

```
/*
 * Mario Palacios
 * HOMEWORK 5
 */

// INCLUDE LIBRARIES
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <ctype.h>
#include <sys/wait.h>

#define MAX_LIST 14          // DEFINE NUM OF CMDS
#define MAX_INPUT 1000      // DEFINE AMOUNT OF CMD ARGS

char * cmds[MAX_LIST] =    // LISTING CMDS FOR CLI
{
    "cd",
    "exec",
    "exit",
    "gcc",
    "ls",
    "man",
    "more",
    "mv",
    "rm",
    "pwd",
    "sh",
    "touch",
    "which",
    "$PATH"
};

char rawInput[MAX_INPUT];    // TEMP, TO BE PARSED
char* token;                 // HOLDS INPUT, DURING TOKENIZING
char* parsedStr[MAX_INPUT];  // ARRAY TO HOLD STRINGS
int currentIndex = 0;        // INDEX FOR PARSED STRING ARRAY

int main(int argc, char* argv[]) {
    if(argc == 1) {
        fprintf(stderr, "Enter at least two arguments (filename and commands)\n");
        exit(-1);
    } else {
        int i;
        printf("CLI, Mario Palacios, CSC 139 – Section 06\n"); // SELF IDENTIFICATION
        printf("Legal Commands: ");                          // PRINT LEGAL CMDS
        for (i = 0; i < MAX_LIST; i++) {
```

```
    printf(" %s", cmds[i]);
}

rawInput[0] = 0;

printf("\n%d strings passed to argv[]\n", argc);
for(i = 1; i < argc; i++) { // CMD LIST FOR CLI
    printf("next string is '%s'\n", argv[i]);
    strcat(rawInput, argv[i]);
    strcat(rawInput, " ");
    printf("new string is '%s'\n", rawInput);
}

token = strtok(rawInput, ",;");
while (token != NULL) { // SEPERATE CMD, BY COMMAS
    parsedStr[currentIndex] = token;
    token = strtok(NULL, ",;");
    currentIndex++;
}

for (i = 0; i < currentIndex; i++) { // TRIM WHITE SPACE
    while(isspace(*parsedStr[i])) {
        parsedStr[i]++;
    }
}

int currentCmd = 0;
for (i = 1; i < currentIndex; i++) {
    while (currentCmd < MAX_LIST) {
        if (strncmp(cmds[currentCmd], parsedStr[i], strlen(cmds[currentCmd])) == 0) {
            printf("CMD '%s' is one of the predefined.\n", parsedStr[i]);
            system(parsedStr[i]);
        }
        currentCmd++;
    }
}

system("touch example.txt; mv example.txt file2.txt; ls"); // SYS COMMANDS
}
```

Test #1

Script started on Tue 04 May 2021 10:42:04 PM PDT
[palacim@sp2:21]> ./cli ls -l, cd ../m, [K][K, pwd

```
CLI, Mario Palacios, CSC 139 - Section 06
Legal Commands:  cd exec exit gcc ls man more mv rm pwd sh touch which
$PATH
6 strings passed to argv[]
next string is 'ls'
new string is 'ls '
next string is '-l,'
new string is 'ls -l, '
next string is 'cd'
new string is 'ls -l, cd '
next string is '...',
new string is 'ls -l, cd ..., '
next string is 'pwd'
new string is 'ls -l, cd ..., pwd '
CMD 'cd ..' is one of the predefined.
total 32
-rwx----- 1 palacim stdcpe 9176 May  4 22:35 a.out
-rwx----- 1 palacim stdcpe 9176 May  4 22:41 cli
-rw----- 1 palacim stdcpe 2600 May  4 22:41 cli.c
-rw----- 1 palacim stdcpe    4 May  4 00:03 filler.txt
-rw----- 1 palacim stdcpe    0 May  4 22:42 test1.txt
/gaia/class/student/palacim/csc139
[palacim@sp2:22]> exit
exit
```

Script done on Tue 04 May 2021 10:42:23 PM PDT

Test #2

```
Script started on Tue 04 May 2021 10:49:25 PM PDT
[palacim@sp2:21]> ./cli rm a.out, ls, gcc cli.c, ls -lt
CLI, Mario Palacios, CSC 139 - Section 06
Legal Commands:  cd exec exit gcc ls man more mv rm pwd sh touch which
$PATH
8 strings passed to argv[]
next string is 'rm'
new string is 'rm '
next string is 'a.out,'
new string is 'rm a.out, '
next string is 'ls,'
new string is 'rm a.out, ls, '
next string is 'gcc'
new string is 'rm a.out, ls, gcc '
next string is 'cli.c,'
new string is 'rm a.out, ls, gcc cli.c, '
next string is 'ls'
new string is 'rm a.out, ls, gcc cli.c, ls '
next string is '-lt'
new string is 'rm a.out, ls, gcc cli.c, ls -lt '
CMD 'ls' is one of the predefined.
a.out cli cli.c filler.txt test1.txt test2.txt
cli cli.c filler.txt test1.txt test2.txt
total 36
-rwx----- 1 palacim stdcpe 9176 May  4 22:49 a.out
```

```
-rw----- 1 palacim stdcpe      0 May  4 22:49 test2.txt
-rwx----- 1 palacim stdcpe 9176 May  4 22:49 cli
-rw----- 1 palacim stdcpe 2574 May  4 22:48 cli.c
-rw----- 1 palacim stdcpe   939 May  4 22:42 test1.txt
-rw----- 1 palacim stdcpe      4 May  4 00:03 filler.txt
[palacim@sp2:22]> exit
exit
```

Script done on Tue 04 May 2021 10:49:50 PM PDT

Test #3

```
Script started on Tue 04 May 2021 11:06:14 PM PDT
[palacim@sp2:21]> ./cli $PATH, more -V, sh
CLI, Mario Palacios, CSC 139 - Section 06
Legal Commands:  cd exec exit gcc ls man more mv rm pwd sh touch which
$PATH
5 strings passed to argv[]
next string is
'/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin:/etc:/usr/local/etc:/usr/bin
/X11:/opt/bin:/usr/X11R6/bin:/usr/pkg/smlnj/bin:/usr/pkg/syn/bin:/usr/pkg/
vcs/bin:/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.292.b10-
1.el7_9.x86_64/bin:., '
new string is
'/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin:/etc:/usr/local/etc:/usr/bin
/X11:/opt/bin:/usr/X11R6/bin:/usr/pkg/smlnj/bin:/usr/pkg/syn/bin:/usr/pkg/
vcs/bin:/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.292.b10-
1.el7_9.x86_64/bin:., '
next string is 'more'
new string is
'/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin:/etc:/usr/local/etc:/usr/bin
/X11:/opt/bin:/usr/X11R6/bin:/usr/pkg/smlnj/bin:/usr/pkg/syn/bin:/usr/pkg/
vcs/bin:/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.292.b10-
1.el7_9.x86_64/bin:., more '
next string is '-V,'
new string is
'/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin:/etc:/usr/local/etc:/usr/bin
/X11:/opt/bin:/usr/X11R6/bin:/usr/pkg/smlnj/bin:/usr/pkg/syn/bin:/usr/pkg/
vcs/bin:/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.292.b10-
1.el7_9.x86_64/bin:., more -V, '
next string is 'sh'
new string is
'/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin:/etc:/usr/local/etc:/usr/bin
/X11:/opt/bin:/usr/X11R6/bin:/usr/pkg/smlnj/bin:/usr/pkg/syn/bin:/usr/pkg/
vcs/bin:/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.292.b10-
1.el7_9.x86_64/bin:., more -V, sh '
CMD 'more -V' is one of the predefined.
more from util-linux 2.23.2
sh:
/bin:/usr/bin:/sbin:/usr/sbin:/usr/local/bin:/etc:/usr/local/etc:/usr/bin/
X11:/opt/bin:/usr/X11R6/bin:/usr/pkg/smlnj/bin:/usr/pkg/syn/bin:/usr/pkg/v
cs/bin:/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.292.b10-1.el7_9.x86_64/bin:..
No such file or directory
more from util-linux 2.23.2
```

```
□[?1034hsh-4.2$ exity□□[K  
exit  
[palacim@sp2:22]> sxit  
sxit: Command not found.  
[palacim@sp2:23]> exit  
exit
```

Script done on Tue 04 May 2021 11:06:34 PM PDT

Test #4

```
Script started on Tue 04 May 2021 11:09:52 PM PDT  
[palacim@sp2:21]> ./cli touch example.txt, mv example.txt file2.txt, ls  
CLI, Mario Palacios, CSC 139 - Section 06  
Legal Commands: cd exec exit gcc ls man more mv rm pwd sh touch which  
$PATH  
7 strings passed to argv[]  
next string is 'touch'  
new string is 'touch '  
next string is 'example.txt,'  
new string is 'touch example.txt, '  
next string is 'mv'  
new string is 'touch example.txt, mv '  
next string is 'example.txt'  
new string is 'touch example.txt, mv example.txt '  
next string is 'file2.txt,'  
new string is 'touch example.txt, mv example.txt file2.txt, '  
next string is 'ls'  
new string is 'touch example.txt, mv example.txt file2.txt, ls '  
CMD 'mv example.txt file2.txt' is one of the predefined.  
mv: cannot stat ,Äexample.txt,Äô: No such file or directory  
a.out cli cli.c file2.txt filler.txt test1.txt test2.txt test3.txt  
test4.txt  
[palacim@sp2:22]> exit  
exit
```

Script done on Tue 04 May 2021 11:10:19 PM PDT