

M.Sc. IN HIGH-PERFORMANCE COMPUTING

5613 - C PROGRAMMING

ASSIGNMENT 5

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RULES

To submit, make a single tar-ball with all your code and a pdf of any written part you want to include. Submit this via `msc.tchpc.tcd.ie` by the end of **Tuesday November 22th**. Attempt all parts. Marks will be given for the efficiency of your implementation. Late submissions without prior arrangement or a valid explanation will result in reduced marks.

QUESTION

A *doubly-linked list* is similar to the linked list we discussed in lectures except it allows for both forwards and backwards movement along the chain. This is done by having two pointers inside the structure to the next and previous entries respectively. This makes moving forwards and backwards and deleting entries easier, for example.

Write a C structure to implement the doubly-linked list. Write a C program that will traverse a doubly-linked list of words (stored in C strings) and delete all instances of a particular word from a list of words. The list should be read from a file `input_list.txt` containing a string in each line. The final list after deleting all appearances of the word read from file `remove_word.txt` should be written to a file `output_list.txt` that would have the same format as the input file. Examples of input/remove/output files are given on the next page.

For a given input file `input_list.txt`:

A
single
word
I
say
It's
only
words
And
words
are
all
I
have

if the word to be removed from the list is saved in file `remove_word.txt`:

words

then a corresponding output file `output_list.txt` should contain:

A
single
word
I
say
It's
only
And
are
all
I
have

Test your code rigorously with more examples.