STSCI Python Introduction

Class 6
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Today’s Agenda

• Widget Programming Basics
• Application Examples
• A testing technique for GUI Driven Systems
Widget Basics

• Create an instance of a widget
  frame = Frame(master, width=500, height=400, bd=1)

• Pack or use Grid to place it
  frame.pack()
  self.oldpw.grid(row=0, column=1, sticky=W)

Widget Basics
Callback

• Callbacks are functions that are called as the result of an event being generated.
  self.filemenu.add('command', label = 'Exit',
                    command = self.quit)
Simple Calculator

calc1.py
Text Widget

- Example of a Text widget with several embedded objects

A Testing Technique for GUI Driven Systems

- Record and Playback buttons can be attached to our system GUIs.
- A module with objects and methods can be created to easily add record and playback functions.
- The GUI can be bypassed
Why

• Provides easy method to script tests without needing to write scripts.
• Automates the testing of GUIs.
• Operations can use it for a command log or to provide procedures for problems.
• Developers can use it to provide SDN tests.
• Testers can use it for regression testing.

Record and Playback Widgets

• Record On/Off Button – recordHandler callback
• Playback On/Off Button – startPlayback callback
• Playback slider bar – sets control variable playSpeed
Record and Playback Features

- Capture initial conditions at time of recording and write to a log file.
- Record commands and the delta time from the last recorded event to a log file.
- Set initial conditions on starting playback.
- Playback commands from the log file at a rate controllable by a slider bar.

Record and Playback Object Data

- recording -- recording on/off flag
- delta – delta time from last GUI command
- recordLast – Last time a command recorded
- playback – playback on/off flag
- playTime – time at start of a playback cmd
- line – the current line for playback from the log file
- playSpeed – speed multiplier from slider bar
Record Methods

- recordHandler – Handler called when record button pushed, opens log file.
- setInit – creates a data dictionary capturing the state of the GUI at the time of recording.
- Record – records command, initialization, and delta
- recordWrite – determines delta and calls Record to write to the log

Playback Methods

- startPlayback – callback for playback button
- playInit – initializes GUI/system to state at the time of recording
- getTagString – returns the log line command, initialization string, or time delta
- play – executes command after delta*playSpeed
Possible Additional Features

- Put record and playback buttons and slider in menu or pulldown menu.
- Add entry field for test environment setup script to run.
- Add entry field for naming the log file to be recorded.
- Add entry field for selecting log file to playback.
- Add entry field for baseline directory.
- Add listbox for files to save and compare against baseline.