LAB 2

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Section C
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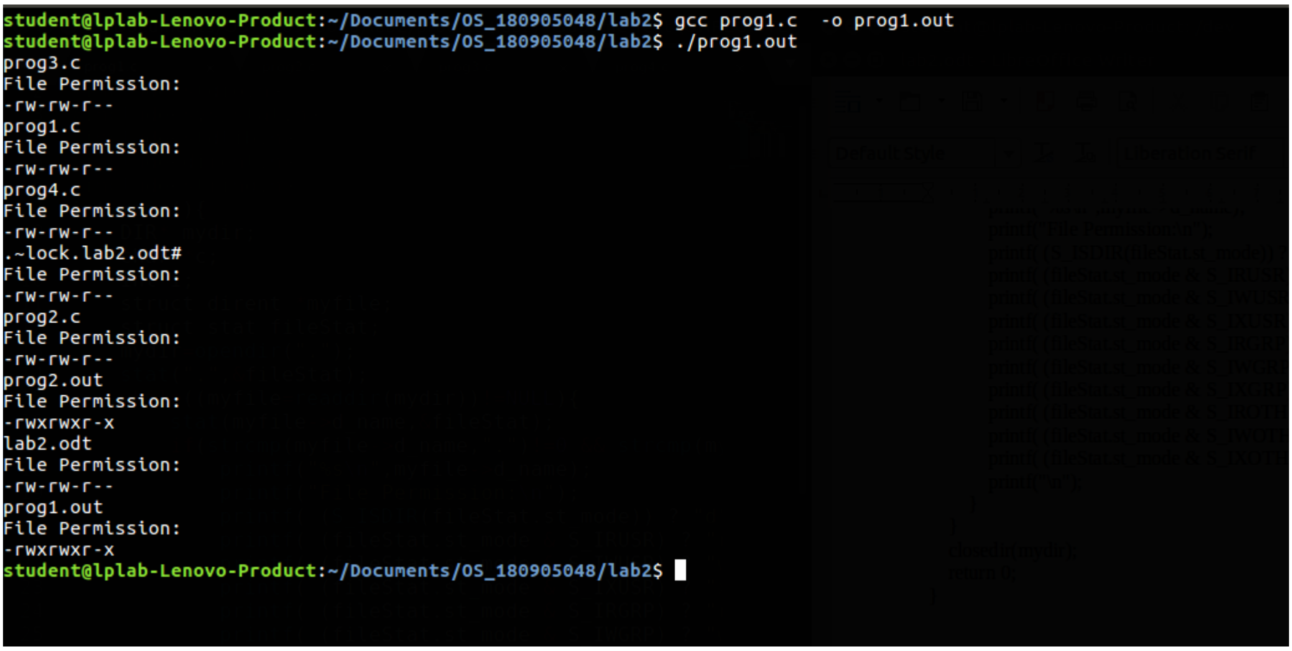
Lab OS

Q1

```
#include<unistd.h>
#include<stdio.h>
#include<sys/stat.h>
#include<stdlib.h>
#include<dirent.h>
#include<string.h>
int main(){
    DIR* mydir;
    char *c;
    int i;
    struct dirent *myfile;
    struct stat fileStat;
    mydir=opendir(".");
    stat(".",&fileStat);
    while((myfile=readdir(mydir))!=NULL){
        stat(myfile->d_name,&fileStat);
        if(strcmp(myfile->d_name,".")!=0 && strcmp(myfile->d_name,"..")!=0){
            printf("%s\n",myfile->d_name);
            printf("File Permission:\n");
            printf( (S_ISDIR(fileStat.st_mode)) ? "d" : "-");
            printf( (fileStat.st_mode & S_IRUSR) ? "r" : "-");
            printf( (fileStat.st_mode & S_IWUSR) ? "w" : "-");
            printf( (fileStat.st_mode & S_IXUSR) ? "x" : "-");
            printf( (fileStat.st_mode & S_IRGRP) ? "r" : "-");
            printf( (fileStat.st_mode & S_IWGRP) ? "w" : "-");
            printf( (fileStat.st_mode & S_IXGRP) ? "x" : "-");
            printf( (fileStat.st_mode & S_IROTH) ? "r" : "-");
            printf( (fileStat.st_mode & S_IWOTH) ? "w" : "-");
            printf( (fileStat.st_mode & S_IXOTH) ? "x" : "-");
            printf("\n");
        }
    }
    closedir(mydir);
    return 0;
}
```



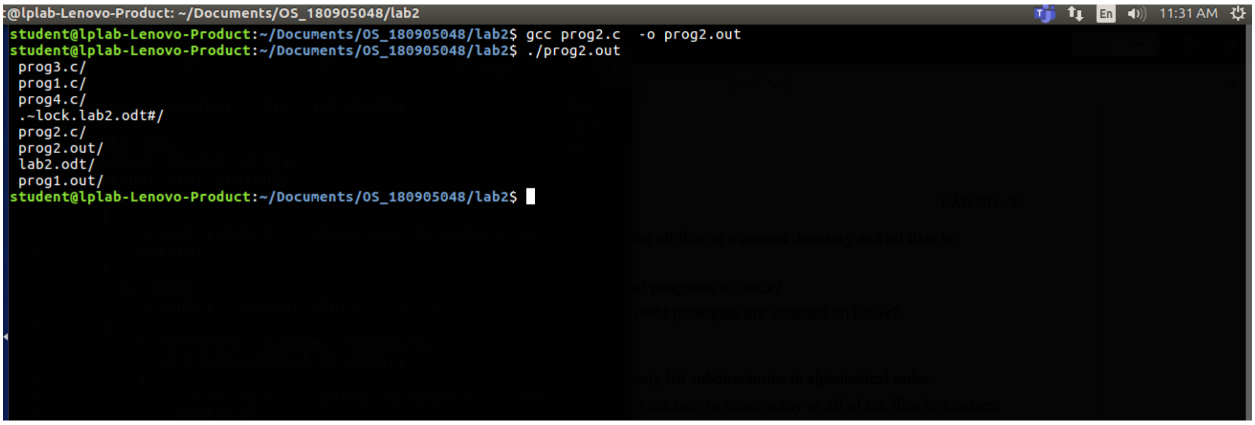
```
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ gcc prog1.c  -o prog1.out
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ ./prog1.out
prog3.c
File Permission:
-rw-rw-r--
prog1.c
File Permission:
-rw-rw-r--
prog4.c
File Permission:
-rw-rw-r--
.~lock.lab2.odt#
File Permission:
-rw-rw-r--
prog2.c
File Permission:
-rw-rw-r--
prog2.out
File Permission:
-rwxrwxr-x
lab2.odt
File Permission:
-rw-rw-r--
prog1.out
File Permission:
-rwxrwxr-x
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$
```

Q2

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

void printdir(char * dir, int depth)
{
        DIR* dp;
        struct dirent* entry;
        struct stat statbuf;
        if((dp = opendir(dir)) == NULL)
        {
                fprintf(stderr, "cannot open directory: %s\n", dir);
                return;
        }
        chdir(dir);
        while((entry = readdir(dp)) != NULL)
        {
                lstat(entry->d_name, &statbuf);
                if(S_ISDIR(statbuf.st_mode))
                {
                        if(strcmp(".", entry->d_name)==0 || strcmp("..", entry->d_name)==0)
                        continue;
                        printf("%*s%s/\n",depth," ",entry->d_name);
                        printdir(entry->d_name, depth+4);
                }
                else
                        printf("%*s%s/\n", depth," ", entry->d_name);
        }
```

```
    chdir("..");
    closedir(dp);
    }
    int main(int argc, char const *argv[])
    {
        /* code */
        printdir(".", 0);
        exit(0);
    }
```



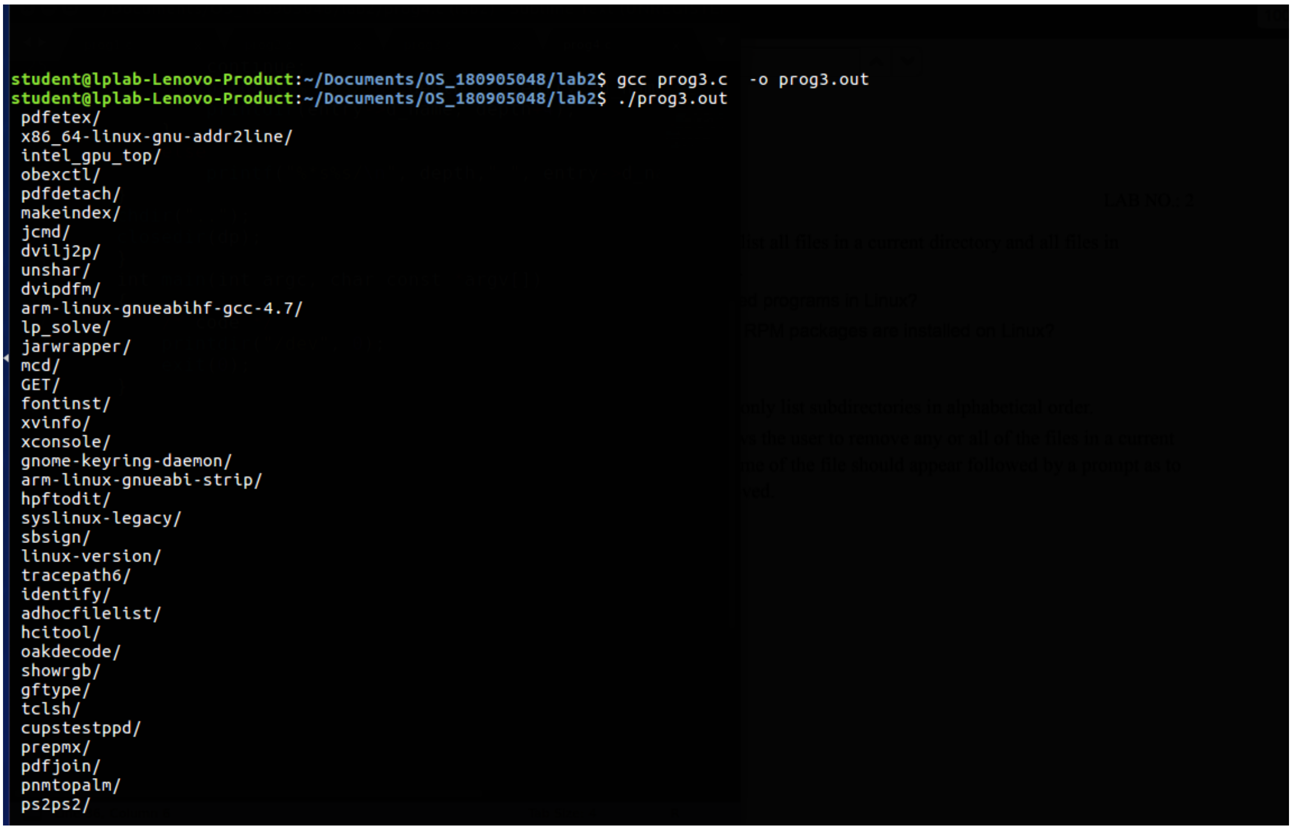
```
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ gcc prog2.c  -o prog2.out
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ ./prog2.out
 prog3.c/
 prog1.c/
 prog4.c/
 .~lock.lab2.odt#/
 prog2.c/
 prog2.out/
 lab2.odt/
 prog1.out/
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ 
```

Q3

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

void printdir(char * dir, int depth)
{
    DIR* dp;
    struct dirent* entry;
    struct stat statbuf;
    if((dp = opendir(dir)) == NULL)
    {
        fprintf(stderr, "cannot open directory: %s\n", dir);
        return;
    }
    chdir(dir);
    while((entry = readdir(dp)) != NULL)
    {
        lstat(entry->d_name, &statbuf);
        if(S_ISDIR(statbuf.st_mode))
        {
            if(strcmp(".", entry->d_name)==0 || strcmp("..", entry->d_name)==0)
            continue;
            printf("%*s%s/\n",depth," ",entry->d_name);
```

```
                printdir(entry->d_name, depth+4);
            }
            else
                printf("%*s%s/\n", depth," ", entry->d_name);
    }
    chdir("..");
    closedir(dp);
    }
    int main(int argc, char const *argv[])
    {
            /* code */
            printdir("/usr/bin", 0);
            exit(0);
    }
```



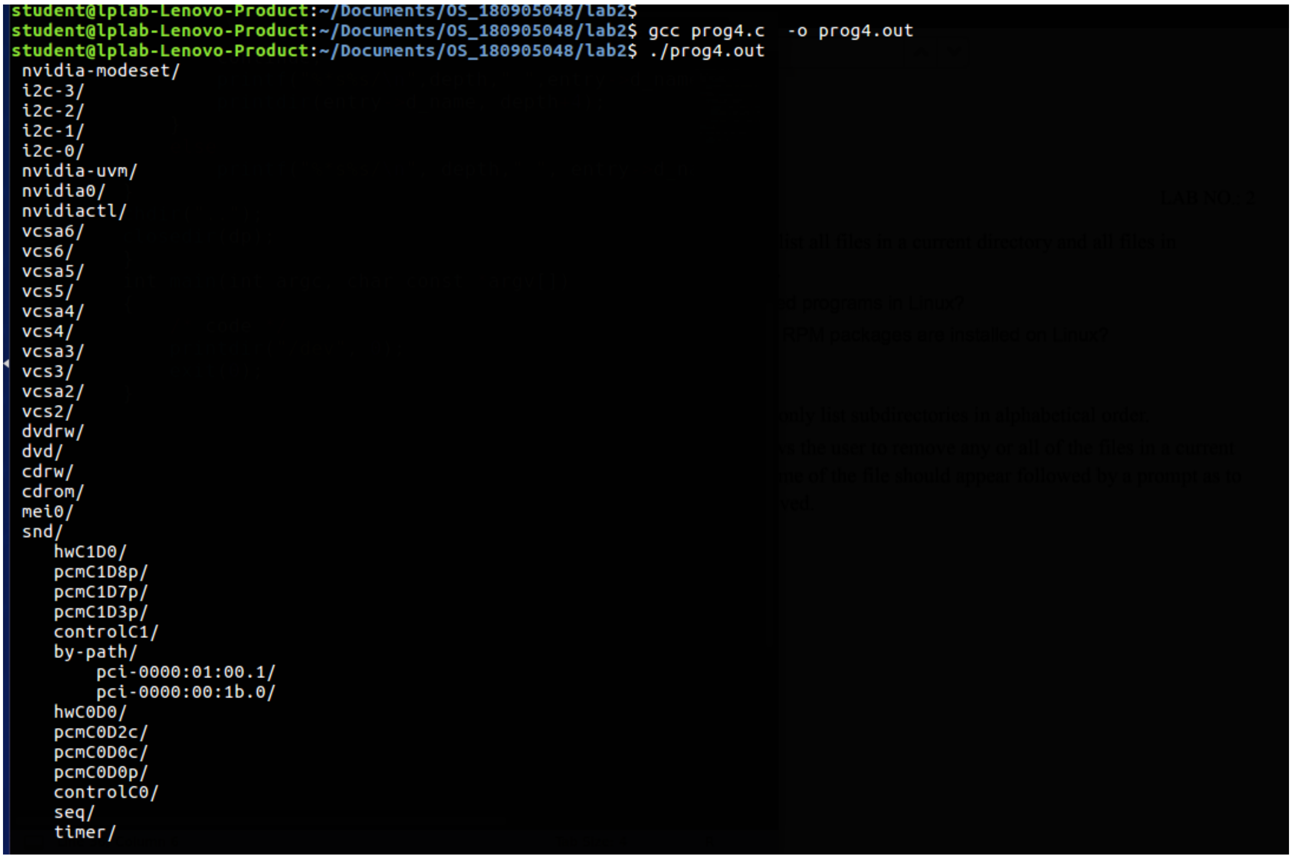
```
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ gcc prog3.c  -o prog3.out
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ ./prog3.out
 pdfetex/
 x86_64-linux-gnu-addr2line/
 intel_gpu_top/
 obexctl/
 pdfdetach/
 makeindex/
 jcmd/
 dvilj2p/
 unshar/
 dvipdfm/
 arm-linux-gnueabihf-gcc-4.7/
 lp_solve/
 jarwrapper/
 mcd/
 GET/
 fontinst/
 xvinfo/
 xconsole/
 gnome-keyring-daemon/
 arm-linux-gnueabi-strip/
 hpftodit/
 syslinux-legacy/
 sbsign/
 linux-version/
 tracepath6/
 identify/
 adhocfilelist/
 hcitool/
 oakdecode/
 showrgb/
 gftype/
 tclsh/
 cupstestppd/
 prepmx/
 pdfjoin/
 pnmtopalm/
 ps2ps2/
```

Q4

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

void printdir(char * dir, int depth)
```

```
{
    DIR* dp;
    struct dirent* entry;
    struct stat statbuf;
    if((dp = opendir(dir)) == NULL)
    {
        fprintf(stderr, "cannot open directory: %s\n", dir);
        return;
    }
    chdir(dir);
    while((entry = readdir(dp)) != NULL)
    {
        lstat(entry->d_name, &statbuf);
        if(S_ISDIR(statbuf.st_mode))
        {
            if(strcmp(".", entry->d_name)==0 || strcmp("..", entry->d_name)==0)
            continue;
            printf("%*s%s/\n",depth," ",entry->d_name);
            printdir(entry->d_name, depth+4);
        }
        else
            printf("%*s%s/\n", depth," ", entry->d_name);
    }
    chdir("..");
    closedir(dp);
    }
    int main(int argc, char const *argv[])
    {
        /* code */
        printdir("/dev", 0);
        exit(0);
    }
```



```
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ gcc prog4.c  -o prog4.out
student@lplab-Lenovo-Product:~/Documents/OS_180905048/lab2$ ./prog4.out
 nvidia-modeset/
 i2c-3/
 i2c-2/
 i2c-1/
 i2c-0/
 nvidia-uvm/
 nvidia0/
 nvidiactl/
 vcsa6/
 vcs6/
 vcsa5/
 vcs5/
 vcsa4/
 vcs4/
 vcsa3/
 vcs3/
 vcsa2/
 vcs2/
 dvdrw/
 dvd/
 cdrw/
 cdrom/
 mei0/
 snd/
    hwC1D0/
    pcmC1D8p/
    pcmC1D7p/
    pcmC1D3p/
    controlC1/
    by-path/
        pci-0000:01:00.1/
        pci-0000:00:1b.0/
    hwC0D0/
    pcmC0D2c/
    pcmC0D0c/
    pcmC0D0p/
    controlC0/
    seq/
    timer/
```