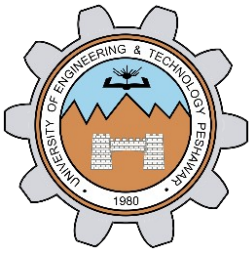
FILES AND DIRECTORIES

LAB # 08



Fall 2020

CSE302L System Programming Lab

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"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

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Wednesday, February 3rd, 2021

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Task # 01:

Implement ls command.

Code:

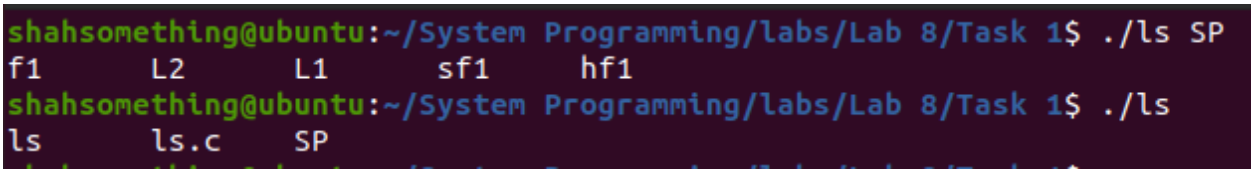
```
#include <stdio.h>
#include <unistd.h>
#include <dirent.h>
#include <sys/stat.h>

int main(int argc, char *argv[])
{
    DIR *dirp;
    if(argc==1)
    {
       dirp = opendir(".");
    }
    else if(argc==2)
    {
          dirp = opendir(argv[1]);
    }
    else
    {
          printf("Invalid number of Arguments");
       return -1;
    }
   if(dirp==NULL)
   {
      perror("Failed to open directory");
      return -1;
   }

   struct dirent *direntp;
   while ((direntp= readdir(dirp))!=NULL)
   {
          if(direntp->d_name[0]=='.')
                continue;
      printf("%s \t",direntp->d_name);
   }
   printf("\n");
   return 0;

}
```

Output/Results:



Task # 02:

Implement ls -l command.

Code:

```
#include <stdio.h>
#include <unistd.h>
#include <dirent.h>
#include <sys/stat.h>
#include <time.h>
#include <pwd.h>

int main(int argc, char *argv[])
{
    DIR *dirp;
    if(argc==1)
    {
       dirp = opendir(".");
    }
    else if(argc==2)
    {
          dirp = opendir(argv[1]);
    }
    else
    {
          printf("Invalid number of Arguments");
       return -1;
    }
    if(dirp==NULL)
    {
      perror("Failed to open directory");
      return -1;
    }
   struct dirent *direntp;
   struct stat buffer;
```

```
while ((direntp = readdir(dirp))!=NULL)
{
        if(direntp->d_name[0]=='.')
                continue;
    stat(direntp->d_name,&buffer);
    if(S_ISDIR(buffer.st_mode))
        printf("d\t");
    else
        printf("-\t");

    if(S_IRUSR&buffer.st_mode)
        printf("r");
    else
        printf("-");
    if(S_IWUSR&buffer.st_mode)
        printf("w");
    else
        printf("-");
    if(S_IXUSR&buffer.st_mode)
        printf("x");
    else
        printf("-");


    if(S_IRGRP&buffer.st_mode)
        printf("r");
    else
        printf("-");
    if(S_IWGRP&buffer.st_mode)
        printf("w");
    else
        printf("-");
    if(S_IXGRP&buffer.st_mode)
        printf("x");
    else
        printf("-");

    if(S_IROTH&buffer.st_mode)
        printf("r");
    else
```

```
        printf("-");
    if(S_IWOTH&buffer.st_mode)
        printf("w");
    else
        printf("-");
    if(S_IXOTH&buffer.st_mode)
        printf("x\t");
    else
        printf("-\t");

    printf("%ld\t",buffer.st_nlink);

    struct passwd *USR = getpwuid(buffer.st_uid);
    printf("%s   ",USR->pw_name);

    struct passwd *GRP = getpwuid(buffer.st_gid);
    printf("%s\t",GRP->pw_name);

    printf("%ld   ",buffer.st_size);
    char *time = ctime(&buffer.st_atime);
    int i;
    for(i=0;*(time+i)!='\n';i++);
    *(time+i) = '\0';
    printf("%s\t",time);
    printf("%s\n",direntp->d_name);
  }
  return 0;

}
```

Output:

```
shahsomething@ubuntu:~/System Programming/labs/Lab 8/Task 2$ ./task2
-       rw-rw-r--       1       shahsomething   shahsomething   2184   Wed Feb  3 00:56:26 2021 task2.c
d       rwxrwxr-x       4       shahsomething   shahsomething   4096   Wed Feb  3 00:09:12 2021 SP
-       rwxrwxr-x       1       shahsomething   shahsomething   17160   Wed Feb  3 00:56:30 2021        task2
```