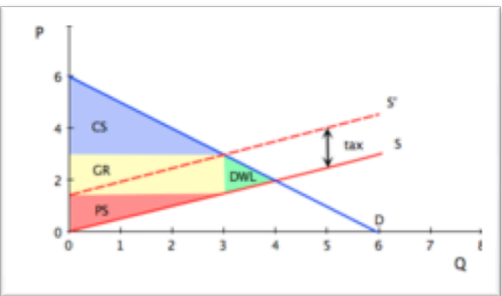


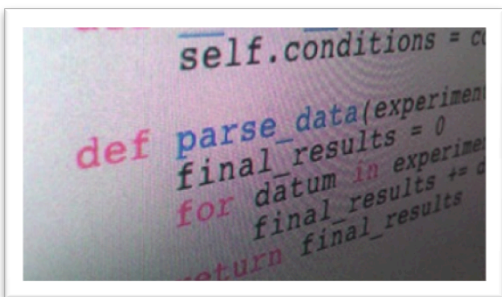
MACHINE LEARNING | STANFORD



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What do MOOCs do well?



Lesson 1: try, try again (then try some more)

RESISTANTVIRUS CLASS

In order to model this effect, we introduce a subclass of `SimpleVirus` called `ResistantVirus`.

`ResistantVirus` maintains the state of a virus particle's drug resistances, and accounts for the inheritance of drug resistance traits to offspring. Implement the `ResistantVirus` class.

```
1 class ResistantVirus(SimpleVirus):
2     """
3     Representation of a virus which can have drug resistance.
4     """
5
6     def __init__(self, maxBirthProb, clearProb, resistances, mutProb):
7         """
```

✓ Correct

Test results

You have used 4 of 30 submissions

CORRECT

[See full output](#)

Show Answer(s)

You have used 4 of 30 submissions



Lesson 2: •

little green checkmarks can be surprisingly addictive

```
from ps8b_precompiled_27 import *
```

```
1 def simulationWithoutDrug(numViruses, maxPop, maxBirthProb, clearProb,
2                             numTrials):
3     """
4     Run the simulation and plot the graph for problem 3 (no drugs are used,
5     viruses do not have any drug resistance).
6     For each of numTrials trial, instantiates a patient, runs a simulation
7     for 300 timesteps, and plots the average virus population size as a
```



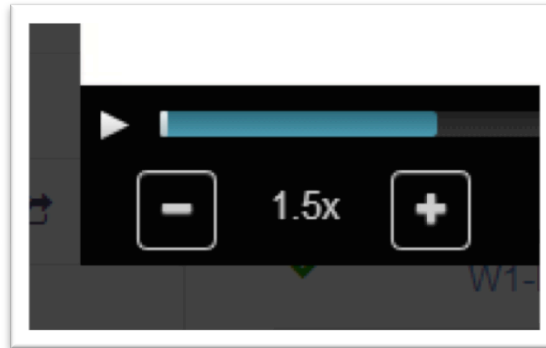
Correct

Lesson 3: streamlined is better

MООСs are more efficient
information delivery systems

✓	W1-L3.3 - Demo of lpython and git init (8:11)	≡ ≡
✓	W1-L3.4 - Developing script (9:33)	≡ ≡
✓	W1-L3.5 - Converting to a module/function (11:33)	≡ ≡
✓	W1-L3.6 - Git checkout (3:44)	≡ ≡
✓	W1-L3.7 - Adding docstrings (4:28)	≡ ≡
➤	Week 2 - Lecture 4: Continued demo of Python and git	
➤	Week 2 - Lecture 5: Python language features	
✓	Week 2 - Lecture 6: NumPy and timing Python code	
✓	W2-L6.1 - NumPy array class for vectors and matrices (9:22)	📄 ≡ ≡
✓	W2-L6.2 - NumPy matrix class (4:11)	≡ ≡
✓	W2-L6.3 - Rank of an array (2:40)	≡ ≡
✓	W2-L6.4 - Linear algebra with NumPy (3:31)	≡ ≡
✓	W2-L6.5 - Numerical integration with NumPy (3:07)	≡ ≡
✓	W2-L6.6 - Lambda functions (1:44)	≡ ≡
✓	W2-L6.7 - Main Program in Python module (7:51)	≡ ≡
✓	W2-L6.8 - Timing execution of Python codes (13:10)	≡ ≡

Lesson 4: go at your own pace (sort of)



Where is there room for improvement?



Feedback is deprived

with autograders, feedback is mostly right-or-wrong.

Submission	
Submission time	Sun-30-Sep 22:59:19
Raw Score	30.00 / 30.00
Feedback	Nice work!

Little creativity in lectures

in-video questions are nice, but
little else is different from
brick-and-mortar lectures

ESTIMATING PI

```
def estPi(precision, numTrials):  
    numNeedles = 1000  
    sDev = precision  
    while sDev >= precision/2.0:  
        curEst, sDev = getEst(numNeedles, numTrials)  
        numNeedles *= 2  
    return curEst
```

normally distributed

95%

results of numTrials is no larger than

precision divided by 2.

Under the valid assumption that the errors are normally distributed--ie, that random.random really is random--

this ensures that 95% of the values lie within precision of the mean.

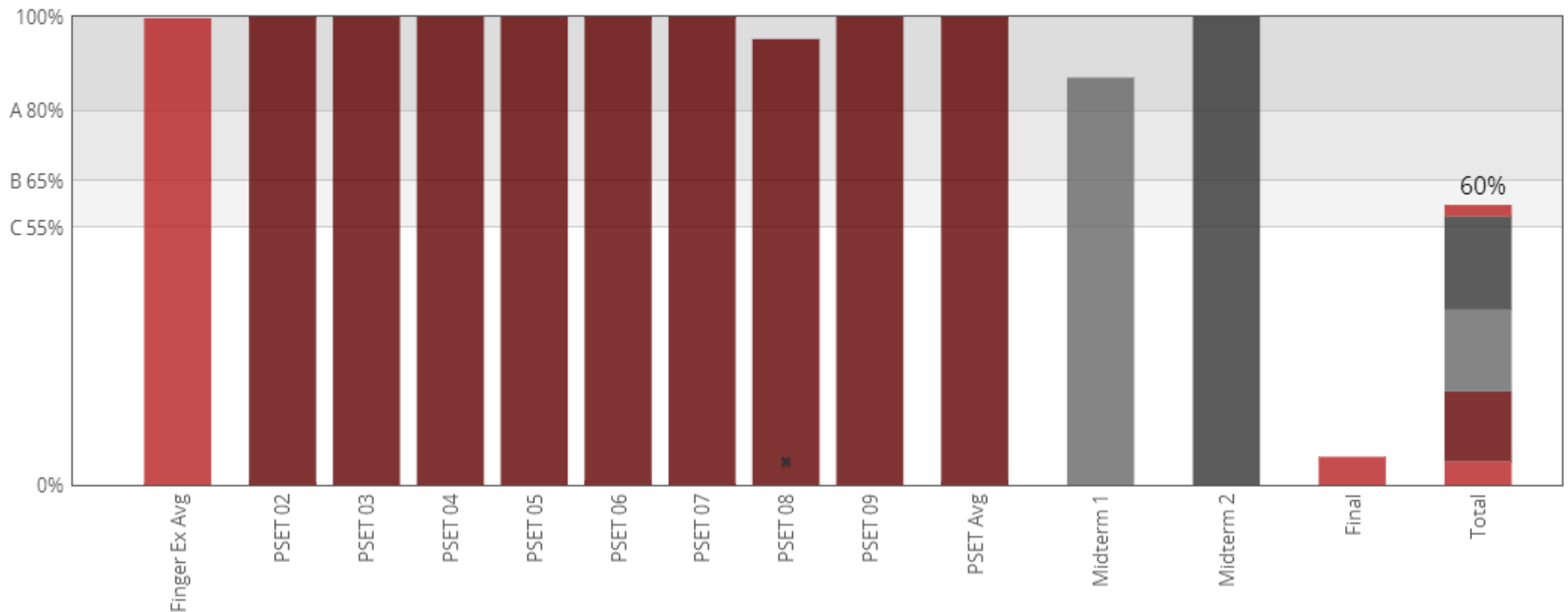
Let's go run this and see what we get.

So it starts off pretty quickly, generating some estimates of pi.

But notice that I'm doubling the number of needles each time, which

Course organization

some course teams may initially struggle to meet the demands of a large audience or their own self-imposed deadlines.



21st century learning

20th century campus

- Renovation
- New Construction
- Capital Renewal Strategies
- Commercial Development Concepts
- Academic Development Opportunity



Campus-Wide Renovations
Multiple Partial Building Renovations
Capital Renewal Projects Throughout Campus (Systems, infrastructure, roofs, elevators, plazas, interior finishes, etc.)

January 5, 2012