Project #3 – Text To HTML Converter

Course	INFO-1156 Object-Oriented Programming in C++
Professor	Janice Manning, Lynn Koudsi
Assigned	Sunday, July 4, 2021
Due	Monday, July 19, 2021 by 11:59 pm
Weight	5%
Student Name	

Project Description

Create a C++ application that converts a text file into a format more appropriate for use in a webpage, smart-phone, or e-book reader. Specifically, this program converts an UTF-8 text file to an .html containing the same textual content as the original UTF-8 text file.

Note: If the input file has two or more newlines in a row, the same number of <br> tags should be written to the output file. If the input file has only one newline, no <br> tag should be written to the output file.

The executable file must be named: **txt2html.exe**
The program will operate as a command-line utility (*not a console input program*).

An Example – txt2html.exe Story.txt Story.html

Below is an UTF-8 text file named "Story.txt" converted to "Story.html". Note that ↵ represents an <Enter> in the text.

Story.txt	Story.html

<pre>Are These Aliens Martians?↵
↵
↵
an adaptation↵
↵
The men from Earth stared at the aliens. ↵
The little green men had pointed heads and↵
orange toes with one long curly hair on each toe. ↵
↵
H. G. Wells' novel The War of the Worlds (1898) ↵
has had an extraordinary influence on science fiction. ↵
Wells' Martians are a technologically advanced species↵
with an ancient civilization. They somewhat resemble↵
cephalopods, with large, bulky brown bodies and↵
sixteen snake-like tentacles, in two groups of eight, ↵
around a quivering V-shaped mouth; they move around in↵
100 feet tall tripod fighting-machines they assemble↵
upon landing, killing everything in their path. ↵
↵
↵
↵
by your name↵
↵</pre>
	<pre><html>
	<head>
	<title>Story</title>
	</head>
	<body>
	Are These Aliens Martians?
	
	an adaptation
	
	The men from Earth stared at the aliens.
	The little green men had pointed heads and
	orange toes with one long curly hair on each toe.
	
	H. G. Wells' novel The War of the Worlds (1898)
	has had an extraordinary influence on science fiction.
	Wells' Martians are a technologically advanced species
	with an ancient civilization. They somewhat resemble
	cephalopods, with large, bulky brown bodies and
	sixteen snake-like tentacles, in two groups of eight,
	around a quivering V-shaped mouth; they move around in
	100 feet tall tripod fighting-machines they assemble
	upon landing, killing everything in their path.
	
	by your name
	
	</body>
	</html></pre>

Program Interface
The program could have any of the following command-line interfaces:

```
txt2html.exe Story.txt
txt2html.exe [-r(-b|-p)] Story.txt
txt2html.exe Story.txt [-r(b|p)]
```
or
```
txt2html.exe Story.txt Story.html
txt2html.exe [-r(-b|-p)] Story.txt Story.html
txt2html.exe Story.txt [-r(-b|-p)] Story.html
txt2html.exe Story.txt Story.html [-r(-b|-p)]
```

Notes:
- It is an error if the .html file is before the .txt file. If the file order is incorrect, report an error and exit.
- If no .html file is provided, create an output file object with the same name portion as the input filename. The name portion is the part that precedes the file extension (e.g. the name portion of hello.txt is "hello").

Switches
- If the user provides "-r", print a report (described in the next section).
- If the user provides "-b", read the text file in binary mode (or untranslated mode). Recall, in translated mode, Windows translates \r + \n as \n, one character. In untranslated mode, Unix does not translate and reads both \r and \n as two characters.
- If the user provides "-p", enclose paragraphs in paragraph tags <p></p>.

Note: It is an error if both "-b" and "-p" are provided. If both switches are provided, report error and exit.

Report
If "-r" is provided, display a report that displays:
- The number of complete lines read from the input file, as indicated by the translated newline character.
- The number of paragraphs, indicated by <br> tags

If "-r" and "-p", display a report that displays:
- The number of complete lines read from the input file, as indicated by the translated newline character.
- If "-p" is provided, the number of paragraphs, indicated by <p></p> tags

If "-r" and "-b" are provided, display a report that displays:
- The number of complete lines read from the input file, as indicated by the untranslated newline character
- The number of paragraphs, indicated by <br> tags

Grading Criteria

Easy   Medium   Hard

Functional Requirements	Weight	Grade
Input Validation		
Reports and exits if input file is missing	2%	
Reports and exits if both -b and -p switches are present	5%	
Reports and exits if input file is not entered before .html file	5%	
Reports and exits if a provided output file name is invalid	5%	
Reports and exits if invalid input or incorrect number of parameters is entered	5%	
File Objects Creation		
Creates an input file object in either read or binary mode with a name given as an argument on the command line	5%	
Creates an output file object in write mode with same name portion as the input filename.	5%	
Creates an output file object in write mode with a name given as an argument on the command line.	5%	
Reports and exits if input file or output file is bad and cannot be opened	3%	
HTML Formatting		
Correct **<html>**, **<head>** and **<body>** tags appropriately placed	5%	
<title> tag uses input filename (without extension) as page title.	5%	
Full contents of the source file copied.	5%	
Newlines within paragraphs are stripped	5%	
Correct number of ** ** replace newlines	10%	
Switch Processing		
Implements -b switch • Input file is created and processed in binary mode • Counts the number of untranslated newlines and paragraphs	10%	
Implements -p switch • Paragraphs are enclosed in tags • Counts the number of newlines and paragraph tags	15%	
Implements -r switch • Reports the number of newlines and paragraphs processed	5%	
Non-functional requirements		
See **Projects** folder for guidelines for submission and code/comment style: • *C & C++ Submission Guide V1.2.0* • *C & C++ Grading Guide v2.3.0* Penalties for: • Code/comment style • Submission requirements (vsclean) • Executable program not named 'txt2html.exe' • Late submission (-10% per day up to 5 days late)	-5%/issue	
Total	**100%**	**100%**

Submission Requirements

1. Submit **entire Visual Studio project directory** to FOL Submissions folder
   a. Delete *all* debug and release directories, using vsclean
   b. Submit in a .ZIP, .7z archive file.