

Project #3 – Book Cipher

Course	INFO-1156 Object-Oriented Programming in C++
Professor	Garth Santor, Lianne Wong, and Janice Manning
Assigned	March 9 th 2020
Due	March 26 th 2020 @ 11:59pm
Weight	6%
Student Name	

Project Description

Create two C++ command line console applications; one that encodes a text message using a book cipher, and another that decodes the message coded by the previous program.

Program Interfaces

The encoder should have the following command-line interface:

```
bce.exe bookfile messagefile codedfile
```

The decoder should have the following command-line interface:

```
bcd.exe bookfile codedfile messagefile
```

Where:

- `bookfile` is the name of the ASCII text file containing the book used to encode/decode the message.
- `messagefile` is the name of the ASCII text file containing the message to be encoded
- `codedfile` is the name of the ASCII text file containing the offset numbers

Encoding rules

Encode each character of the source file by replacing it with three numbers, the first representing the page in the book (zero-based), the second representing the line in the book (zero-based), and the third representing the column to that character in that line (also zero-based). Any method of choosing which location to use is acceptable so long as the same location isn't used repeatedly.

At the end of running `bce`, a `codedfile` is created with locations.

At the end of running `bcd`, a `messagefile` is created with the codedfile.

The encoded file must be a file of the exact offsets of the message file.

Book file:

```
Now is the winter of our discontent\nMade glorious summer by this sun of York;\n\nfAnd all the clouds that lour'd upon our house\n
```

In the deep bosom of the ocean buried\n
Message file:

Make me noodles

Possible coded file:

0,1,0 1,0,4 1,2,15 1,1,35 1,1,30 1,1,16 1,0,10 1,0,39 0,0,30 1,1,15 0,1,10 1,0,2
0,1,6 1,2,22 1,0,17

Note:

Lines are delimited by the newline character ‘\n’
Pages are delimited by the form-feed character ‘\f’

Encoding background

To read more about encoding messages using the book cipher see:

https://en.wikipedia.org/wiki/Book_cipher

In this program, you are encoding letters, not the words. The encoded file will store the number in text.

bctest.exe

‘bctest.exe’ is a program that can perform some tests on your encoder and decoder programs. The test program should be placed into the same folder as your executable files. If your programs are properly called ‘bce.exe’ and ‘bcd.exe’ the test program will automatically execute your programs at appropriate times during the test.

Grading Criteria

BCTEST results		
Validate programs test (correct names)	10%	10%
T1 – internal test	20%	20%
T2 – single char test	10%	10%
T3 – alphabet test	10%	10%
T4 – full character test	10%	10%
T5 – unique index test	10%	10%
T6 – correct offsets	10%	10%
T7 – missing character test	10%	10%
Bad filename test	10%	10%
Non-functional requirements		
Penalties from <i>C & C++ Grading Guide v2.2.0</i>	Various	
Late submission <ul style="list-style-type: none">One to five days lateMore than five days late	-10%/day -100%	
Total	100%	100%

Submission

1. Submit **entire Visual Studio project directory** to Fanshawe Online

- a. Delete ***all*** debug and release directories.ⁱ
- b. Submit in a .ZIP, .7z archive file.

ⁱ Alternatively, you can ‘clean’ your project for submission by downloading ‘vsclean’ a Visual Studio Solution Cleaner from www.gats.ca .