

CERTIFICATE

Name of the Lab : LINUX PROGRAMMING

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CLASS : III B.TECH. I SEM CSE – D

GIT HUB LINK:

<https://github.com/nagababuthota984/5K3-OS-LAB>

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EXPERIMENT NO: 3

AIM : To write a C program to emulate the UNIX ls -l command.

DESCRIPTION :

ls -l command is used , to long list the file. That is displays extra information about the file like the permissions , date , owner , last time modified or used etc. To implement same process with C program we use functions like ctime etc.

LIBRARIES USED:

```
#include<stdio.h>
```

```
#include<fcntl.h>
```

```
#include<sys/stat.h>
```

```
#include<time.h>
```

SYNTAX:

```
int main(int , char){}
```

ctime(): It is present in time library.

This function returns a C string containing date and time information in a human readable format. Parameters to this function is timer. This timer is pointer to a time_t object that contains a calendar time.

```
char *ctime(const time_t *timer)
```

S_ISDIR() , S_ISREG() are posix macros and they represent whether given argument is directory or regular file respectively.

PROGRAM:

```
#include<stdio.h>
```

```
#include<fcntl.h>
```

```
#include<sys/stat.h>
```

```
#include<time.h>
```

```
int main(int argc,char *argv[])

{

char *at,*mt,*ct;int i;

struct stat buf;

for(i=1;i<argc;i++)

{

stat(argv[i],&buf);

printf("\n _____%s_____ \n",argv[i]);

printf("the inode no is : %d\n",buf.st_ino);

if(S_ISDIR(buf.st_mode))

printf("it is a directory");

if(S_ISREG(buf.st_mode))

printf("it is a regular file\n");

printf("the no of links is %d\n",buf.st_nlink);

printf("size of the file=%d\n",buf.st_size);

at=ctime(&buf.st_atime);

printf("the time of last access is %s\n",at);

mt=ctime(&buf.st_mtime);

printf("the modification time is :%s\n",mt);

ct=ctime(&buf.st_ctime);

printf("time of creation is : %s\n",ct);

if((buf.st_mode&S_IRUSR)==S_IRUSR)
```

```
printf("user has read permission\n");  
  
if((buf.st_mode &S_IWUSR)==S_IWUSR)  
  
printf("user has write permission\n");  
  
if((buf.st_mode&S_IXUSR)==S_IXUSR)  
  
printf("user has execute permission\n");  
  
if((buf.st_mode&S_IRGRP)==S_IRGRP)  
  
printf("group has read permission\n");  
  
if((buf.st_mode &S_IWGRP)==S_IWGRP)  
  
printf("group has write permission\n");  
  
if((buf.st_mode & S_IXGRP)==S_IXGRP)  
  
printf("group has execute permission\n");  
  
if((buf.st_mode &S_IROTH)==S_IROTH)  
  
printf("others has read permission\n");  
  
if((buf.st_mode &S_IWOTH)==S_IWOTH)  
  
printf("others has write permission\n");  
  
if((buf.st_mode &S_IXOTH)==S_IXOTH)  
  
printf("others has execute permission\n");  
  
}  
  
}
```

OUTPUT:

After execution, we can observe the full details of the filenames that have been supplied as parameters are shown clearly.

OUTPUT SCREEN SHOTS:

```
3-cse-d@Lab-04-24:~/18BQ1A05K3/UNIX LAB$ ./a.out ls.c copy.c
ls.c
the inode no is : 4592725
it is a regular file
the no of links is 1
size of the file=1403
the time of last access is Wed Dec 16 20:15:25 2020
the modification time is :Wed Dec 16 20:15:21 2020
time of creation is : Wed Dec 16 20:15:21 2020
user has read permission
user has write permission
group has read permission
others has read permission

copy.c
the inode no is : 1709932
it is a regular file
the no of links is 1
size of the file=614
the time of last access is Wed Dec 16 20:08:34 2020
the modification time is :Wed Dec 16 20:07:22 2020
time of creation is : Wed Dec 16 20:07:22 2020
user has read permission
user has write permission
group has read permission
others has read permission
```



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