OS LAB 2

Q1. Write a C programm to emulate the ls -l UNIX command that prints all files in a current directory and lists access privileges, etc. DO NOT simply exec ls -l from the program

CODE

=>

```c
#include<stdio.h>

#include<stdlib.h>

#include<sys/stat.h>

#include<sys/types.h>

#include<unistd.h>

#include<fcntl.h>

#include<string.h>

#include<dirent.h>


int main(){

        DIR* d= opendir("/home/student/Documents/190905076/OSL/L1");

        char* buff;

DIR* dad;

        if(d==NULL) {              printf("Directory

not accessible:\n");

                exit(0);

        }

        struct dirent *item;

struct stat mystat;

        //struct tm *foo;

        //foo = gmtime(mystat.st_mtime);

        while((item=readdir(d))!=NULL){

                lstat(item->d_name,&mystat);
```

```c
//d or -
if(S_ISDIR(mystat.st_mode)){                    if(strcmp(".",item->d_name)==0 ||
strcmp("..",item->d_name)==0) continue;
        printf("d");
}
else printf("-");



//User, group and other perimissions
if(mystat.st_mode & S_IRUSR){
        printf("r");
}
else printf("-");
if(mystat.st_mode & S_IWUSR){
        printf("w");
}
else printf("-");
if(mystat.st_mode & S_IXUSR){
        printf("x");
}
else printf("-");



if(mystat.st_mode & S_IRGRP){
        printf("r");
}
```

```c
                else printf("-");
                if(mystat.st_mode & S_IWGRP){
                        printf("w");
                }
                else printf("-");
if(mystat.st_mode & S_IXGRP){
                        printf("x");
                }
                else printf("-");




                if(mystat.st_mode & S_IROTH){
                        printf("r");
                }
                else printf("-");
if(mystat.st_mode & S_IWOTH){
                        printf("w");
                }
                else printf("-");
if(mystat.st_mode & S_IXOTH){
                        printf("x\t");
                }
                else printf("-\t");


                //Directory or File
if(S_ISDIR(mystat.st_mode)){
                        printf("2\t");
```

```c
        }
        else printf("1\t");


        buff = getlogin();

        printf("%s\t",buff);

        //Name of item in consideration
    printf("%s\n",item->d_name);

    }
}
```
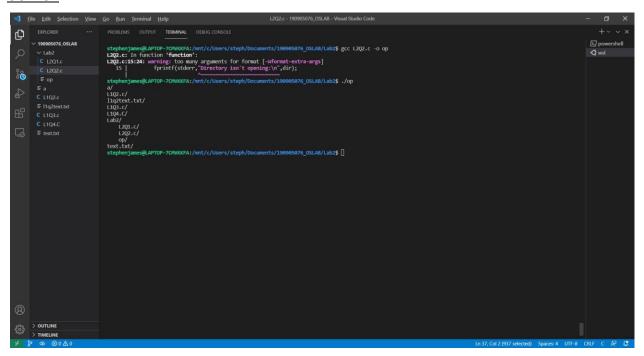
OUTPUT

Q2. Write a program that will list all files in a current directory and all files in subsequent subdirectories

CODE

=>

```c
#include<stdio.h>

#include<stdlib.h>

#include<sys/stat.h>

#include<sys/types.h>

#include<unistd.h>

#include<fcntl.h>

#include<string.h>

#include<dirent.h>


void function(char* dir, int depth){        DIR* d;           struct

dirent* item;            struct stat mystat;

if((d=opendir(dir))==NULL){

fprintf(stderr,"Directory isn't opening:\n",dir);

            return;

}

     chdir(dir);        while((item =

readdir(d))!=NULL){

            lstat(item->d_name,&mystat);

            if(S_ISDIR(mystat.st_mode)){                        if(strcmp(".",item-
>d_name)==0 || strcmp("..",item->d_name)==0){

                      continue;

     }

            printf("%*s%s/\n",depth,"",item->d_name);                        function(item-
>d_name,depth+4);
```

```
                }

                else printf("%*s%s/\n",depth,"",item->d_name);

        }

        chdir("..");

closedir(d);

}


int main(){ function("/mnt/c/Users/steph/Documents/190905076_OSLAB",0);

exit(0);

}
```

OUTPUT

Q3. How do you list all installed programs in linux

CODE

=>

Q4. How do you find out what RPM packages are installed in Linux

CODE

File Edit View Search Terminal Help

```
student@c26:~/Documents/190905076/OSL/L2$ rpm -qa

Command 'rpm' not found, but can be installed with:

sudo apt install rpm

student@c26:~/Documents/190905076/OSL/L2$ 
```