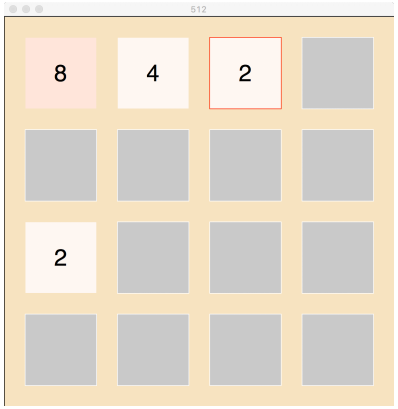
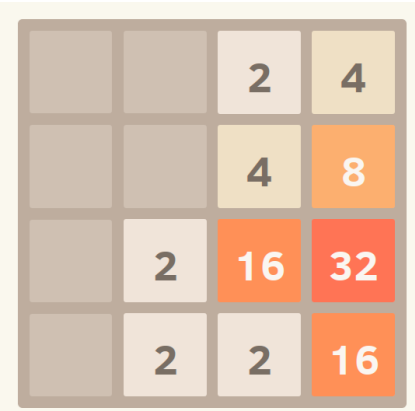
Project 3: FiveTwelve



2048 is twice 1024.

FiveTwelve is half of 1024.



Let's play

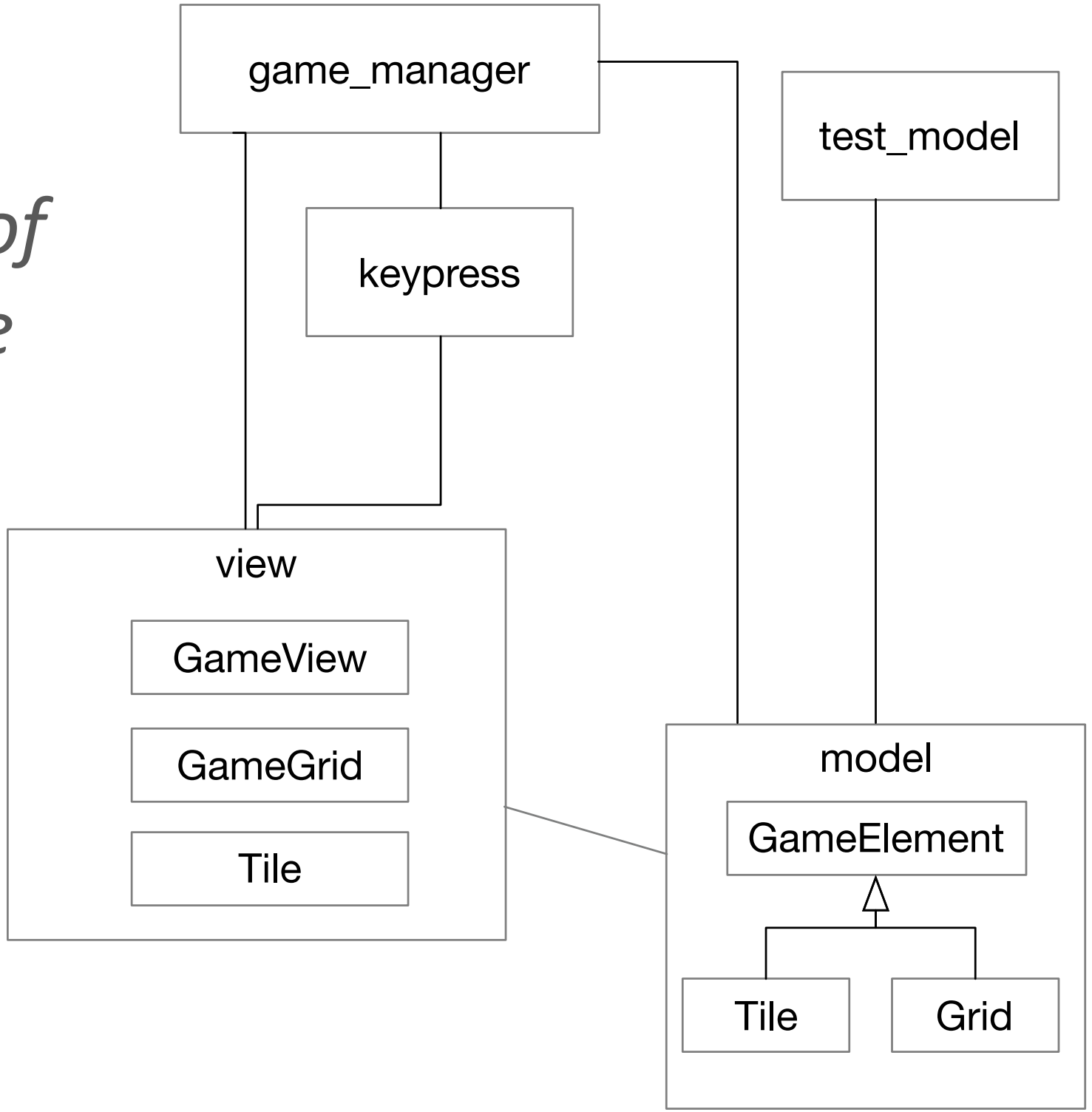
(insert demo here)

Objectives

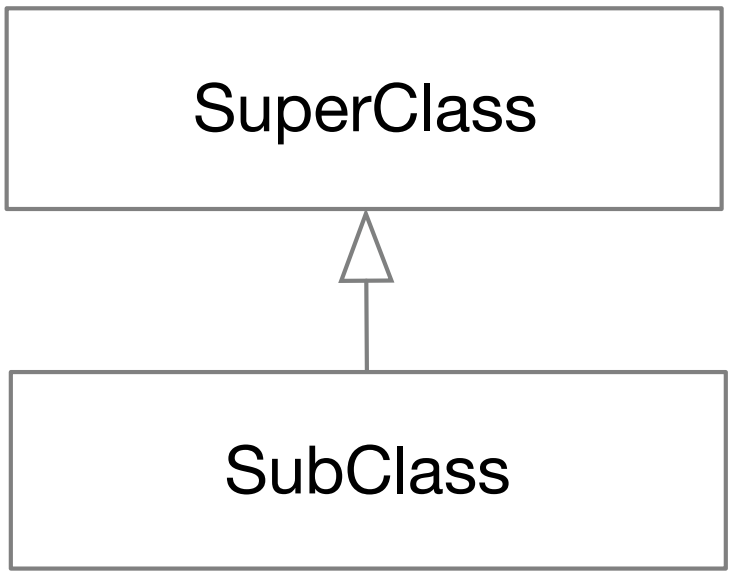
More practice with classes and model-view-controller
(with just a little inheritance)

Logical problem solving: Slide the tiles in the right order

Structure of FiveTwelve



Notation note:



SubClass may inherit or override methods in SuperClass.

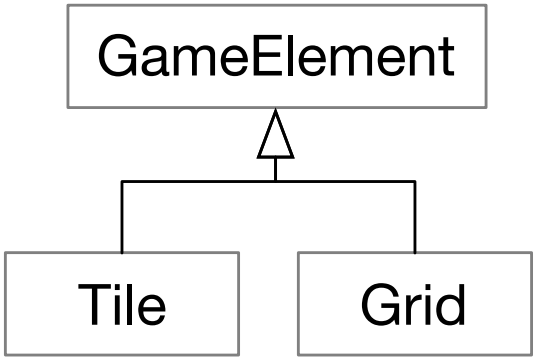
SubClass should be a subtype of SuperClass, meaning it fulfills the contract of SuperClass

Substitution principle: Anywhere SuperClass can be used, SubClass can be used.

NOT guaranteed by Python. The programmer must ensure the substitution principle.

cf: Liskov Substitution Principle

Subclassing in FiveTwelve




```
class Game_Element(object):
    def add_listener(self, listener):
        ...
    def notify(self, event, data={}):
        ...
```

```
class Grid(Game_Element):
    ...
        self.notify("New", data={"tile": tile})
```

```
class Tile(Game_Element):
    ...
        self.notify("Update")
```

The ‘add_listener’ and ‘update’ methods are *inherited*.

What is missing

```
# Game moves
def left(self):
    """Slide tiles to the left"""
    movement_vector = ???
    for ???  :
        for ???:
            if tile:
                col.slide(self, movement_vector)

def right(self):
    """Slide tiles to the right"""
   ...
```

Each move (left, right, up, down) requires checking the tiles in an order consistent with the rules, so they are similar but not identical.

Movement vectors could be [0,1], [1,0], [-1,0], [0,-1] (up, right, left, down)