Description: In this program we build the BufferedIO further by adding a b write function using system call APIs and handles buffered IO. The b write takes a file descriptor, a buffer and the number of bytes to be written. It also only writes in 512 bytes of chunks at a time by copying from the caller's buffer to my own buffer. The return value from this function is the number of bytes transferred from the caller's buffer. In the b write function first we initialize the buffer and check if the file descriptor is within 0 and (MAXFCBS-1). The function accepts the data and the number of bytes provided and using the Linux System Calls, buffers the data in 512 byte chunks and writes in the same chunk size too. First we check that our buffer and count doesn't exceed the chunk size given. Then we copy these number of bytes into our buffer. Then we adjust the buffer length and its index to set the number of bytes copied. If our buffer is nearly full but not completely, then the number of bytes to copy is divided into parts and the same actions are performed sequentially. But if our buffer is completely full, then we write to file in the given chunk size i.e 512 bytes. Now, if our buffer and count exceed the chunk size given, then we directly copy the first part into our buffer and directly write to the file in 512 bytes. Then we calculate the bytes remaining after first write and the next write amount. Again we write to file directly from the caller's buffer in blocks*512 bytes. Now again, we calculate the remaining bytes after this second write. Finally we return the number of characters actually written. The remaining parts of the code are same as in the assignment 2 because we are only adding b_write function to write our buffer into a separate file and that is Clean.txt.

Compilation and Execution:

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■ assignment-5-buffered-io-write-developer-soni — devsoni@Devs-MacB...

[(base) → assignment-5-buffered-io-write-developer-soni git:(main) × make

gcc -c -o soni_dev_HW5_main.o soni_dev_HW5_main.c -g -I.

gcc -o soni_dev_HW5_main soni_dev_HW5_main.o b_io.o -g -I.

(base) → assignment-5-buffered-io-write-developer-soni git:(main) ×

gcc -c -o soni_dev_HW5_main.o soni_dev_HW5_main.c -g -I.

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

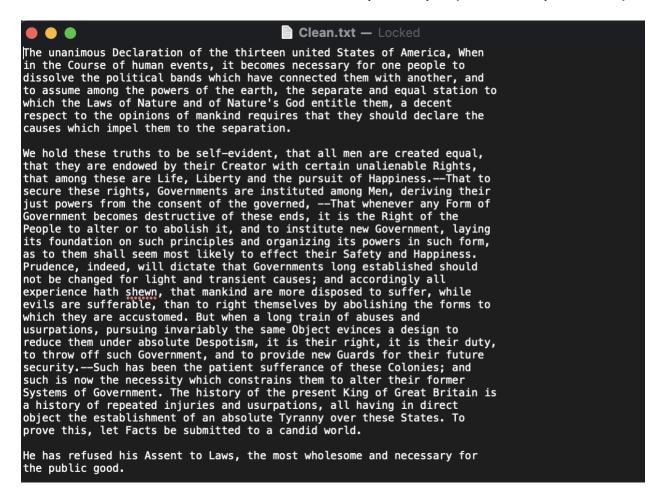
gcc -o soni_dev_HW5_main soni_dev_HW5_main.o b_io.o -g -I.

(base) → assignment-5-buffered-io-write-developer-soni git:(main) × make run

./soni_dev_HW5_main DecOfInd.txt Clean.txt

(base) → assignment-5-buffered-io-write-developer-soni git:(main) ×
```

The Clean.txt file is attached to the Github for the complete output. (Here is a sample included)



He has plundered 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 Mercenaries to compleat the works of death, desolation and tyranny, already begun with circumstances of Cruelty & perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the Head of a civilized nation.

He has constrained our fellow Citizens taken Captive on the high Seas to bear Arms against their Country, to become the executioners of their friends and Brethren, or to fall themselves by their Hands.

He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers, the merciless Indian Savages, whose known rule of warfare, is an undistinguished destruction of all ages, sexes and conditions.

In every stage of these Oppressions We have Petitioned for 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 may define a Tyrant, is unfit to be the ruler of a free people.

Nor have We been wanting in attentions to our Brittish brethren. We have warned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them by the ties of our common kindred to disavow these usurpations, which, would inevitably interrupt our connections and correspondence. They too have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity, which denounces our Separation, and hold them, as we hold the rest of mankind, Enemies in War, in Peace Friends.

We, therefore, the Representatives of the united States of America, in General Congress, Assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the Name, and by Authority of the good People of these Colonies, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are Absolved from all Allegiance to the British Crown, and that all political connection between them and the State of Gr