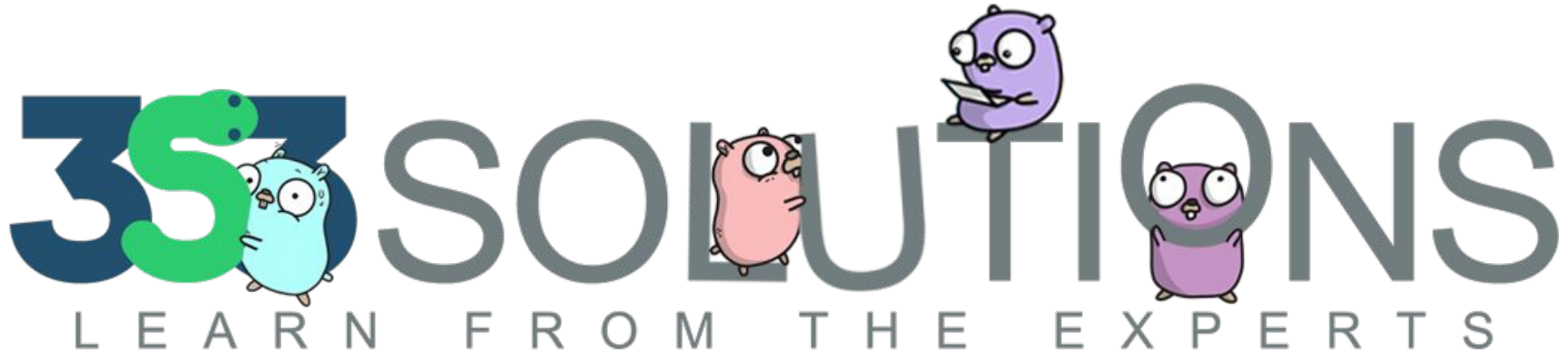


Simulations

For the Mathematically
Challenged

Miki Tebeka



If you can write a
for-loop, you can do
statistics.

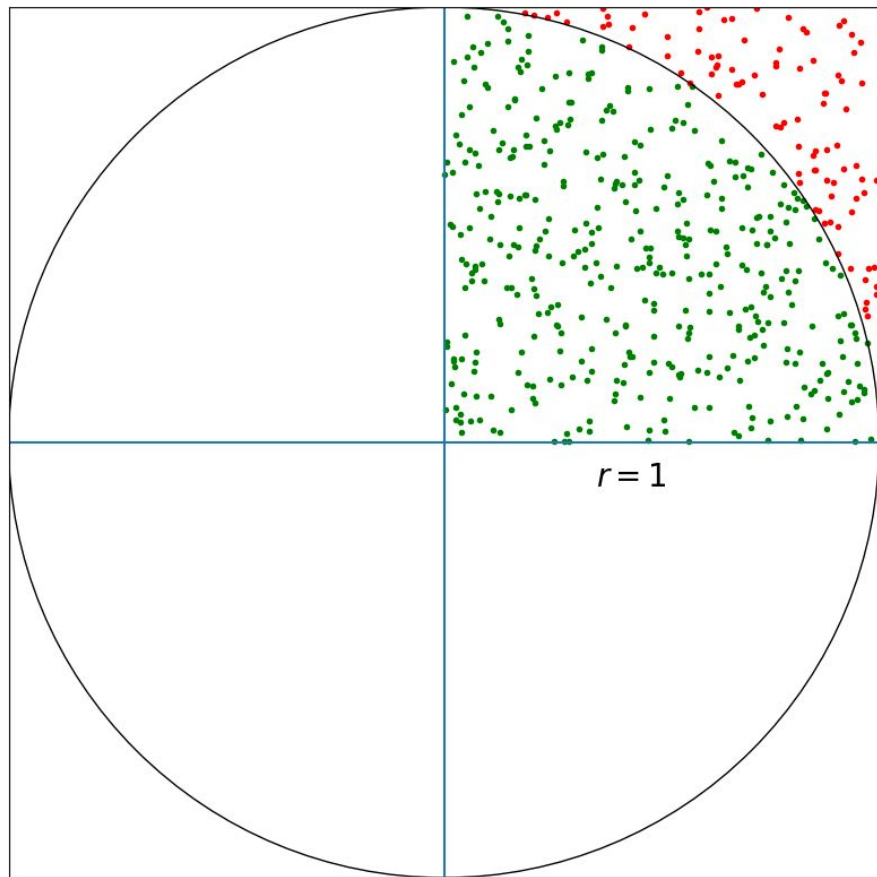
Jake Vanderplas

```
import random
```



CODE

π



CODE

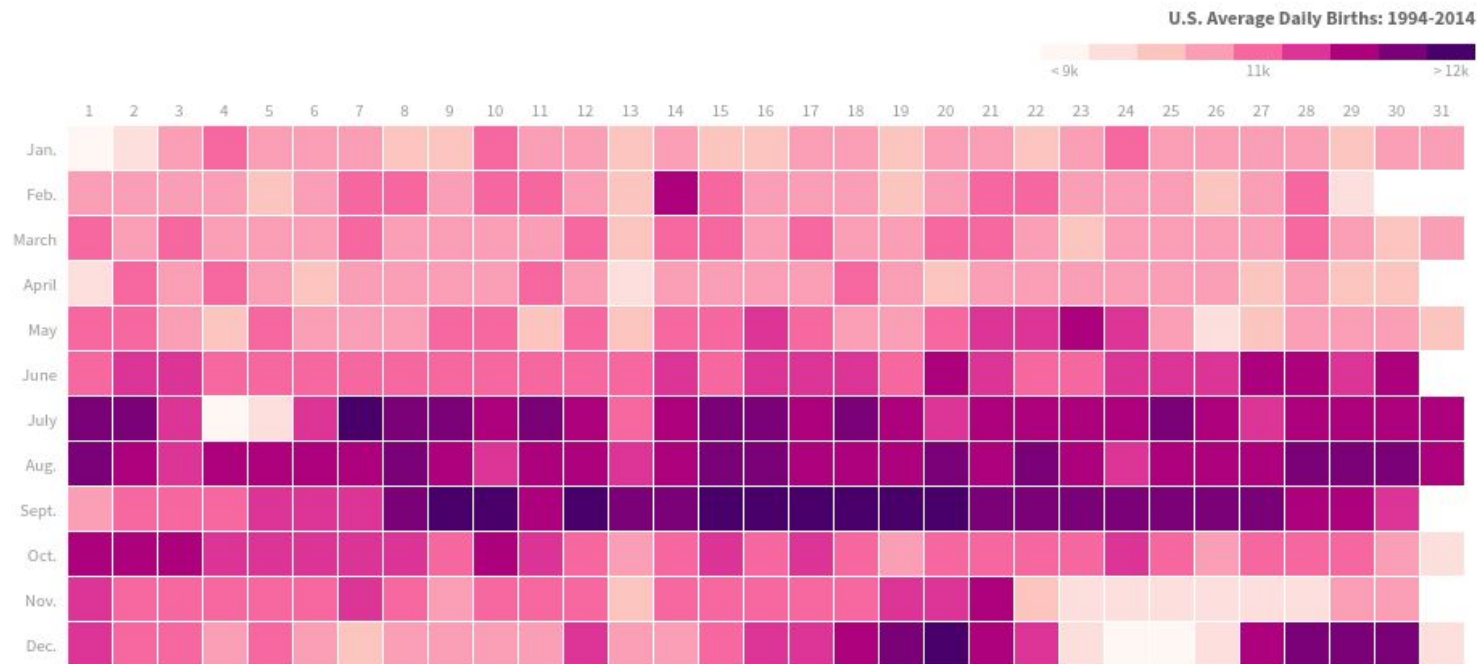


CODE

All models are wrong, but some are useful. - George Box

HOW POPULAR IS YOUR BIRTHDAY?

Two decades of American birthdays, averaged by month and day.



<http://thedailyviz.com/2016/09/17/how-common-is-your-birthday-dailyviz/>

The test of a disease presents a rate of **5% false positives**. The disease strikes **1/1000 of the population**. People are tested at random, regardless of whether they are suspected of having the disease. **A patient's test is positive.** **What is the probability of the patient being stricken with the disease?**

	Predicted Sick	Predicted Healthy
Actual Sick	True Positive	False Negative
Actual Healthy	False Positive	True Negative

CODE



CODE

More?

Statistics for Hackers

- Jake Vanderplas

Monte Carlo Simulation

- Wikipedia

SimPy

- Discrete Simulation



PYPY

```
$ time python pi.py  
... 99% cpu 1:02.23 total  
$ time pypy3 pi.py  
... 98% cpu 4.838 total
```

Thank You



PYTHON BRAIN TEASERS

EXERCISE YOUR MIND

```
1 class Player:
2     # Number of players in the Game
3     count = 0
4
5     def __init__(self, name):
6         self.name = name
7         self.count += 1
8
9
10 p1 = Player('Parzival')
11 print(Player.count)
```

WHAT WILL THIS CODE PRINT?

30 MIND BENDING TEASERS & SOLUTIONS

MIKI TEBEKA