

# CSCU9V4 Practical 7: In or out, not both!

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## Introduction

Input and output – do they require explanation? (If so, let us know!) Time to get to it...

## The Other wc

Write a program that does each of the following. Alternatively, and ideally, write a single program that does them all. If taking the latter approach, be sure that one works before moving onto the next.

- Count the number of characters in a text file.
- Count the number of words in a text file. A 'word' is any sequence of non-white-space characters. For our purposes, it is sufficient to assume that only spaces separate characters.
- Count the number of lines in a text file.

Though filenames should be passed in as parameters, feel free to 'hardcode' a filename. (One will be provided in the practical.) This is sufficient for your checkpoint.

## Hex without the Witchcraft

Write a program that displays the contents of a file as bytes *and* characters. Specify a text file as a command line argument ('Properties→Run). Recall the first C program we introduced, pun.c; if provided as a parameter, the output would appear as follows:

Offset		Bytes										Characters
-----		-----										-----
0	23	69	6E	63	6C	75	64	65	20	3C		#include <
10	73	74	64	69	6F	2E	68	3E	0D	0A		stdio.h>..
20	0D	0A	69	6E	74	20	6D	61	69	6E		..int main
30	28	69	6E	74	20	61	72	67	63	2C		(int argc,
40	20	63	68	61	72	20	2A	61	72	67		char *arg
50	76	5B	5D	29	20	7B	0D	0A	0D	0A		v[]) {....
60	20	20	70	72	69	6E	74	66	28	22		printf("
70	54	6F	20	43	20	6F	72	20	6E	6F		To C or no
80	74	20	74	6F	20	43	5C	6E	22	29		t to C\n")
90	3B	0D	0A	0D	0A	20	20	72	65	74		;.... ret
100	75	72	6E	20	30	3B	0D	0A	7D	0D		urn 0;..}.
110	0A											.

Each line shows 10 bytes from the file, first as hex and then as characters. The number in the `Offset` column indicates the position in the file of the first byte on the line.

In the Characters column, characters are printed if deemed printable by the `isprint` function (in `<ctype.h>`). Otherwise, a period appears for non-printable characters.

NOTES: (i) The example assumes a Windows text file, as should you; (ii) be sure to open the file in “rb” mode; (iii) a working executable is available on the module webpage (must be run at CLI).