Project 4

Due February 27, 2015 at 11:55 PM

You will be working alone for this project. **This specification may change at any time for additional clarification.** You should avoid using existing source code as a primer that is currently available on the Internet. You **must** specify in your comments of the file any sources of code that you have viewed to help you complete this project. All class projects will be submitted to MOSS to determine if students have excessively collaborated. Excessive collaboration, or failure to list external code sources will result in the matter being transferred to Student Judicial Affairs.

1. You will be writing a Python module to handle the output of the HTML. The module must use the OutputFile class from the project4_outputfile module in order to output the HTML to a file. The version provided on the smartsite prints to the screen, we will be testing with a version that will write it to an actual file. Your module must implement a class called HTMLOutputFile and must be able to be loaded as both a module and run as a standalone script. Below is a further description of the requirements of the module. Name your file **htmloutputfile.py**.

   a. Place a comment at the top of your file as follows:
   ```
   #
   # Name: Your Name
   # ID  : Your Student ID
   # Date: Today's Date
   #
   ```
   b. The HTMLOutputFile class must have a function called ClearAll that takes no parameters and clears out all information of the added elements. For example if MyHTMLOutputFile is a HTMLOutputFile, then
   ```
   MyHTMLOutputFile.ClearAll()
   ```
   Must clear out all elements in the HTMLOutputFile. The title must be set to empty string.

   c. The HTMLOutputFile class must have a function called SetTitle that takes in one parameter that must be a string. If the parameter is not a string, SetTitle must return False. If the parameter is a string the title will be replaced with the parameter and return True.

   d. The HTMLOutputFile class must have functions called AddHeading1, AddHeading2, and AddHeading3 that takes in one parameter that must be a string. If the parameter is not a string, the functions must return False. If the parameter is a string the appropriate heading type will be added to the HTMLOutputFile and the function will return True. If the HTMLOutputFile is in a paragraph when a heading is added, the paragraph ends, and the heading is output.

e. The HTMLOutputFile class must have functions called AddBold, AddItalic, and AddText that takes in one parameter that must be a string, integer, or float. If the parameter is not a string, integer, or float, the function must return False. If the parameter is a string, integer, or float, the appropriate type of text (bold, italic, or plain) will be added to the HTMLOutputFile and the function will return True.

f. The HTMLOutputFile class must have a function called AddTable that takes in one parameter that must be a list. If the parameter is not a list, the function must return False. If the parameter is a list of strings, integers, or floats, the list is considered a single row table. If the parameter is a list of lists, each list inside the outer list is considered a row and each element inside the list is a column. If the parameter is a list, the function must return True. The HTMLOutputFile must make a copy of the lists, so that if they are modified externally, they do not modify the one in the HTMLOutputFile. If the HTMLOutputFile is in a paragraph when a table is added, the paragraph ends, and the table is output.

g. The HTMLOutputFile class must have a function called BeginNewParagraph that ends a paragraph if the paragraph is started.

h. The HTMLOutputFile class must have a function called SaveToFile that takes in one parameter that must be a string. If the parameter is not a string, the function must return False. If the function fails to open the file with OutputFile then function must return False. The HTMLOutputFile must output the elements that were added to the HTMLOutputFile.

i. Additional functions **may** be added to the HTMLOutputFile class that the student finds useful. **(THIS IS NOT A REQUIREMENT)**

j. If the module is run as a script it must prompt the user to create a HTML file. It provides options to add the elements, and save them to file. The end of this specification has an example run of the output for the program. Below is what the menu must look like:

```
C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection>
```

k. If the module is loaded as a module, the menu must not be shown. The HTMLOutputFile class must be available to the importing module/script. A tester has been provided to test the module.

Below is a sample running of the module as a script.

```
C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> c

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> t
Enter Title> My Title

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> 1
Enter Heading> Heading 1

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> 2
Enter Heading> Heading 2
```

```
C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> 3
Enter Heading> Heading 3

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> b
Enter Bold Text> Bold Text

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> i
Enter Italic Text> Italic Text

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> p
Enter Text> Plain Text

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> n
Added new paragraph

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> p
Enter Text> New Paragraph!

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> s
Enter rows, separate columns with ';', end table with empty line.
Enter row> Cell_0_0;Cell_0_1;Cell_0_2
Enter row> Cell_1_0;Cell_1_1;Cell_1_2
Enter row> Cell_2_0;Cell_2_1;Cell_2_2
Enter row>

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
```

```
S Start table
O Output to file
Q Quit
----------------
Enter Selection> o
Enter Filename> MyHtml.html
Opening file "MyHtml.html"!
<HTML>
<HEAD>
<TITLE>My Title</TITLE>
</HEAD>
<BODY>
<H1>Heading 1</H1>
<H2>Heading 2</H2>
<H3>Heading 3</H3>
<P>
<B>Bold Text</B><I>Italic Text</I>Plain Text</P>
<P>
New Paragraph!</P>
<TABLE>
<TBODY>
<TR><TD>Cell_0_0</TD><TD>Cell_0_1</TD><TD>Cell_0_2</TD></TR>
<TR><TD>Cell_1_0</TD><TD>Cell_1_1</TD><TD>Cell_1_2</TD></TR>
<TR><TD>Cell_2_0</TD><TD>Cell_2_1</TD><TD>Cell_2_2</TD></TR>
</TBODY>
</TABLE>
</BODY>
</HTML>
Closing file "MyHtml.html"!

C Clear
T Title
1 Heading 1
2 Heading 2
3 Heading 3
B Bold
I Italics
P Plain text
N New paragraph
S Start table
O Output to file
Q Quit
----------------
Enter Selection> q
```

Below is the expected output of the project4_tester.py if the module is correctly implemented.

```
Opening file "MyOutput.html"!
<HTML>
<HEAD>
<TITLE>My Title 2</TITLE>
</HEAD>
<BODY>
<H1>Heading 1</H1>
<P>
<B>100</B><B> Bold String </B><B>2.0</B></P>
<H2>Heading 2</H2>
<P>
<I>200</I><I> Italic String </I><I>3.0</I></P>
<H3>Heading 3</H3>
<P>
250 Plain String 4.0</P>
<TABLE>
<TBODY>
<TR><TD>Cell 1</TD><TD>Cell 2</TD><TD>Cell 3</TD></TR>
</TBODY>
</TABLE>
<TABLE>
<TBODY>
<TR><TD>Cell 1,1</TD><TD>Cell 1,2</TD><TD>Cell 1,3</TD></TR>
<TR><TD>Cell 2,1</TD><TD>Cell 2,2</TD><TD>Cell 2,3</TD></TR>
<TR><TD>Cell 3,1</TD><TD>Cell 3,2</TD><TD>Cell 3,3</TD></TR>
</TBODY>
</TABLE>
</BODY>
</HTML>
Closing file "MyOutput.html"!
```