Assignment1 Report

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assignment1.c

It runs the functions which are defined in assignment1.h. Also, it makes “buffer”, which is used to contain the contents of input.txt, by using dynamic allocation(malloc). Length of buffer is decide by length of input.txt, calculated by “get\_len” function. After all tasks, allocated memory will be freed by “free”.

assignment.h

get\_len

calculate the length of input.txt, using “fgetc”.

set\_buffer

put the characters in input.txt to buffer using “fgets”.

unsigned\_character, unsigned\_integer

These two functions work similarly. They have two local variables, ‘decimal’ which is initialized with 0, and ‘counter’ which means place value of ‘decimal’ (actually, binary. Thus, it means the size of each type.). From first element of buffer to last element, if the element is ‘1’, then the number shifted by counter from 1 is added to ‘decimal’. Each iteration makes ‘counter’ decrease. So, if ‘counter’ becomes zero, it prints current ‘decimal’ and initialize ‘decimal’ and ‘counter’ again.

signed\_character, signed\_integer, character

These two functions work similar with above functions. One thing different is, when ‘counter’ is the biggest value(it means current place value is the biggest value), the number shifted by counter from 1 isn’t add to ‘decimal’, it is subtracted. It is for implementing Two’s complement.

“character” function prints ‘decimal’ with character, not decimal by referring ASCII codes.

float\_number, double\_number

These two functions work exactly same, so I will describe only ‘float\_number’.

There is the structure ‘float\_num’ (‘double\_num’) which represents how floating numbers are stored in the computer. The first step of ‘float\_number’ function is to put the characters in ‘buffer’ to ‘float\_num’ structure by order (Order is kept by using ‘counter’). And then, using float\_num\_calculator (double\_num\_calculator), which is predefined and representing how to calculate floating numbers, it calculates the structure to decimal. And then print it.