Program Description

We started the main code by creating a method to split the user input. The input was initially a string made up by words and space, the goal was to split the string by space character. If there were two spaces together, we delete one of them. We made two functions: skipChar and splitCommandLine. The first function shipChar, was to skip the space character, and return a pointer pointing to the first character in the array which already skipped the space. The second function was to find the first character of the word and split the string into words by changing the last character of each word, which is a space character, into '\0'. This will terminate each small array, and we put the address of the first character of each word to args array. We used the features of array and pointers in C language.

Then we defined a void function type, using a function pointer, a character pointer and an int as parameters. We made a type containing four objects: a commandName char pointer, a commandFunc function pointer, the args double char pointer, and a nargs int. We also declared a function callFunction. We used the methods of struct a type, define a type and using a function pointer in C language.

After that we made a doCommand function using the array args and the number of elements in the array nargs as parameters. It jumps out of the loop if it hits the end of the array or the commandName is NULL. Otherwise, the callFunction is called, and we move on to the next element in the array.

Lastly, we defined more command. GetcwdF: directory and then free it; cdF: go to a directory if pw->pw_dir is not NULL; lsF: show the number of lists in the directory; checkDotDocument: check if this is a dot file.

Overall, we used some most important features in C language to help us complete the lab, they are arrays, pointers(including char pointer, double pointer, and function pointer), typedef, struct.