

WRITEUP

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1 Introduction

In this document, I will discuss my concerns, learning's, and achievements that I recieved from this assignment.

2 Printf and Scanf

"printf" and "scanf" are two standard input/output functions in the C programming language. "printf" is used to print output to the console, while "scanf" is used to read input from the user.

"printf" takes a format string and a series of arguments, and returns the number of characters printed. The format string consists of plain text, as well as special placeholders, called format specifiers, that are replaced by the values of the arguments. For example, "

"scanf" takes a format string and a list of addresses for the variables that will hold the values read from the input. Like with "printf", the format string consists of plain text and format specifiers, which indicate the type of input being read. For example, "

3 File I/O on C

File I/O in C involves reading from and writing to files using functions from the standard library. To open a file, the "fopen" function is used, which takes a file name and a mode as arguments and returns a file pointer. Once the file is open, data can be read from it using functions such as "fgets" or "fscanf". To write to a file, functions such as "fprintf" or "fputc" can be used. After the reading and writing is finished, the file should be closed using the "fclose" function.

4 ncurses library

I used the ncurses library to develop text-based user interfaces in C. To use the library, the "ncurses.h" header file should be included. The first step in using ncurses is to initialize the screen using the "initscr" function. Then, the cursor can be hidden using the "curs_set" function. To display characters on the screen, the "mvprintw" function can be used. This function takes the row and column position, as well as the string to be displayed, as arguments. The screen should be cleared using the "clear" function and then refreshed using the "refresh" function after each change. When finished, the screen should be closed using the "endwin" function. The "usleep" function from the "unistd.h" header file can be used to introduce delays between updates to the screen.

5 Calloc

Calloc is a C standard library function used for dynamic memory allocation. The function allocates a contiguous block of memory of a specified size and initializes all the elements to zero. It is similar to the malloc function but the difference is that calloc takes two arguments: the number of elements to be allocated and the size of each element. The function returns a pointer to the first byte of the newly allocated memory block and it is important to check the return value of calloc to make sure that the allocation was successful. If the allocation fails, calloc returns a null pointer. The function can be used to allocate arrays of any data type and is useful when you need to allocate memory dynamically and initialize the memory block to zero. The memory block can be deallocated using the free function when it is no longer needed.

6 Malloc

Malloc is a function in the C programming language that is used to dynamically allocate memory on the heap. It stands for "memory allocate." The malloc function takes a single argument, the number of bytes of memory to be allocated, and returns a pointer to the newly allocated memory. The malloc function is part of the standard C library and can be used to allocate memory for variables of any data type, including arrays, structures, and even other pointers. One of the main advantages of using malloc is that it allows for dynamic allocation of memory, meaning that the size of an array or other data structure can be changed at runtime, as opposed to being fixed at compile time. The memory allocated by malloc must be manually deallocated using the free function when it is no longer needed, to prevent memory leaks and other memory-related issues.