CS 390
SPRING 2019
Mr. Rheinfurth
Programming Assignment 2

Introduction

The shell is the primary means for user interaction with a unix system. The shell is a program like any other program and has the capabilities built into the logic to implement the functionality users require.

Assignment Description

This assignment is to update the shell program assigned in Program 1. The additional capabilities are 1) implement command execution, and 2) implement a additional program called myls.c which will read a directory and display the contents.

Program Requirements

1. The student shall create an application which will implement a command loop and accept the commands defined by the following requirements.
2. The student shall implement the command execution routine to execute an external command submitted to the shell program.
3. The command execution routine shall recognize a simple program name or an absolute path.
4. The exec( ) command shall be " int execv(const char *path, char *const argv[]);"
5. When a simple program name is used the program shall use getenv("PATH") to find the program location.
6. The student shall implement a separate program call myls.c which will display the contents of a directory.
7. myls.c shall accept no argument or the "-a" arg as in the "ls" command and behave accordingly.
8. The name of the program shall be "mysh2", an abbreviation of "my shell". The program must be written in "C" and named "mysh2.c.
9. The name of the directory list program shall be "myls". This program must be written in "C" and named "myls.c".
10. The student will "tar" the program. The tar command for the "C" program is :
11. **$ tar czf studentlastname_mysh2.tgz mysh2.c myls.c**

Submission Guidelines

1. The assignment shall be uploaded to the instructor using the **CANVAS** website.
2. The tar file shall use the following naming convention: **studentlastname_mysh2.tgz**. For example, if your last name is "smith" the filename would be **smith_mysh2.tgz**. The **myls.c** file shall be in the tar file.
3. The assignment will be due Tuesday, March 26, 2019.
4. The assignment may be turned in Thursday, March 28, 2019 for a mandatory loss of one letter grade. The assignment will not be accepted after this date.

AN EXAMPLE OF ARGV USAGE:

```
#define TRUE  1
#define FALSE 0

int main(int argc,const char* argv[])
{
    int status = 0;
    int arg1,flagError;

    flagError = FALSE;

    if (argc == 1)
    {
        arg1 = FALSE;
    }
    else if (argc == 2)
    {
        if (strcmp(argv[1],"-a") == 0)
        {
            arg1 = TRUE;
        }
        else
        {
            printf("ERROR: invalid argument\n");
            flagError = TRUE;
        }
    }
    else
    {
        printf("Usage: $ ls [-a]\n");
    }

    if (flagError == FALSE)
    {
        /* DO CODE */
    }
    else
    {
        status = 1;
    }
    return status;
}
```