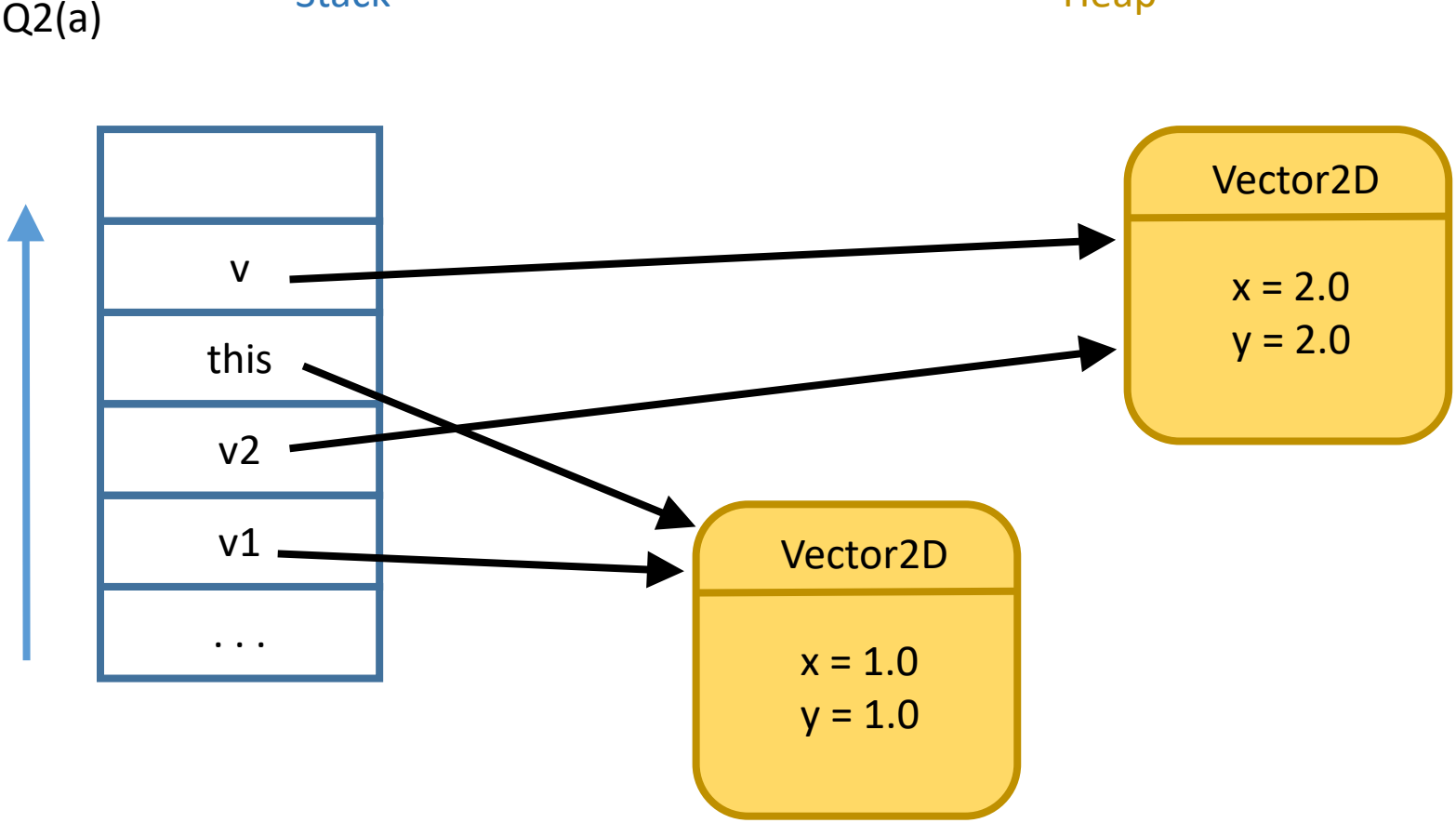
Q2(a)



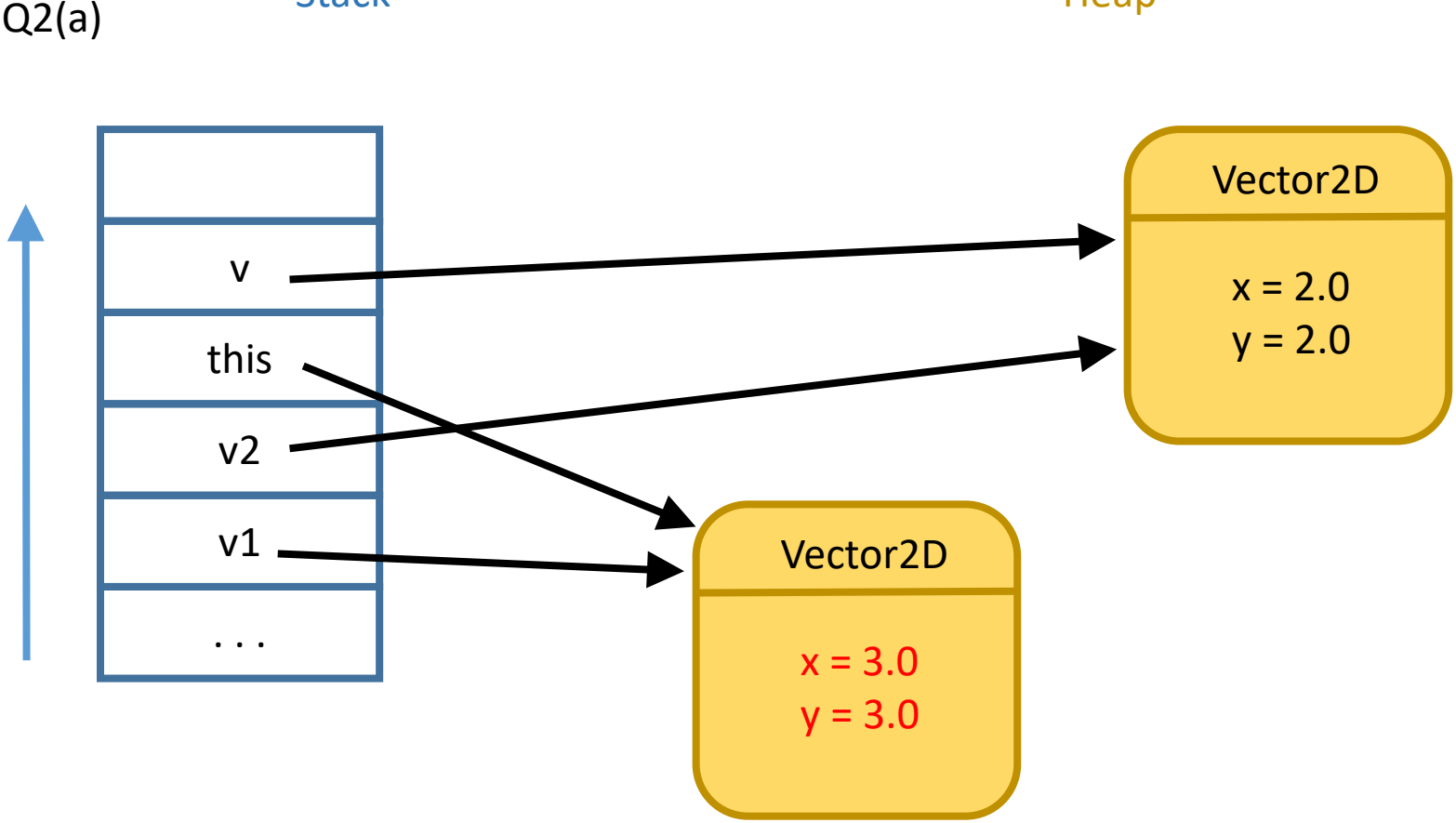
Q2(a)

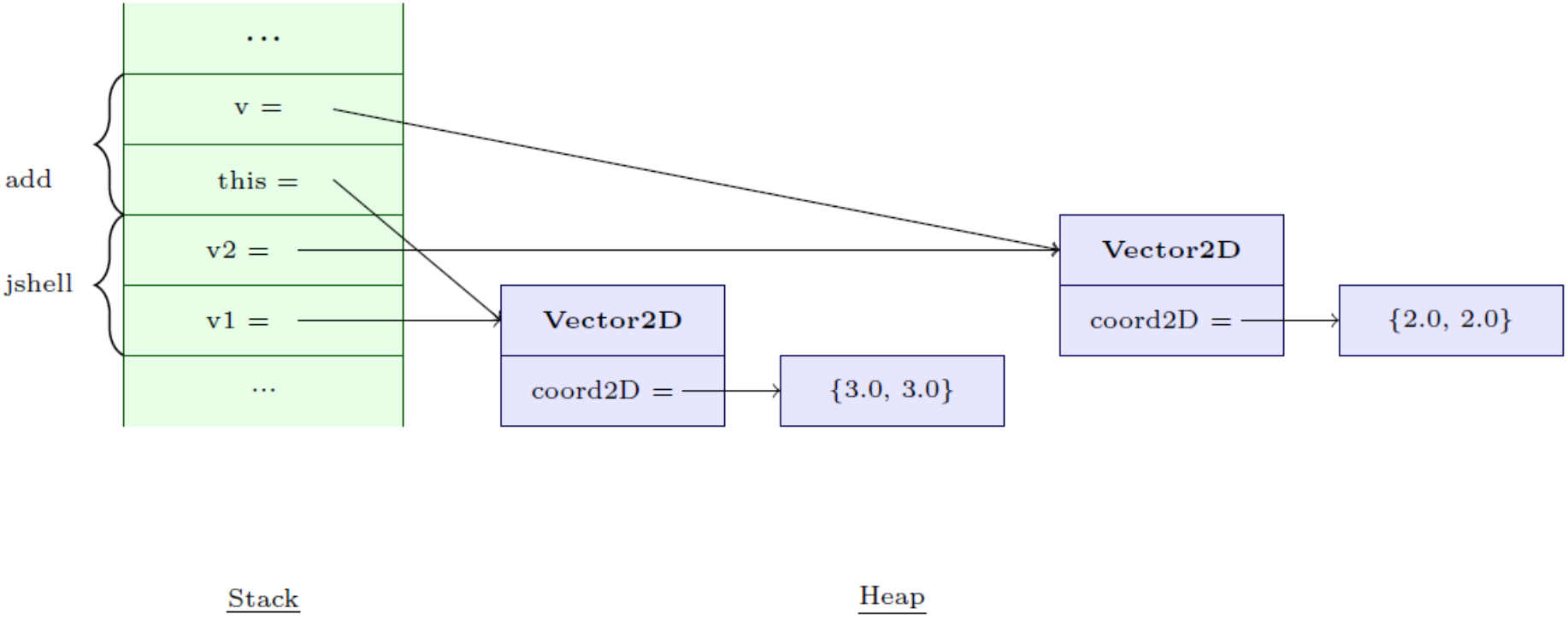


Q2(a)



Q2(a)




...
v =
this =
v2 =
v1 =
...
add
jshell
Vector2D
coord2D =
{3.0, 3.0}
Vector2D
coord2D =
{2.0, 2.0}
Stack
Heap