Python Odds & Ends

Dec 2, 2015
Today

• Web Interaction and Forms
• Graphical User Interfaces
• Final Project Workshop
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Basic Web Interaction, ~1995

http://www.weather.com/pvd

<HTML>
   <HEAD>
   ...
   </HEAD>
   ...
   </HTML>

Check out the latest on rain and snow with local radar updated every 30 minutes! Go to a state and choose local radar for a city.

Pick : U.S. State  Go state
Basic Web Interaction, 2015

http://www.google.com/...

<HTML>
<SCRIPT>
  javascript program here, which is executed
</SCRIPT>
<HEAD>
  Google Results
</HEAD>
<BODY>
  Text, text, text, text
</BODY>
</HTML>
Interaction Through Forms

http://www.azlyrics.com/

Welcome to AZLyrics!

It's a place where all searches end!

We have a large, legal, every day growing universe of lyrics where stars of all genres and ages shine.

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Fancier web Interaction


<HTML>
<HEAD>
  Paul Simon Graceland
</HEAD>
<BODY>
  Song results:
  [1-1 of 1 total songs found]
  1. **Graceland** by **PAUL SIMON**
  The Mississippi Delta was shining
  Like a National guitar
  I am following the river
  On the road, I'm going to **Graceland**
  In Memphis, Tennessee
  I'm going to **Graceland**
  My traveling...
</BODY>
</HTML>
“Inspect Element” on the search box on www.azlyrics.com

Look at the call to “search.azlyrics.com”
– With input parameter “q” being the song name
Details

• “Inspect Element” on the search box on www.azlyrics.com

• Look at the call to “search.azlyrics.com”
  – With input parameter “q” being the song name
import urllib.parse
import urllib.request

url = 'http://search.azlyrics.com/search.php?'
params = {'q':'Paul Simon Graceland'}

paramsEncode = urllib.parse.urlencode(params)

remoteFile = urllib.request.urlopen(url + paramsEncode)
contents = remoteFile.read()
remoteFile.close()
Results!

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>AZLyrics - Search</title>
</head>

<b>Song results:</b>
<small>[1-1 of 1 total <span class="text-lowercase">Songs</span> found]</small>
<ol class="text-left visitedlyr">
<li><a href="http://www.azlyrics.com/lyrics/paulsimon/graceland.html">Graceland</a> by <b>PAUL SIMON</b>
<br>The Mississippi Delta was shining
Like a National guitar ...

Which is displayed as...
Results!

Song results:
[1-1 of 1 total songs found]

1. *Graceland* by PAUL SIMON
The Mississippi Delta was shining Like a National guitar I am following the river Down I'm going to *Graceland* Graceland In Memphis Tennessee I'm going to Graceland Are going to *Graceland* My traveling …

*OK, now we grab the song using the link to it*
Method

• Use *lxml* or equivalent to transform the string you read into an “XML Tree” and...
  – Use an *xpath* to grab the piece you want
  – Or grab a specific node, and then walk around its children

• Tougher for simple cases, really helpful for complex ones

• You can do this (*Lecture 3-3*)
Today

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Graphical User Interfaces

• This is the way most of us *interact* with the computer
  – Windows containing text forms and buttons
  – Dialog boxes

• Not good for everything:
  – Say you want to convert files from PPT to PDF
    • But you have 10000 of them
    • Better make a Python program, right?

• But great for most cases
easygui

• Python module for... well... easy... GUIs

• To install on the MacOS
  – Open your “Terminal”
    • “sudo easy_install easygui”

• To install on Windows
  – Open your “Command Prompt”
    • “cd \Python27\Lib\site-packages
    • “.\easy_install easygui”
Basic Boxes

from easygui import *

# Message Box
msgbox("Hello World!")

# Enter Box
message = "Please give me any input"
title = "Title"
something = enterbox(message, title)

# Password Box
message = "Please give me your password"
title = "Title"
password = passwordbox(message, title)
Basic Boxes

Hello World!

Please give me any input

Please give me your password

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A Fancier Way to Select Files

# File Box
message = "Please select a file"
title = "Title"

filetypes = ["*.txt", "*.htm", "*.html"]
filename = fileopenbox(message, title, "*", filetypes)

print(filename)
A Fancier Way to Select Files
Choices & Questions

# Choice Box
choices = ['Yes', 'No', 'It's kind of ugly']
reply = choicebox("Do you like easygui?", choices=choices)
print(reply)

# Continue/Cancel Box
message = "Do you want to continue?"
title = "Please Confirm"
if ccbox(message, title):
    print("Do actions for continue")
else:
    print("Do actions for cancel")
Choices & Questions
User Input Forms

```python
message = "Enter your personal information"
title = "Credit Card Application"
fieldNames = ["Name","Street Address","City","State","ZipCode"]
fieldValues = []
fieldValues = multenterbox(message ,title, fieldNames)

print("Here are the captured fields:", fieldValues)
```
User Input Forms

![Credit Card Application Form]

Enter your personal information

Name
Street Address
City
State
ZipCode

[OK] [Cancel]
User Input Forms

message = "Enter your personal information"
title = "Credit Card Application"
fieldNames = ["Name","Street Address","City","State","ZipCode"]
fieldValues = []
fieldValues = multenterbox(message ,title, fieldNames)

print "Here are the captured fields:", fieldValues

But we still have to validate the data!
message = "Enter your personal information"
title = "Credit Card Application"
fieldNames = ["Name","Street Address","City","State","ZipCode"]
fieldValues = []
fieldValues = multenterbox(message ,title, fieldNames)

# Keep asking for things until all the fields have been filled
if fieldValues == None:
    done = True
else:
    done = False

while not done:
    # Check for empty fields
    someIsEmpty = False
    for i in range(len(fieldNames)):
        if fieldValues[i].strip() == ":
            someIsEmpty = True
    if someIsEmpty:
        fieldValues = multenterbox("Please fill all fields",
                                  title, fieldNames, fieldValues)
        if fieldValues == None:
            done = True
        else:
            done = True
    Print("Here are the captured fields:", fieldValues)
There are *so many* alternatives...

- Other GUI modules
  - PyGUI
  - WxPython
  - PyQt

- Some GUI modules use “native” windows from your operating system
  - That is, they look exactly as you’d expect