CMPSCI 120 Fall 2018
Lab #3
Professor William T. Verts

Logging in and Renaming Files

As you did in the previous assignments, log in to the UNIX server. Change into the `public_html` directory and create a new folder called `cgi-bin`, setting its permissions as shown below:

1. **`cd public_html`** (Change into the Web nest)
2. **`mkdir cgi-bin`** (Create a folder for scripts)
3. **`chmod a+rx cgi-bin`** (Set permissions)
4. **`ls -al`** (View the files)

At this point you should see two files inside public_html, one called `cmpsci120` and the other called `cgi-bin`, both with the permissions set to **`rwxr-xr-x`**. The folder `cgi-bin` is a folder with a special name where we will store the `burgers.cgi` file.

Creating the Python Script

Change into the `cgi-bin` folder.

Using emacs, create the `burgers.cgi` file that you see on the next two pages by typing it in exactly as you see it (do not attempt to copy-paste out of this assignment document, as it is very likely that the lines and indentation will be completely messed up when copying out of the `.PDF` document into a Python program in emacs).

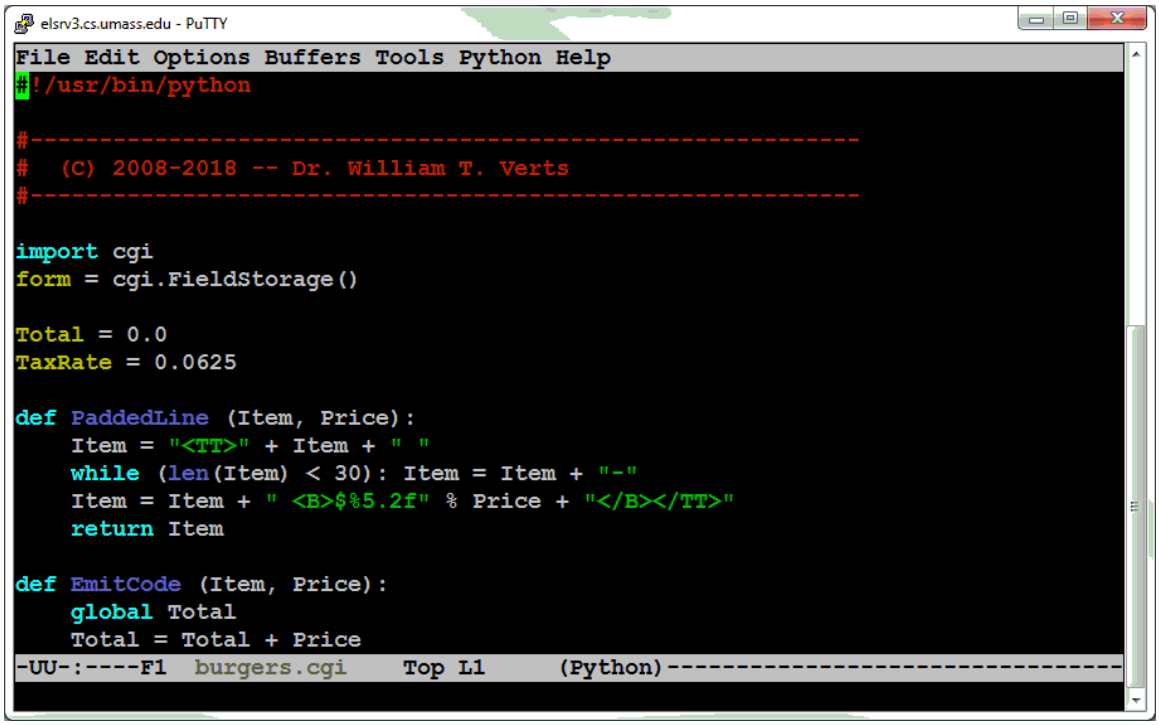
Replace the two occurrences of Dr. Bill's with **your own name** (one is in the `<TITLE>...</TITLE>` line and the other is in the `<H1>...</H1>` line). Be very careful to NOT modify any other text in the Python program, and don't change any of the prices! When you are done editing the text, exit emacs with Ctrl x Ctrl c.

Set the permissions on `burgers.cgi` to **`rwxr-xr-x`** using the `chmod` command.

```
#!/usr/bin/python

#------------------------------------------------------------
#  (C) 2008-2018 -- Dr. William T. Verts
#------------------------------------------------------------

import cgi
form = cgi.FieldStorage()

Total = 0.0
TaxRate = 0.0625

def PaddedLine (Item, Price):
    Item = "<TT>" + Item + " "
    while (len(Item) < 30): Item = Item + "-"
    Item = Item + " <B>$%5.2f" % Price + "</B></TT>"
    return Item

def EmitCode (Item, Price):
    global Total
    Total = Total + Price
    print "        <LI>" + PaddedLine(Item, Price) + "</LI>"
    return

#------------------------------------------------------------

print "Content-type: text/html\n"
print ""
print "<!DOCTYPE html>"
print ""
print "<HTML>"
print "    <HEAD>"
print "        <TITLE>Dr. Bill's On-Line Restaurant</TITLE>"
print ""
print '        <STYLE TYPE="text/css">'
print "            BODY {background-color:#00FFFF}"
print "        </STYLE>"
print "    </HEAD>"
print ""
print "    <BODY>"
print "        <H1>Dr. Bill's Restaurant</H1>"
print "        <OL>"

#------------------------------------------------------------

if form.has_key("Sandwich"):
    Sandwich = form["Sandwich"].value.upper()
    if   (Sandwich == "HAMBURGER"): Price = 0.99
    elif (Sandwich == "CHICKENBURGER"): Price = 1.29
    elif (Sandwich == "FISHBURGER"): Price = 1.79
    else: Price = 0
    EmitCode(Sandwich, Price)

if form.has_key("Cheese"): EmitCode("EXTRA Cheese", 0.25)
if form.has_key("Guacamole"): EmitCode("EXTRA Guacamole", 0.40)
if form.has_key("Lettuce"): EmitCode("Lettuce", 0)
if form.has_key("Tomatoes"): EmitCode("Tomatoes", 0)
```

```
if form.has_key("Pickles"): EmitCode("Pickles", 0)
if form.has_key("Onions"): EmitCode("Onions", 0)
if form.has_key("Mustard"): EmitCode("Mustard", 0)
if form.has_key("Ketchup"): EmitCode("Ketchup", 0)

if form.has_key("Drink"):
    Drink = form["Drink"].value.upper()
    if   (Drink == "COLA"): Price = 0.79
    elif (Drink == "TEA"): Price = 1.19
    elif (Drink == "COFFEE"): Price = 1.29
    else: Price = 0
    EmitCode(Drink, Price)

if form.has_key("Sides"):
    Sides = form["Sides"].value.upper()
    if   (Sides == "FRIES"): Price = 0.59
    elif (Sides == "ONION RINGS"): Price = 0.99
    elif (Sides == "COLE SLAW"): Price = 0.49
    elif (Sides == "SALAD"): Price = 1.29
    else: Price = 0
    EmitCode(Sides, Price)

#-------------------------------------------------------------

Taxes = Total * TaxRate
YouPay = Total + Taxes

print "        </OL>"
print "        <BR>"
print "        <BR>"
print "        " + PaddedLine("YOUR TOTAL IS", Total) + "<BR>"
print "        " + PaddedLine("MEAL TAX", Taxes) + "<BR>"
print "        " + PaddedLine("YOU PAY", YouPay) + "<BR>"
print "    </BODY>"
print "</HTML>"
```

Pay close attention to the color syntax high-lighting provided by emacs – this can be an excellent mechanism for detecting syntax errors in your code. Here is a screenshot showing the top of the file. Notice that comments are red, quoted strings are green, Python keywords are cyan, local variables are gray, and global variables are yellowish. Let these colors guide you as you debug your program.



Quick Test

Once you are back in UNIX, inside the `cgi-bin` folder, you can test the script manually by typing `burgers.cgi` at the command line. You should get an immediate response that looks like the following (with your name instead of mine):

```
Content-type: text/html

<!DOCTYPE html>

<HTML>
    <HEAD>
        <TITLE>Dr. Bill's On-Line Restaurant</TITLE>

        <STYLE TYPE="text/css">
            BODY {background-color:#00FFFF}
        </STYLE>
    </HEAD>

    <BODY>
        <H1>Dr. Bill's Restaurant</H1>
        <OL>
        </OL>
        <BR>
        <BR>
        <TT>YOUR TOTAL IS ------------ <B>$ 0.00</B></TT><BR>
        <TT>MEAL TAX ----------------- <B>$ 0.00</B></TT><BR>
        <TT>YOU PAY ------------------ <B>$ 0.00</B></TT><BR>
    </BODY>
</HTML>
```

If you do not get this immediate response, you should check things like file permissions, whether the `burgers.cgi` file exists, whether you are in the correct folder, etc. When the script is activated by our Web form, it will return a page containing a lot more code, which will be rendered on screen as a direct response to us clicking the "submit" button.

Adding the Form Code to index.html

In the previous assignment, we used a page called `index.html`, which itself contained the code from an even earlier assignment.

Change up and over into the `cmpsci120` folder (using the `cd` command) and start to edit that default page with the emacs text editor. If you start up emacs and get a blank screen you are likely not in the correct folder.

Position the insertion point between the `</FORM>` tag from Factorial and the `</BODY>` tag in the existing page and hit Enter↵ a couple of times to open up some blank space (***do not delete*** any of the previous code). Be very careful to put your new code in the correct place! It must go ***after*** the `</FORM>` tag from the Factorial assignment but ***before*** the `</BODY>` tag.

Type in the following code, exactly as you see it here, including the `<HR>` tag. You must replace the blank in the `FORM` tag with your own username and also replace the blank in the `<H1>` tag with your personal name (not mine).

```
<HR>

<FORM METHOD="POST"
      ACTION="http://elsrv3.cs.umass.edu/~_____/cgi-bin/burgers.cgi">
    <INPUT TYPE="reset"  VALUE="Reset All">
    <INPUT TYPE="submit" VALUE="Submit Your Order"><BR>

    <H1 STYLE="text-align:left">_____'s On-Line Restaurant</H1>

    <TABLE BORDER>
        <TR>
            <TD VALIGN="TOP">
                <H2>Sandwich</H2>
                <INPUT TYPE="radio" NAME="Sandwich"
                       VALUE="Hamburger" CHECKED>Hamburger<BR>
                <INPUT TYPE="radio" NAME="Sandwich"
                       VALUE="Chickenburger">Chickenburger<BR>
                <INPUT TYPE="radio" NAME="Sandwich"
                       VALUE="Fishburger">Fishburger<BR>
            </TD>

            <TD VALIGN="TOP">
                <H2>Extras</H2>
                <INPUT TYPE="checkbox" NAME="Cheese"   >Cheese (Extra)<BR>
                <INPUT TYPE="checkbox" NAME="Guacamole">Guacamole (Extra)<BR>
                <INPUT TYPE="checkbox" NAME="Lettuce"  >Lettuce<BR>
                <INPUT TYPE="checkbox" NAME="Tomatoes" >Tomatoes<BR>
                <INPUT TYPE="checkbox" NAME="Pickles"  >Pickles<BR>
                <INPUT TYPE="checkbox" NAME="Onions"   >Onions<BR>
                <INPUT TYPE="checkbox" NAME="Mustard"  >Mustard<BR>
                <INPUT TYPE="checkbox" NAME="Ketchup"  >Ketchup<BR>
            </TD>
```

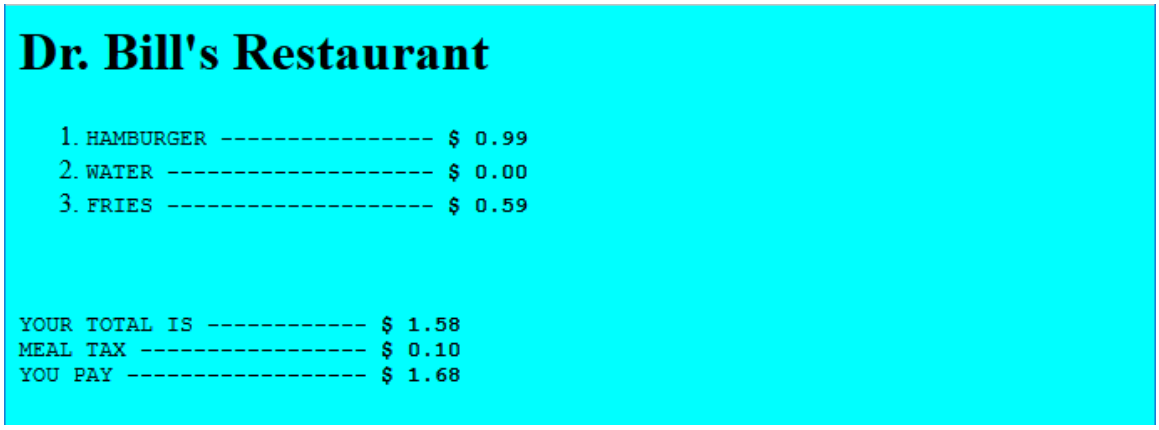
```
            <TD VALIGN="TOP">
                <H2>Drink</H2>
                <INPUT TYPE="radio" NAME="Drink"
                       VALUE="Water" CHECKED>Water (Free)<BR>
                <INPUT TYPE="radio" NAME="Drink"
                       VALUE="Cola">Cola<BR>
                <INPUT TYPE="radio" NAME="Drink"
                       VALUE="Tea">Iced Tea<BR>
                <INPUT TYPE="radio" NAME="Drink"
                       VALUE="Coffee">Coffee<BR>
            </TD>

            <TD VALIGN="TOP">
                <H2>Side</H2>
                <INPUT TYPE="radio" NAME="Sides"
                       VALUE="Fries" CHECKED>Fries<BR>
                <INPUT TYPE="radio" NAME="Sides"
                       VALUE="Onion Rings" >Onion Rings<BR>
                <INPUT TYPE="radio" NAME="Sides"
                       VALUE="Cole Slaw">Cole Slaw<BR>
                <INPUT TYPE="radio" NAME="Sides"
                       VALUE="Salad">Salad<BR>
            </TD>
        </TR>
    </TABLE>
</FORM>
```

Save your changes and exit emacs with Ctrl x Ctrl c.

Testing

Point your browser at your regular home page. You should see the "Dr. Bill" button from the first assignment, the factorial code from the next assignment, a horizontal rule, and the stuff from this assignment, as shown (normally the "Factorial" button will be hidden):

When you select any of the given options and click the Submit Your Order button, you should get a response screen. Here is the screen you should see for the default settings (hamburger, water, fries):



Test your scripts by clicking on the various meal options, then submitting the form. You should get appropriate prices for each of the options.

NOTE: Due to security issues, we do <u>not</u> have permission to run these scripts from off-campus. You MUST try this from an on-campus browser! We have had difficulties in the past running scripts from OIT wireless access points on campus, but those issues should be resolved. Let me know if there are problems.

<u>If You Get Stuck</u>

If you miss any of the instructions, you may need to go back and fix certain things. Possible problems include omitting certain file permissions, or copying files into the wrong place. Please email me or the TA if you need help.

If you cannot get your Python script to run, or you suspect a problem with your HTML, temporarily change the `ACTION=` section of the `FORM` tag to use my test username (`test1201`) instead of your own username. This will help you debug your code. However, **you will lose points** if you leave in the link to my page instead of changing it back to yours.

The Final Modifications

I now want to include a **Turkeyburger**, costing $2.19, to the sandwich menu, and **relish** (free), to the extras menu.

Modify the two documents appropriately.

Make sure everything works correctly. Test, test, test!

And, for goodness sake, please make sure that food words are spelled correctly! For example, it's "sandwich" and not "sandwhich" or "sandwitch"! Your code won't work if you use the wrong words!

What To Turn In

When your pages are correct and visible on the Web, and ready for us to grade, send an email message to the **`literacy@cs.umass.edu`** account. The subject line must be set to the exact phrase **CMPSCI 120 ASSIGNMENT #3** and the body of the message must contain your name, your username, and your fully specified URL.