

Problem Description

Script 1

We start by writing the code in the first script. The command `find ./labs -type f -name "*.ch]"` is used to find all the lab files ends in .c or .h, then `echo $string` is used to separate each output of the files, where \$string is a bar of equal signs.

Secondly, we extract the line comments based on `//+` and `//-`. The code `sed -e '/\\/+/,/\\/\\-/' -e 'd' $f` is used to extract the line comments starting with `//+` and ends with `//-`, each individual sign such as `/` is separated by a sign `\`.

Lastly, we try to remove leading comment delimiters. A sign `|` is used to pipe the output to another sed command, then the code `sed -e 's/\\//|' | sed -e 's/[+]/|/'` is used to extract all the comment after `//`.

Script 2

We start by checking if the number of arguments is 1. We used the code `if [["$#" -ne 1]];then echo "Usage:" $0` to branch to error message if the number of arguments is 0. We the used `else if [[-d "$1"]];then` to check if the number is 1.

When the number of arguments is 1, firstly we check the main files. We used the line `grep -c "int main" $f >0` to check if the number of main functions in the .c file is greater than 0. If it is, we used `fprinf_Count=`grep -c 'fprintf' $f`` to get the number of fprintf, then we used `prinf_Count=`expr $prinf - $fprinf_Count`` to get the number of printf. Lastly, we used `echo $f,$prinf_Count,$fprinf_Count | awk -F '[,]' '{print $1,$2,$3}'` output the number of printf and fprintf respectively. If the main function is 0, a message "main file not found" will be printed.

After dealing with main functions, we look at module files. Similarly we used `grep -c "init_module" $f > 0` to check if the number of module files is greater than 0. If it is, we used `printK=`grep -n "printk" $f | sed -e 's/:.*//' | tr '\n' ',' | sed -e 's/,,$/'` and `echo $f : $printK` to print the number of lines of printk. Else, an error message "module file not found" will be printed.

Overall, if the number of arguments is 0, a message "ERROR: path is not correct!" will be on the output.