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# Python Demos and Intro, and Tips for the Classroom

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# URL of this Presentation

<https://goo.gl/La8P5g>

# Interactive Python Shell

[www.python.org/shell/](http://www.python.org/shell/)

(for trying examples while I demonstrate them)

**Saved for next time...**  
***(can't do it all in one hour!)***

- Math
- if/elif/else
- Functions
- Classes
- Pygame
- Tkinter

# Why Python?

- Free and open-source
- Large support community
- Excellent beginner language, but also very powerful for professionals
- Clean, clear syntax
- Object-oriented (“everything is an object”)
- Cross-platform (Windows, OSX, Linux)
- Dynamically-typed: variables do not need to be predeclared

# Who's Using Python?

- Yahoo, Google [[Google's Python Course](#)], Industrial Light & Magic, Walt Disney, Blender, Jasc (Paint Shop Pro), NRC, Los Alamos National Laboratory, NASA, Red Hat, Nokia, IBM, and lots of others!
- ...according to <https://wiki.python.org/moin/OrganizationsUsingPython>

# Where to Download Python

- <https://www.python.org/>

## Recommended Editor

- Can use the built-in editor (Idle), but I recommend PyCharm Community Edition (free)
- <https://www.jetbrains.com/pycharm/>

# Some Basic Coding Demonstrations

Note: I am using WinPython for the Jupyter Notebook (aka iPython) examples.

<http://winpython.sourceforge.net/>  
<http://jupyter.org/>



# Basic Keyboard I/O Demo:

## 1\_Basic IO.ipynb

on GitHub: <https://goo.gl/mTyFve>

# Lists Demo:

## 2\_Lists & For Loops.ipynb

on GitHub: <https://goo.gl/235AwQ>

# Looping Demo:

## 3\_Looping & Iterating.ipynb

on GitHub: <https://goo.gl/uxKzyc>

# Retrieving a File from the Web Demo: 4\_Reading an Internet File.ipynb

on GitHub: <https://goo.gl/w8re4g>

# String Processing Demo: 5\_Strings.ipynb

on GitHub: <https://goo.gl/lu1cKv>

# How to Read Text Files

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# Reading a File (Line-by-Line)

```
# read in fruit.txt
f = open('fruit.txt', 'r')
lines = f.readlines()
f.close()

# print file
print(lines)

# create fruit list
fruit = []
for line in lines:
    fruit.append(line.strip())

# print fruit list
print(fruit)
```

```
['apple\n', 'orange\n', 'pear\n',
'grape']

['apple', 'orange', 'pear', 'grape']
```

# Reading a File (Entire File)

```
# read in fruit.txt
f = open('fruit.txt', 'r')
file = f.read()
f.close()

# print file
print(file)

# create fruit list
fruit = file.split()

# print fruit list
print(fruit)
```

```
apple
orange
pear
grape

['apple', 'orange', 'pear', 'grape']
```



# My Classroom Resources...

/cont'd

# Tutorials

- CS Circles  
<http://cscircles.cemc.uwaterloo.ca/>
- Google's Python Class  
<https://goo.gl/gkgEXY>
- The New Boston  
<https://goo.gl/qVLEn2>
- Khan Academy Videos  
<https://goo.gl/SQmnXQ>
- Codecademy  
<https://goo.gl/IU97i3>

# Additional Resources

- Visualizer  
[cscircles.cemc.uwaterloo.ca/visualize](http://cscircles.cemc.uwaterloo.ca/visualize)
- Great challenges!  
[www.pythonchallenge.com/](http://www.pythonchallenge.com/)
- More challenges (easier for beginners)  
[projecteuler.net/](http://projecteuler.net/)
- Python Cheatsheet  
[cscircles.cemc.uwaterloo.ca/cheatsheet/](http://cscircles.cemc.uwaterloo.ca/cheatsheet/)

# URL of these resources on GitHub

<https://goo.gl/1m7b2q>

# URL of my CS Circles Presentation

<https://goo.gl/ZEeg1t>

# Questions?

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