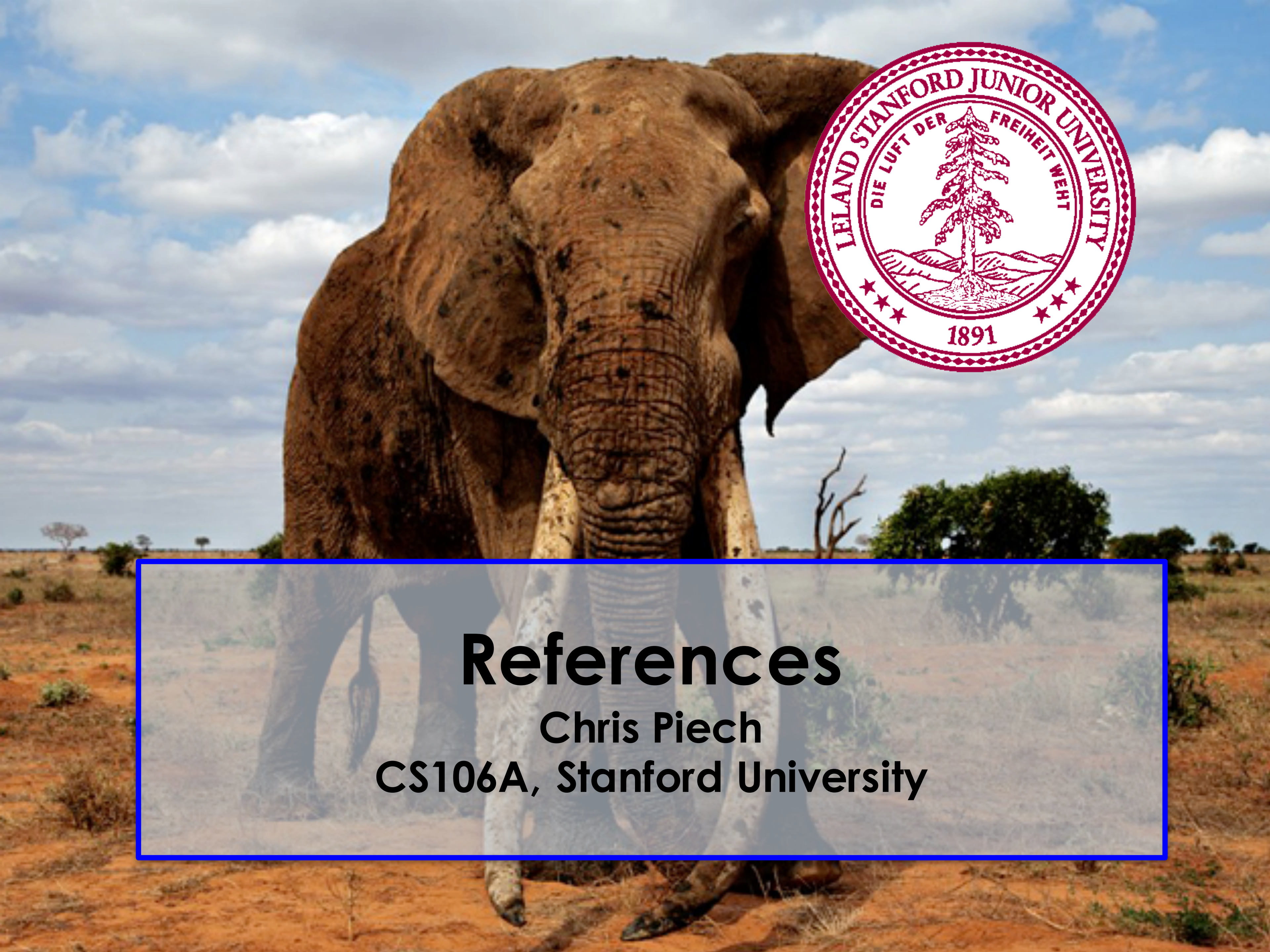


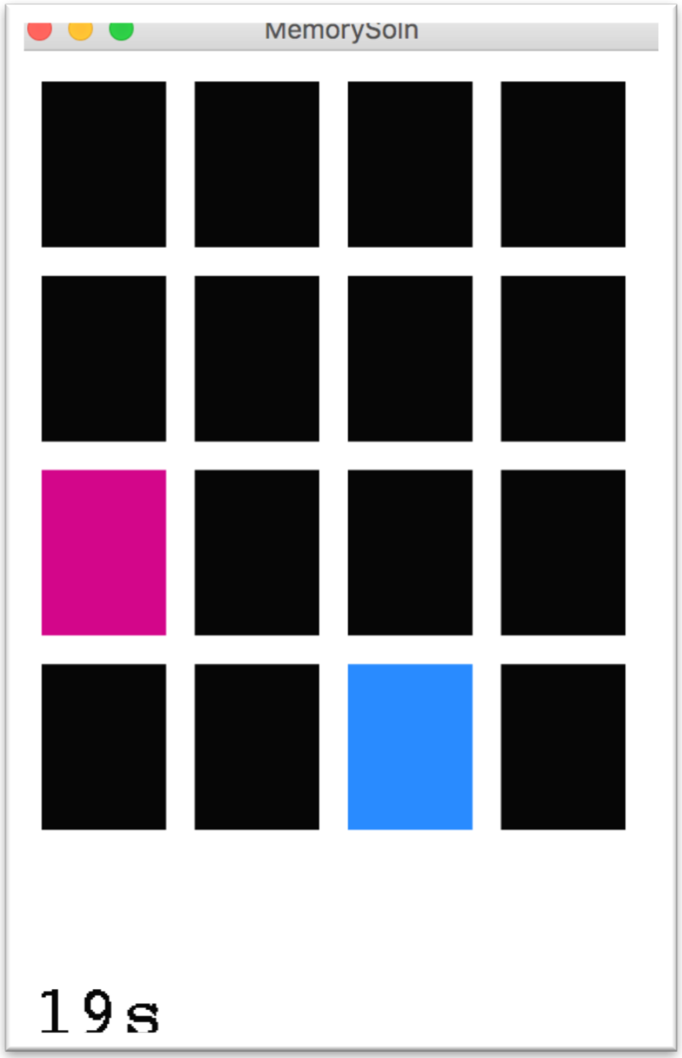
References

Chris Piech
CS106A, Stanford University

Learning Goals

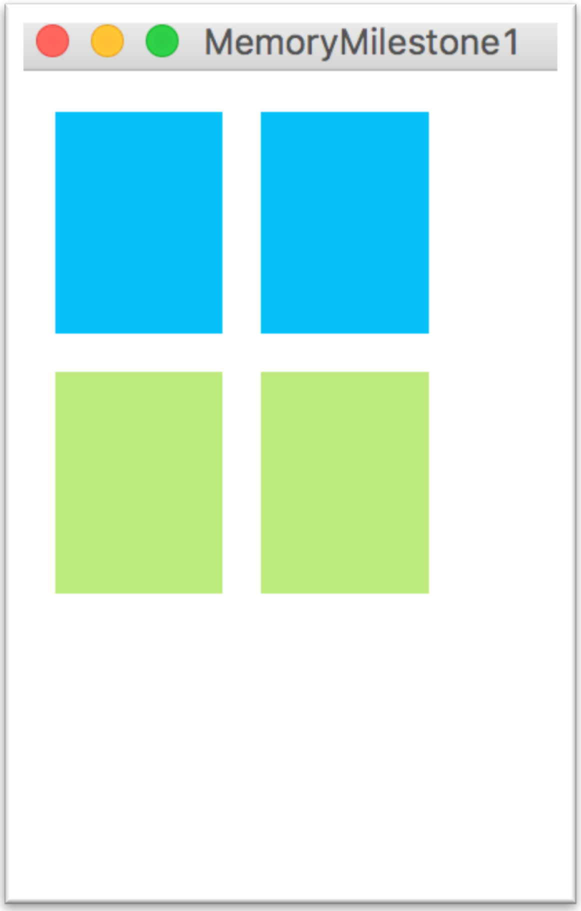
1. Be able to write a large program
2. Be able to trace memory with references

Today, we build!

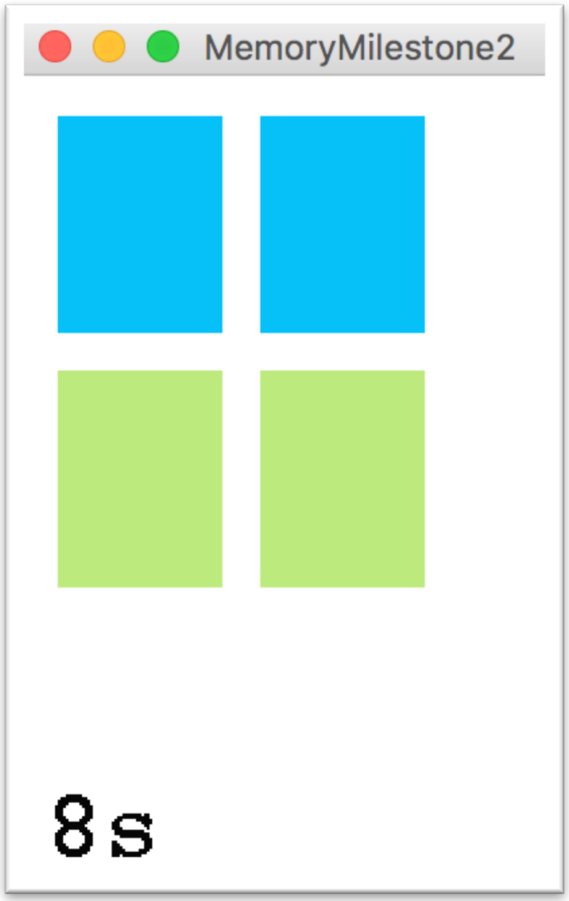


Milestones

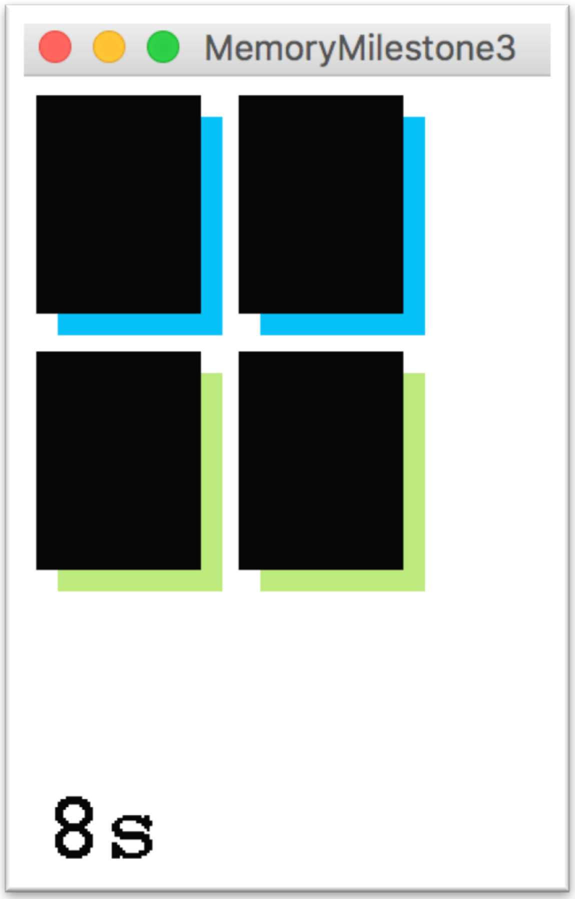
Milestone 1



Milestone 2



Milestone 3



Advanced memory model

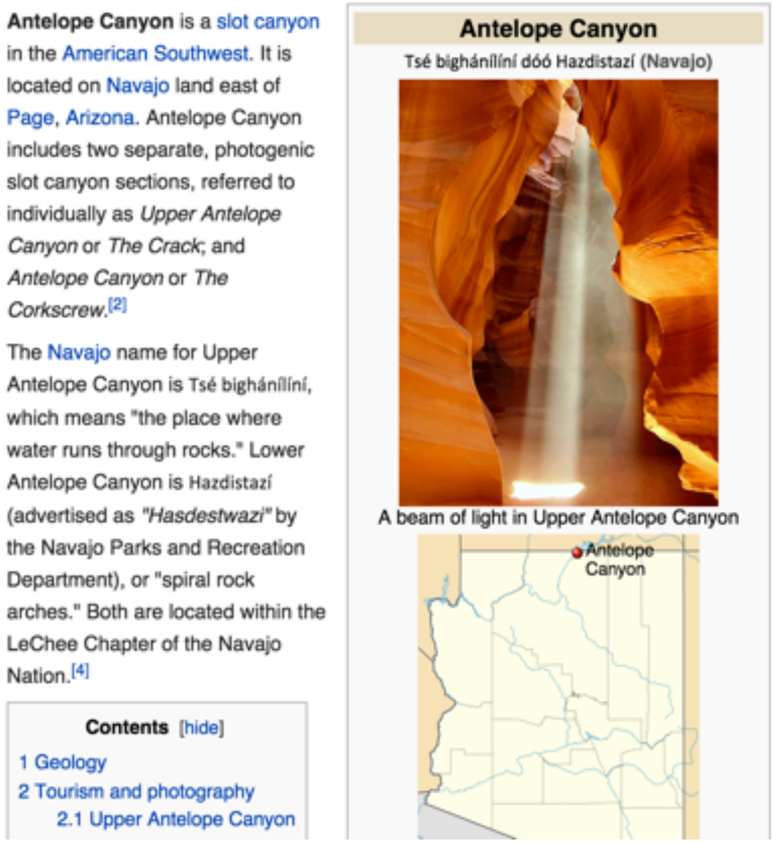
Recall: Memory model

```
private void run()  {
    int money = 5;
    retireEarly();
    println(money);
}

private void retireEarly(){
    int money = 1200000;
    println(money);
}
```

How do you share wikipedia articles?

Antelope Canyon Article



Antelope Canyon is a slot canyon in the American Southwest. It is located on Navajo land east of Page, Arizona. Antelope Canyon includes two separate, photogenic slot canyon sections, referred to individually as *Upper Antelope Canyon* or *The Crack*; and *Antelope Canyon* or *The Corkscrew*.[2]

The Navajo name for Upper Antelope Canyon is Tsé bighánílíní, which means "the place where water runs through rocks." Lower Antelope Canyon is Hazdistazí (advertised as *"Hasdestwazi"* by the Navajo Parks and Recreation Department), or "spiral rock arches." Both are located within the LeChee Chapter of the Navajo Nation.[4]

Contents [hide]

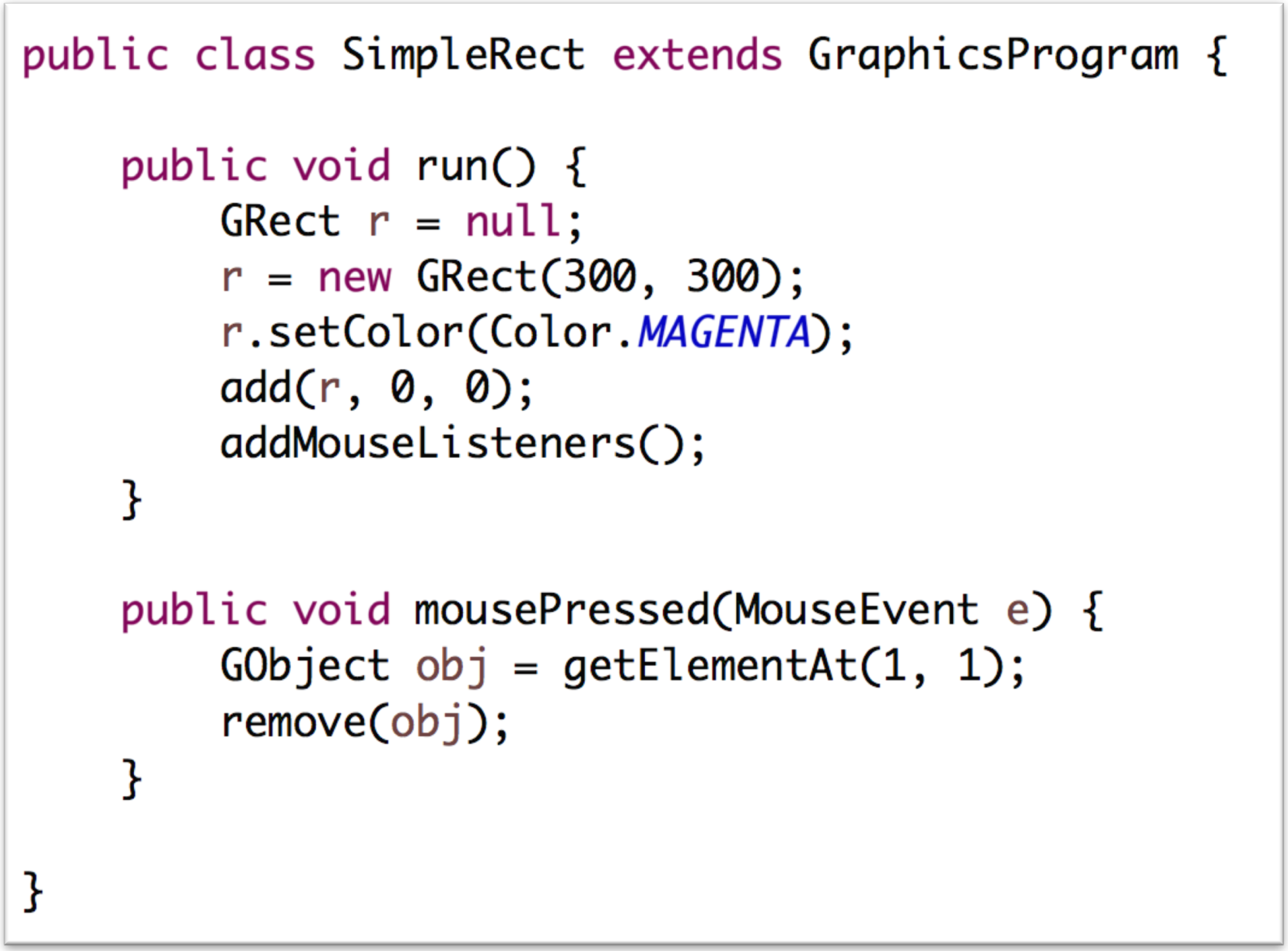
1 Geology
2 Tourism and photography
2.1 Upper Antelope Canyon

Antelope Canyon

Tsé bighánílíní dóó Hazdistazí (Navajo)

A beam of light in Upper Antelope Canyon

https://en.wikipedia.org/wiki/Antelope_Canyon



```java
public class SimpleRect extends GraphicsProgram {

    public void run() {
        GRect r = null;
        r = new GRect(300, 300);
        r.setColor(Color.MAGENTA);
        add(r, 0, 0);
        addMouseListeners();
    }

    public void mousePressed(MouseEvent e) {
        GObject obj = getElementAt(1, 1);
        remove(obj);
    }

}
```

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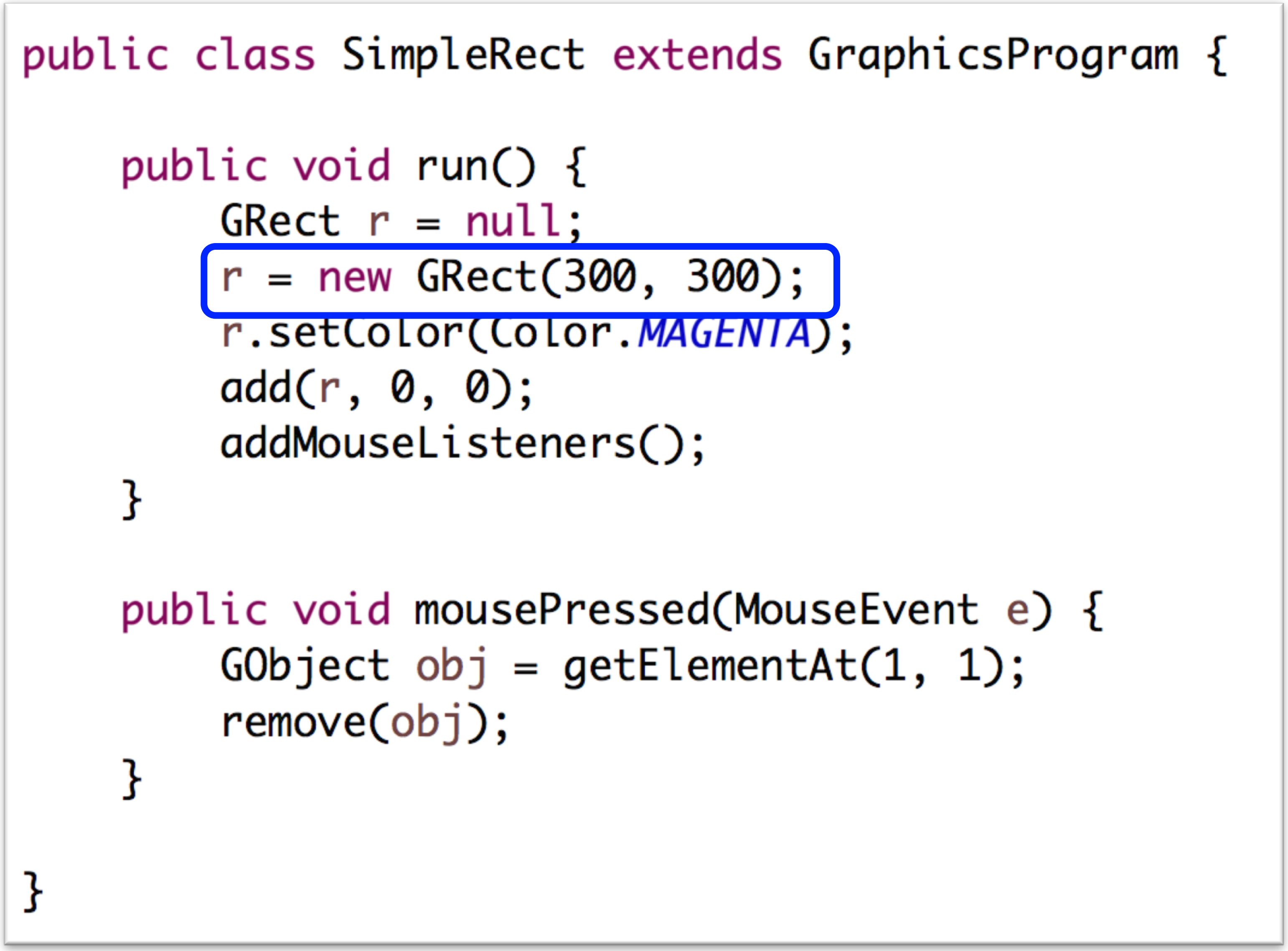

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public class SimpleRect extends GraphicsProgram {

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Memory

Instance Variables

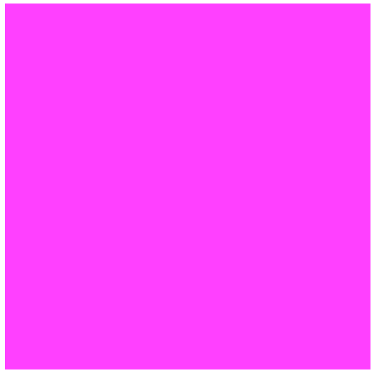
canvas

run

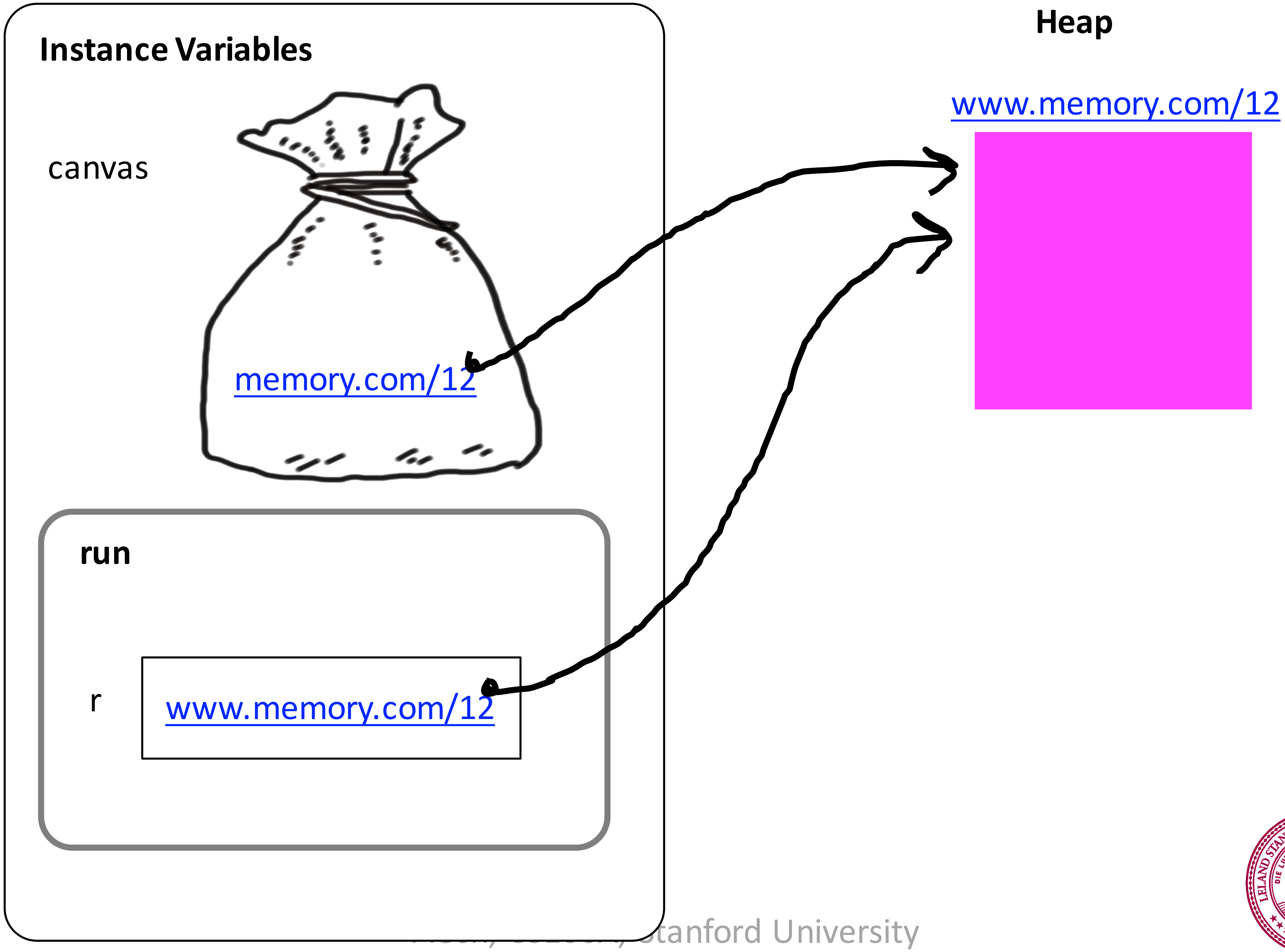
r | www.memory.com/12

Heap

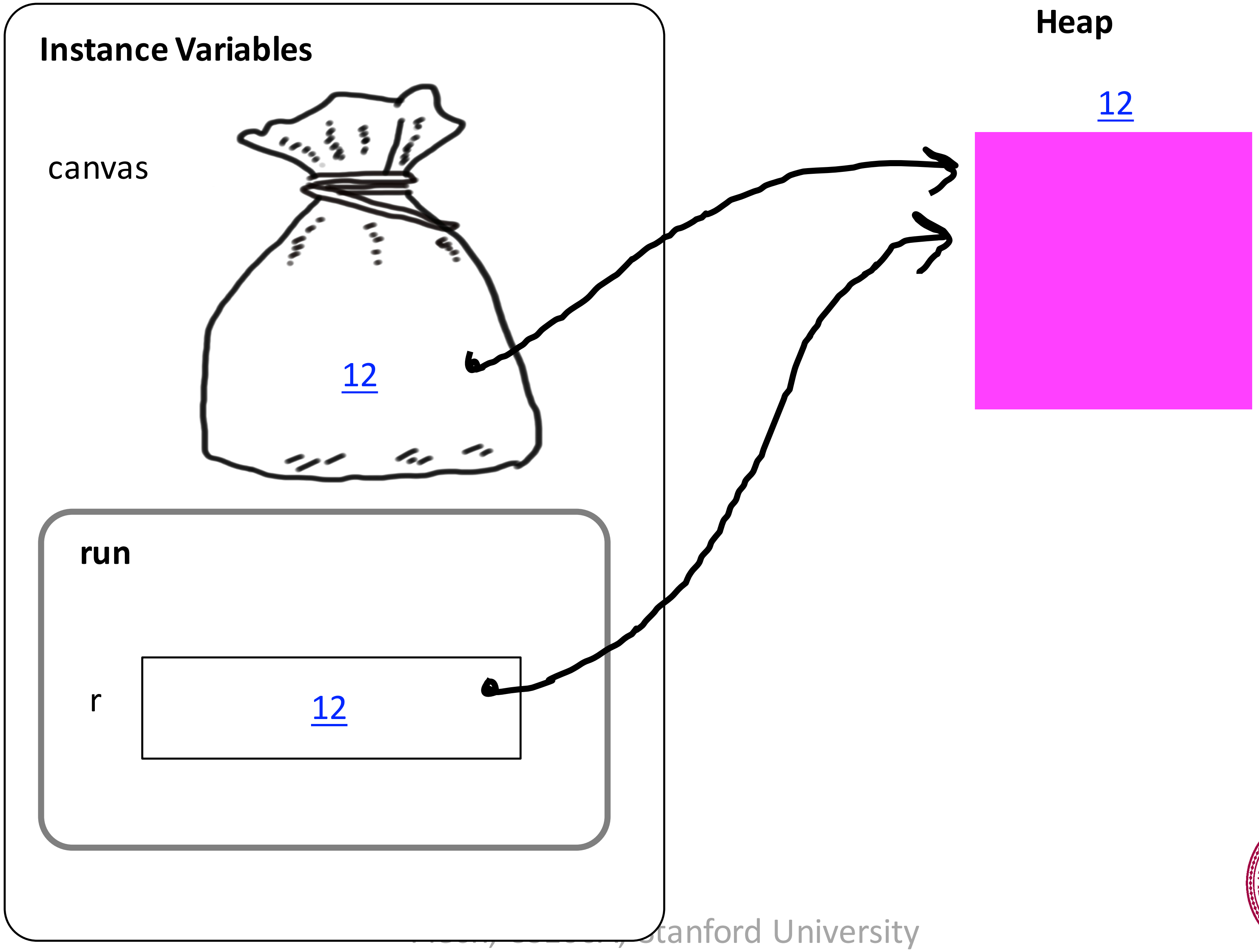
www.memory.com/12



Memory


Instance Variables
canvas
memory.com/12
run
r
www.memory.com/12
Heap
www.memory.com/12

Memory



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public class SimpleRect extends GraphicsProgram {

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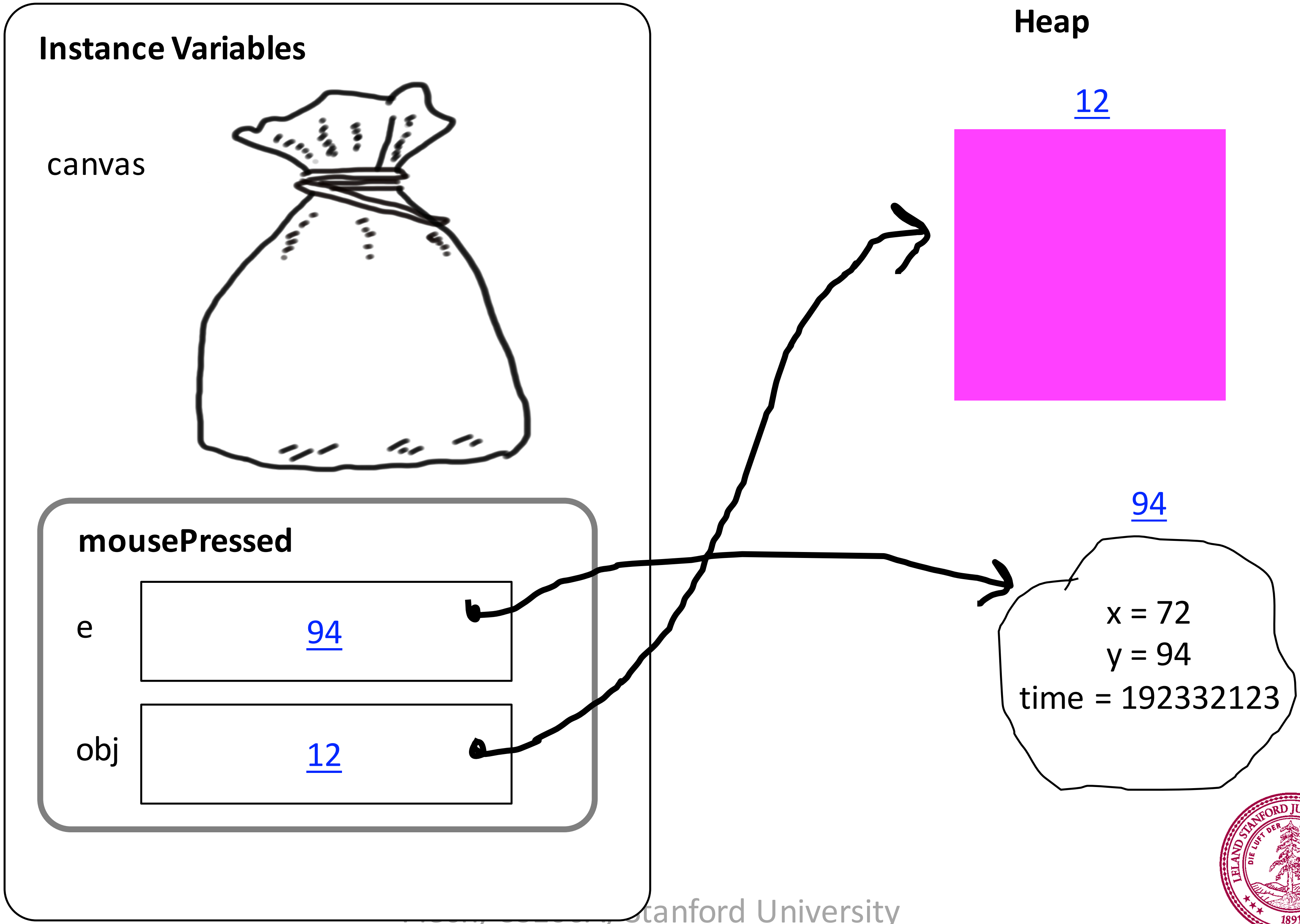
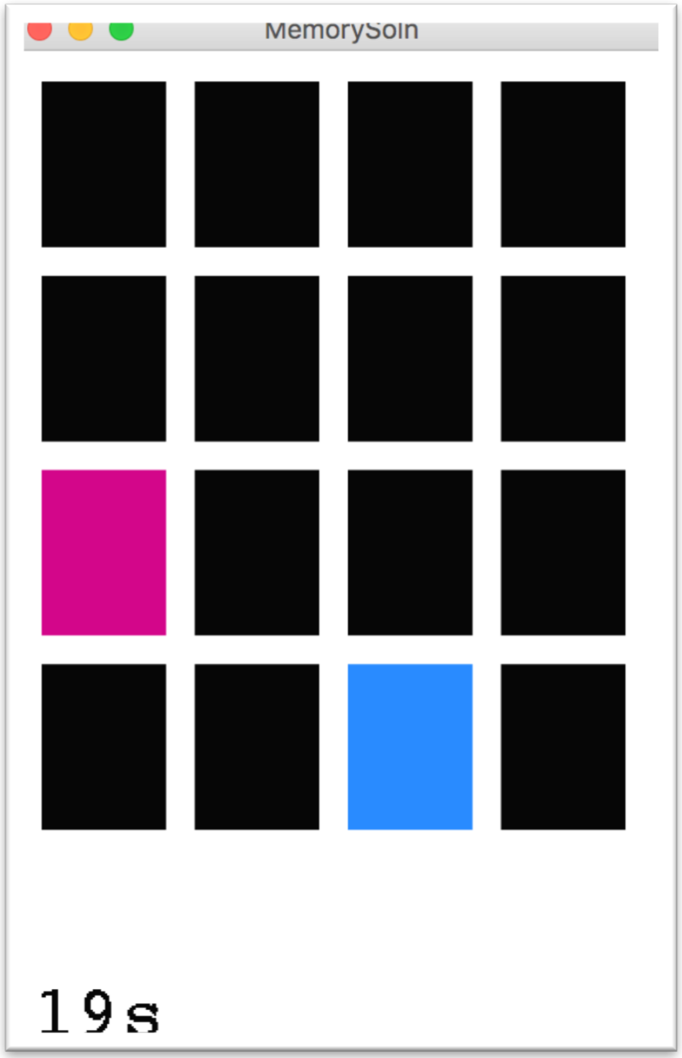
Memory


Instance Variables
canvas
mousePressed
e
94
obj
12
Heap
12
94
x = 72
y = 94
time = 192332123

Finish Up



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