What to add next time you are updating these slides

- Update slides to have more animation in the bullet lists
- Verify that each slide has stand alone speaker notes

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PYTHON 3 - WRITING & RUNNING A PROGRAM

A Python class for my Mechatronics Engineering @ SVCTE. Last Updated for 2017 – 2018 school year

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These slides are an adaption, to better target my SVCTE High School Mechatronics Engineering class, primarily from Dr. Charles R. Severance's Python for Everybody class https://www.py4e.com/ … but from other sources as well. See Appendix A

SEE APPENDIX A, FOR LICENSING & ATTRIBUTION INFORMATION

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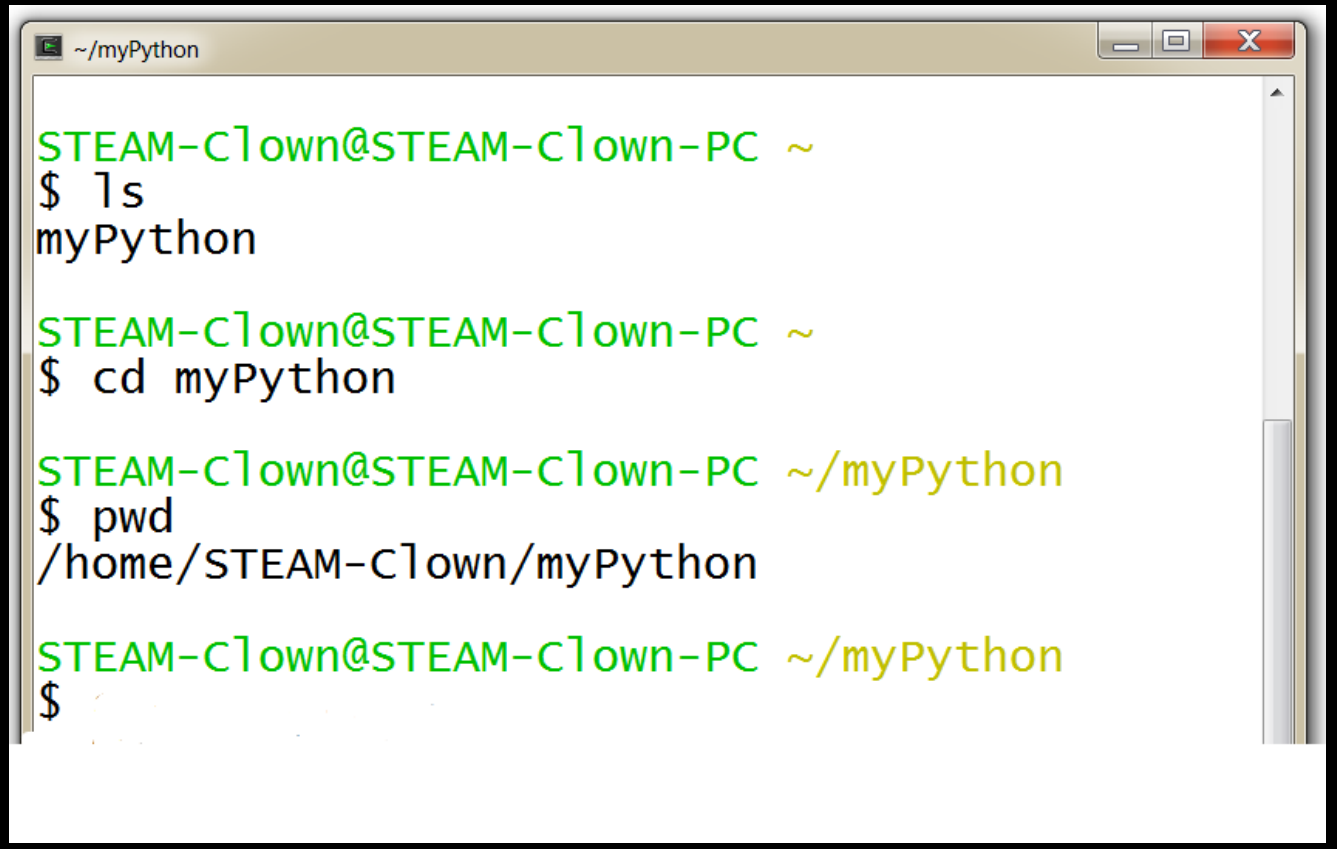
Open a Cygwin terminal

- Open a Cygwin terminal

```
$ ls
$ cd myPython
$ pwd
```

- We are now in your python code directory



Creating a file with cat

- The cat (short for "**concatenate**") command
  - **cat** command allows us to create single or multiple files
  - View contents of a file
  - Concatenate files and redirect output in terminal or files
  - One of the most frequently used command in Linux/Unix

```
$ cat[OPTION][FILE]
```

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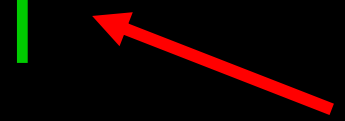
Create a file with cat command

- Open a Cygwin command window
- At the command prompt $ type, then Enter

```
$ cat > hello.py
```



Flashing pipe character

- Opens a text file and levees it open and waiting for input
- The “cursor” is flashing, but not with the “$” prompt
- The cat command is waiting for you to type something

Create a file with cat command

- Type some text like… `# first file… Hello World`

Type the "#" because it will be saved as a python "comment"

```
$ cat > hello.py
 # first file… Hello World
 print("Hello World")
```

- When you are done entering text, press CTRL+D (hold down Ctrl Key and type 'd') to exit.
- The text will be written in hello.py file

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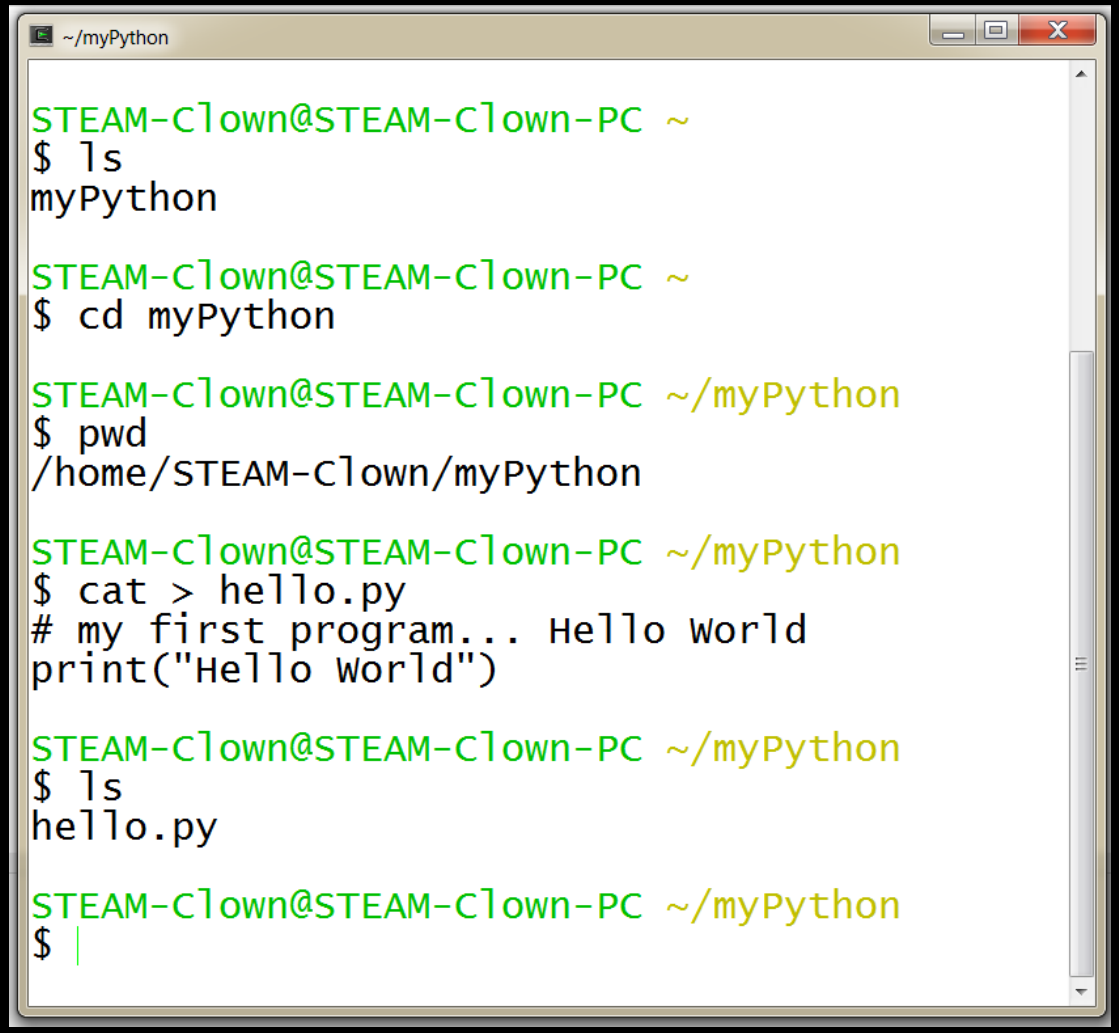
See that the file got witten

- At the command prompt $ type the following

  $ ls

  - Lists the files in the current directory



Echo the content of a file

- Type the cat command with the file name (without the “>”)

```
$ cat hello.py
 # first file… Hello World
 print(“Hello World”)

$
```

```
STEAM-Clown@STEAM-Clown-PC ~/myPython
$ pwd
/home/STEAM-Clown/myPython

STEAM-Clown@STEAM-Clown-PC ~/myPython
$ cat > hello.py
# my first program... Hello World
print("Hello World")

STEAM-Clown@STEAM-Clown-PC ~/myPython
$ cat hello.py
# my first program... Hello World
print("Hello World")

STEAM-Clown@STEAM-Clown-PC ~/myPython
$
```

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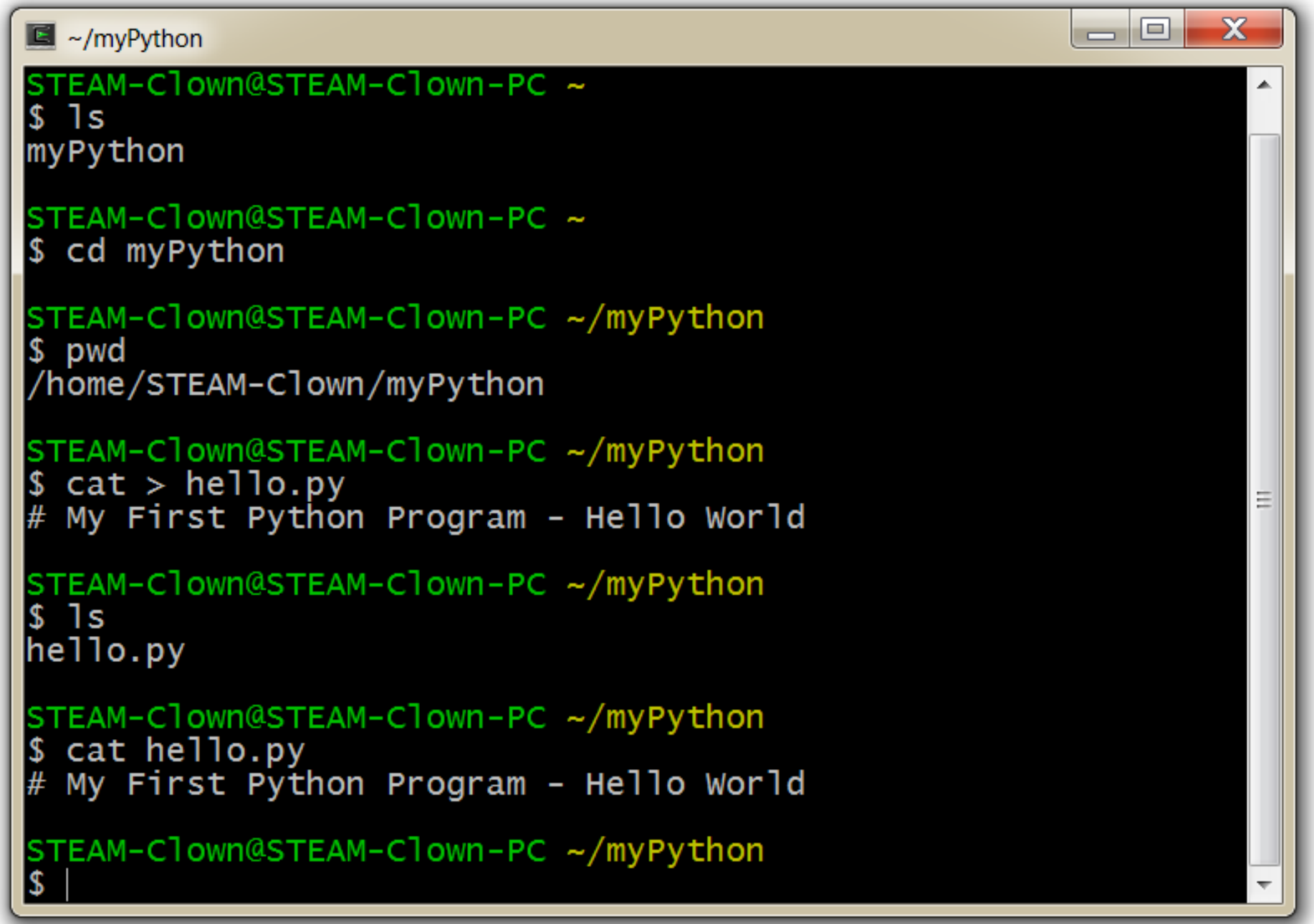

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A FEW MORE BITS OF INFO

- Naming Identifiers
- Coding Style – Indentations

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PYTHON IDENTIFIERS

- A Python identifier is a name used to identify a variable, function, class, module or other object.
- An identifier starts with a letter **A to Z** or **a to z** or an **underscore** (_) followed by zero or more letters, underscores and digits (**0 to 9**)
- Characters not allowed: @, $ and % & other symbols
- Python is a **case sensitive**. Thus, **`bob`** and **`Bob`** are two different identifiers

See PEP on http://legacy.python.org/dev/peps/pep-0008

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CODING STYLE

- **No braces** for block of code (We use indentation instead)
- **Indentation** with similar number of spaces / tabs.

```
if True:
    print "Answer"
    print "True"
else:
    print "Answer"
        print "False"
```

This will
Generate error

VARIABLES

- a = 4 *# Integer*
- b = 5.6 *# Float*
- c = "hello“ *# String*
- a = "4“ *# **rebound** to String*

MATH

+, -, *, /, ** (power), % (modulo)

- a=1+1, where a=2
- a=3-2, where a=1
- a=3*2, where a=6
- a=4/3, where a=1.33333
- a=4//3, where a=1 ← Integer Math, so not reminder
- a=4%3, where a=1 ← this is the reminder, 1/3
- a=3**4, where a=3*3*3*3=81

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SUMMARY

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APPENDIX

Appendix A: License & Attribution

- These slides are an adaption, primarily from Dr. Charles R. Severance's Python for Everybody class
  - https://www.py4e.com/
- Additionally this interpretation is primarily the Intellectual Property of Jim Burnham, Top STEAM Clown, at www.STEAMClown.org contact @ topClown@steamclown.org
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  - Initial Development: Charles Severance, University of Michigan School of Information
  - Modifications and Adaptions by Jim Burnham, Top Clown @ www.steamclown.org
- Another great Python site is Barbara Saurette AKA mechanicalgirl and her Github site
- Additionally used some content from slide deck from Mr Ganesh Bhosale found https://github.com/gdbhosale/python-rpi/blob/master/python1.pdf

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REFERENCE SLIDES

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