Assignment 1: BCIT Version of Microsoft Word
Deadline: 11:59 PM on Oct 6

In assignment 1, you will work in a group of maximum 3 of your choice.

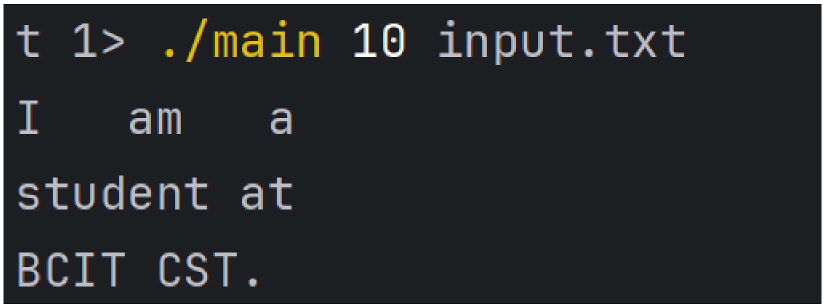
Requirements
In this assignment, you are BCIT version of Microsoft Word. In this term, your COMP2510 has one strange requirement that everyone submits a lab report via terminal output; however, he said that he is not sure what console size that he will be using to read your report. Unfortunately, he is asking you to make the number of characters in a line a command line argument.

Let's say that you have one file here.
input1.txt

I am a student at BCIT CST.

Now, you are running the program with 10 characters per line, you will get the following output.

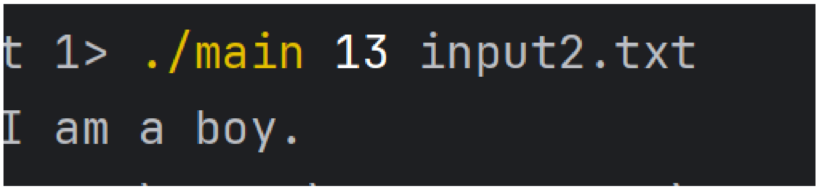
Output:



```
t 1> ./main 10 input.txt
I   am   a
student at
BCIT CST.
```

You can see that each line is justified. You can see that additional spaces have been inserted in line 1 and 3. Because it is justified, you want to insert an equal number of spaces between words. In case of line 1, you have 4 characters, so 6 spaces can be inserted between words, so it is easy, you can just put 3 spaces in between words. Now, let's take a look at another example.

Input2.txt
I am a boy.
Output:



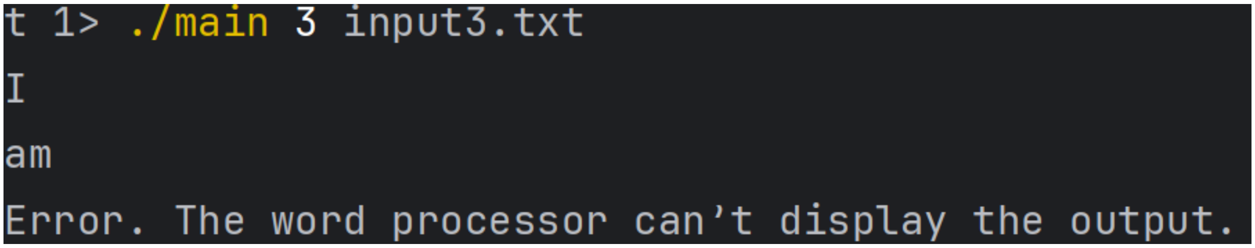
```
t 1> ./main 13 input2.txt
I am a boy.
```

You realize that you only have 11 characters and your line length is 13. You have to insert 2 spaces to make a 13 character line. In this case, you will insert a space from the left side, so the first two spaces got additional space while the third space got no additional. It will be the same if you have to insert more spaces. Any remaining spaces will be inserted from the left to the right and in a round robin fashion. Below is another case.

Input3.txt

I am a student at BCIT CST.

Output:



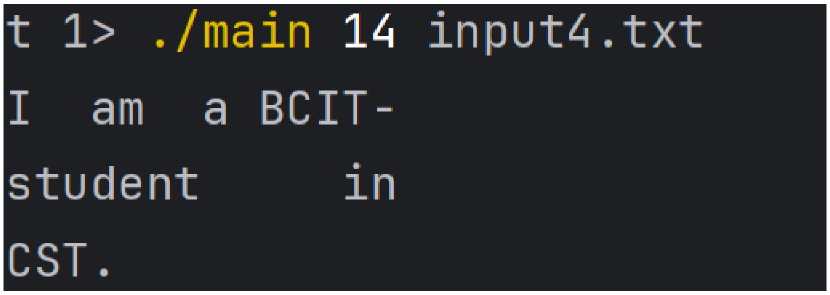
```
t 1> ./main 3 input3.txt
I
am
Error. The word processor can’t display the output.
```

Error. The word processor can’t display the output.

Can you actually do this. You can’t do break students, which is 8 characters, into 3 characters. Your error message must be exactly the same as what is displayed above.

Lastly, there is a hyphenation rule. Consider the following input.

input4.txt
I am a BCIT-student in CST.
Output:



```
t 1> ./main 14 input4.txt
I  am  a BCIT-
student     in
CST.
```

The hyphenated word gets broken down as shown above. The hyphen will stay with the first word. The hyphen should be a start of a line or in another word should break at that point and move the next word to the next line. Lastly, if you are left with a single word, you are supposed to center it. This **CST.** Is a 4 character word. Make sure to count punctuations. Now, you have 9 spaces to place. Just like the previous rule, you will put 5 spaces before the word and 4 spaces after.

Restrictions

- You CANNOT use strtok function. Using this will result in 0.
- For any reason, if your code does not compile/run, it will result in 0.
- If you use any standard library functions other than stdio.h, stdlib.h, string.h, you must consult with me prior to using it.
- Every line must end with \n including the last line in the output.
- You are not allowed to have any trailing spaces in addition to \n in the last line of the output.
- You are not allowed to have any additional information printed except the output.

Grading Criteria:

1. **Correctness (60 points)**
    - **(30 points)** Correctly formats text files with justified text according to the specified number of characters per line.
    - **(15 points)** Properly handles hyphenation rules as described.
    - **(15 points)** Generates accurate error messages for words that cannot be split.
2. **Error Handling (10 points)**
    - **(5 points)** Handles all specified error cases correctly.
    - **(5 points)** Provides clear and accurate error messages.
3. **Code Quality (10 points)**
    - **(5 points)** Code is well-organized and follows best practices.
    - **(5 points)** Code is properly commented and easy to understand.
4. **Adherence to Restrictions (10 points)**
    - **(5 points)** Does not use the strtok function.
    - **(5 points)** Only uses allowed standard library functions (stdio.h, stdlib.h, string.h) unless otherwise approved.
5. **Peer Evaluation (10 points)**
    - **(10 points)** Peer evaluation of group members' contributions and collaboration.

Note: Any submission that does not compile or run due to not following instructions will receive a grade of 0 (no exceptions). Please refer to the rubric attached with the assignment in the Learning Hub for detailed guidelines and criteria.

Submission Files

- You must submit only one .c file named: a1.c (case sensitive).
- Take screenshots of the output and give them appropriate names.
- Submit the peer evaluation form along with the other files.
- Submission will be via Learning Hub.