

Midterm Practice

The following task combines notions from Lab 3, Lab 7, Lecture 13, Lecture 14, etc.

Tasks

- Write a Python module named *cgiUtils* (in a file named `cgiUtils.py`). The module should contain one Python class named *WebPage*, which will be used to **generate an HTML page** when run from a Python (CGI) program. In the *WebPage* class, write the *constructor* method, and *three* additional methods:
 - The constructor method needs to accept an argument named *pTitle*. Its value needs to be stored in an instance variable, and will be used to provide a title to the generated HTML page.
 - Name a second method *header*. This method should generate the *header of the HTML page*. In the *header* method, print out one line (as per Lecture 14 notes, pages 15-16) containing a standard "Content-type" line for text-based HTML content, then the opening HTML tag, the complete HEAD and TITLE tags, and then the opening BODY tag.
For the correct page title, use the object's *title instance variable* defined in the constructor method — *not* the "First CGI" title used in the *hello.cgi* Lecture 14 notes example at page 15.
 - Name a third method *footer*. This method should print out the closing BODY and HTML tags for the web page.
 - Name a fourth method *table*. This method should accept an argument named *pElements*. The *table* method should print an HTML table with four columns (for an example, see the HTML table printed in the Lab 3 task) using standard TABLE, TR, TD tags.
The first row in the printed HTML table will display the content of the first list passed in *pElements*; the second row in the HTML table will display the content of the second list in *pElements*, etc.
For example, if the passed *pElements* list of list contains:

```
[["Stock", "Date", "Time", "Value"], ["GOOG", "3/5/2014", "4:00pm", "123.45"],
["AMZN", "3/5/2014", "4:00pm", "234.56"], ["MSFT", "3/5/2014", "4:00pm",
"345.66"], ["EBAY", "3/5/2014", "4:00pm", "456.78"]]
```

then the generated HTML table should look something like this:

Stock	Date	Time	Value
GOOG	3/5/2014	4:00pm	123.45
AMZN	3/5/2014	4:00pm	234.56
MSFT	3/5/2014	4:00pm	345.66
EBAY	3/5/2014	4:00pm	456.78

- To use the *WebPage* class and the *cgiUtils* module you just wrote, write a program named *midtermPractice.py*:
 - Your *midtermPractice.py* Python program is going to be tested as a CGI script, therefore the first line of your program needs to be:

```
#!/usr/bin/env python
```
 - In your program, import the module `cgiUtils` you wrote, instantiate *one object* based on the

WebPage class, then call its *header* method.

Using the Python module `tradeUtils` from Lab 7, or the Last Trades solution from Lecture 13, retrieve the last trade value for these four stocks: "GOOG", "AMZN", "MSFT", and "EBAY", as well as the related dates and times for those stock values.

3. Place the data collected at the step above into a list of lists, for the *pElements* argument necessary for the *table* method in your WebPage class. Invoke your page object's *table* method with this list, so that the HTML table gets generated.
4. Call the your page object's *footer* method.
3. Within your account on silo, test your program thus:
 1. move the "*midtermPractice.py*" program to the `~/cgi-pub/` directory and rename it to "*midtermPractice.cgi*".
 2. Then, in a web browser window, go to the following URL address to verify that your CGI program is now accessible to the world (use your own username, not the word "username" in the address):

`http://cgi.soic.indiana.edu/~username/midtermPractice.cgi`