

Assignment 5 – Buffered I/O

Description:

This program is a C program designed to copy a certain number of bytes from a given file. After receiving and counting bytes, the program opens the file and reads data into the buffer.

Approach:

Before working with any of the functions, I should be more careful about what I choose for `b_fcb` struct to make sure I open the right file in the right way.

For the `b_open` function, the program initializes an FCB using `GetFileInfo` and `b_getFCB`, creating a buffer of `B_CHUNK_SIZE` with position and bytes set to zero. It's stored in `fcbArray`, and the file descriptor will return.

In `b_read`, the data will be read by buffer, check the file size and end of the file. This process includes looping to read requested bytes, using `memcpy` to copy data, then update positions in the buffer. The function calls `LBaread` only if it needs to avoid unnecessary reads.

With `b_close`, the buffer gets free, and the file information will be set to null.

Issues and Resolutions:

Issue 1: I ran the code with “make run”, but it didn't print out the text. It didn't print out the given expected result. It printed out

```
“gcc -c -o b_io.o b_io.c -g -I.
```

```
gcc -o Kim_Junyoung_HW5_main b_io.o buffer-main.o -g -I.
```

```
./Kim_Junyoung_HW5_main DATA DecOfInd.txt CommonSense.txt”
```

and the file name. I wrote a code to check and there was “File not found: BadFileName.bad” as an extra line of result.

Resolution : It shows I fail to locate a file with `GetFileInfo()`. It shows my program can't find the correct file. So, I re-wrote the file with clearer structure variable name, which helped me to have more understanding of my code, so I could check if every code is working the way I want. It worked, but I still haven't figured out what was I doing wrong in the first try.

Analysis:

N/A

Screenshot of compilation:

```
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$ make clean
rm b_io.o Kim_Junyoung_HW5_main
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$ make
gcc -c -o b_io.o b_io.c -g -I.
gcc -o Kim_Junyoung_HW5_main b_io.o buffer-main.o -g -I.
```

Screen shot(s) of the execution of the program:

```
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$ make clean
rm b_io.o Kim_Junyoung_HW5_main
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$ make
gcc -c -o b_io.o b_io.c -g -I.
gcc -o Kim_Junyoung_HW5_main b_io.o buffer-main.o -g -I.
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$ make run
./Kim_Junyoung_HW5_main DATA DecOfInd.txt CommonSense.txt
The unanimous Declaration of the thirteen united States of America, When in th
Perhaps the sentiments contained in the following pages, are not yet
sufficiently f
e Course of human events, it becomes necessary for one p
ashionable to procure then general favor; a long habit
of not thinking
eople to dissolve the political bands which have connected them with
a thing wrong, gives it a superficial appearan
another, and to assume among the powers of the earth, t
Ce of
being right, and raises at first a formidable outcry in defense of
custom. But t
he separate and equal station to which the Laws of Nature and of Nature's God _ntitl
he submit soon subsides. Time makes more converts
e t_en, a decent respect to the opinions of mankind require
then
reason.
As a long and violent abuse of power, is ge
s that they should declare the causes which impel them to the separation.
He hold the
nerally the Means of calling
the right of it in question (and in matters too which
se truths to be self-evident, that all men are created equal, that they are endowed
I have a dream that one day even the state of Mississippi, a desert state, sweltering with the heat of injustice and oppression, will be transformed into an oasis of freedom and justice.
I have a dream that my four children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character.
I have a dream today.
I have a dream that one day the state of Alabama, whose governor's lips are presently dripping with the words of interposition and nullification, will be transformed into a situation where little black bo
ys and black girls will be able to join hands with little white boys a
might never have
been thought brotherhood.
I have a dream that one day even the state of Mississippi, a desert state, sweltering with the heat of injustice and oppression, will be transformed into an oasis of freedom and justice.
I have a dream that my four children will one day live in a nation where they will not be judged by the color of their skin but by the content of their character.
I have a dream today.
I have a dream that one day the state of Alabama, whose governor's lips are presently dripping with the words of interposition and nullification, will be transformed into a situation where little black bo
ys and black girls will be able to join hands with
nd white girls and walk together as sisters and bro
little white boys and white girls and walk together as sisters and brothers.
I have
thers.
I have a dream today.
I have a dream that one day every valley shall be
a dream today.
I have a dream that one day every valley
exalted, every hill and mountain shall be made low, the rough
shall be exalted, every hill and mountain shall be ma
places will be made plain, and the crooked places will be made s
de low, the rough places will be made plain.
```

```
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$ make run
./Kim_Junyoung_HW5_main DATA DecOfInd.txt CommonSense.txt
, of the benefits of Trial by Jury:
For
transporting us beyond Seas to be tried
For pretended offences
For abolishing the free System of E
nglish Laws in a neighbouring Province,
establishing therein an Arbitrary government, and enlarging l
ts boundaries so as to render it at once an example and fit instrum
ent for introducing the same absolute rule into these Colonies:
For tak
ing away our Charters, abolishing our most valuable Laws, and al
tering fundamentally the Forms of our Governments:
For suspending our
own Legislatures, and declaring themselves invested with power to legisla
te for us in all cases whatsoever.
He has abdicated Government here, by declaring us out
of his Protection and waging War against us.
He has plunde
red our seas, ravaged our Coasts, burnt our towns, and destroyed the lives of our people
.
He is at this time transporting large Armies of foreign Merc
enaries to complete the works of death, desolat
ion and tyranny, already begun with circumstances of Cruelty & perfidy scarcely par
alleled in the most barbarous ages, and total
ly unworthy the Head of a civilized nation.
He has constrained our fellow Citizens to
ken Captive on the high Seas to bear Arms against their Country, to become the executio
ners of their friends and Brethren, or to fall themselves by t
heir Hands.
He has excited domestic Insurre
ctions amongst us, and has endeavoured to bring on the t
nhabitants of our frontiers, the merciless Indian Savages, whose known rule of wa
rfare, is an undistinguished destruction of al
l ages, sexes and conditions.
In every stage of these oppressions We have Petitioned f
or Redress in the most humble terms: Our repeated Petitions have been answered
only by repeated injury. A Prince whose character is thus marked by every act which n
ay define a Tyrant, is unfit to be the ruler of a free p
eople.
Nor have We been wanting in attentions to our British brethren. We
have warned them from time to time of attempts by the
We have read 8120 characters from file DecOfInd.txt
7 characters from file CommonSense.txt
student@student:~/Documents/csc415-assignment-5-buffered-io-coder-j-0090$
```