Level 1
Lesson 13
GUI/Projects

Review of Last Week's Assignment

1. Inches Converter
2. Grid Project
3. Printing Words Backwards

GUI

- GUI: Short for “Graphic User Interface” which allows a user to interact with a program through buttons and icons
- GUI’s use libraries
  - Tkinter
- Programming is done by handling “events”
  - Event loops will listen for button clicks or keyboard type in order to run code from those “events”

Downloading Python

Go To: python.org

Files

Version	Operating System	Description	MD5 Sum	File Size	GPG
Gzipped source tarball	Source release		02a75015f7cd845e27b85192bb0ca4cb	22897802	SIG
XZ compressed source tarball	Source release		df6ec36011808205beda239c72f947cb	17042320	SIG
macOS 64-bit/32-bit installer	Mac OS X	for Mac OS X 10.6 and later	d8ff07973bc9c009de80c269fd7efcca	34405674	SIG
macOS 64-bit installer	Mac OS X	for OS X 10.9 and later	0fc95e9f6d6b4881f3b499da338a9a80	27766090	SIG
Windows help file	Windows		941b7d6279c0d4060a927a65dcab88c4	8092167	SIG
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64	f81568590bef56e5997e63b434664d58	7025085	SIG
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64	ff258093f0b3953c886192dec9f52763	26140976	SIG
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64	8de2335249d84fe1eeb61ec25858bd82	1362888	SIG
Windows x86 embeddable zip file	Windows		26881045297dc1883a1d61baffeecaf0	6533256	SIG
Windows x86 executable installer	Windows		38156b62c0cbcb03bfddeb86e66c3a0f	25365744	SIG
Windows x86 web-based installer	Windows		1e6c626514b72e21008f8cd53f945f10	1324648	SIG

Chrome books

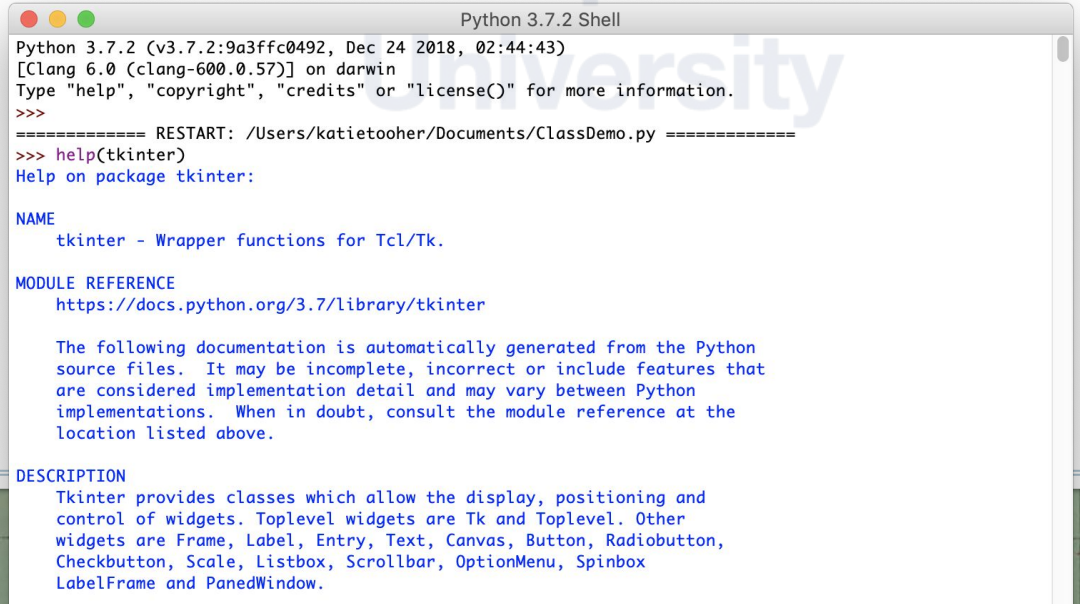
- If you're using a chrome book you will be unable to use the python editor
- Chrome book Users will be using Trinket
  - https://trinket.io/features/pygame
- please have access to an email or have a jdoodle account where you can save your code, this website will only edit, but not save your code

Basics of Tkinter

- Tkinter is a python library we will be using for the final project
  - There are more you can use if you want to try something new
- **Widget** – An element of GUI that displays information or provides a specific way for a user to interact with an application. Examples: button, text, label, image, etc.

Tkinter

- First: if you ever need a reference to a library or built in type in python if you type help(“name of library”) into interactive mode, it will give you the user guide



Tkinter Basics

- Step One: Create a user Window and start the event loop

```
import tkinter

top = tkinter.Tk()

top.mainloop()
```

- Test this in your editor (make a file don't use interactive mode)

Adding Functionality

- Label widgets add text or images to the screen of your user window
  - Label function takes 2 parameters: name of your window and what you want to appear
  - Label(window, action)
- Button Widgets allow a user to click and then execute some function
  - Simple buttons takes 3 parameters, the name of the window, text to display in the button, and the action
  - Button(window, “text”, command = set_quit)

Layout

- To add a label/button/etc to the screen we use what are called Layout Managers
  - pack(), grid(), place()
  - only choose one of these methods per window don't mix them
- Pack() is easiest to use because you don't need to explicitly declare coordinates of where to place an item
  - Or use left, right, etc
- Grid()

Adding Functionality

- Add this code to your window

```
label = tkinter.Label(top, text = "Hello World!")
label.pack()
qbutton = tkinter.Button(top, text = "Quit", command =
set_quit)
qbutton.pack()
```

Code For the Button

- If you run just the code from the last slide the button won't do anything, that's because we need to define the function set_quit
- The code is simple and uses the .destroy() function which will end your gui environment
- Code:

```
#define the quit function
def set_quit():
    top.destroy()
```

Additional functions

- title(“title”) -->function will change the text at the top of your gui
  - top.title(“First GUI”)
- Use geometry() function to change the size of your window or other objects (like buttons) (use with grid layout manager)
  - top.geometry('300x100')

Additional Functions

- Entry() widget allows you to make a text box that will take a user input
  - To get the input we can either use the .get() method or use a class method called StringVar()

```
e = tkinter.Entry(top)

e.pack()
```

Reference Links

Label Documentation: http://effbot.org/tkinterbook/label.htm

Button Documentation: http://effbot.org/tkinterbook/button.htm

More Layout Info:
https://www.python-course.eu/tkinter_layout_management.php

Entry Widget Info: http://effbot.org/tkinterbook/entry.htm

Follow Along: Number Converter

- Here is a link to the test gui code from today, located in the ClassDemo.py file
- The converter code is located in the convert.py file
- Remember when testing to uncomment the last line of the converter to test the second gui

https://github.com/kt3a/GWCPython

Try Some of these out yourself!