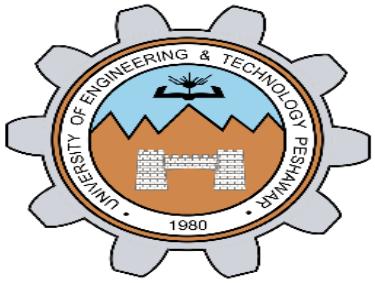
Lab report no 8



Fall 2022

Computer System Programming Lab

Submitted By

Names	Registration No
Muhammad Ali	**19pwcse1801**

Section: **A**

Date:17,2,22

SubmittedTo:

MAM. Madiha Sher

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task no 1: -

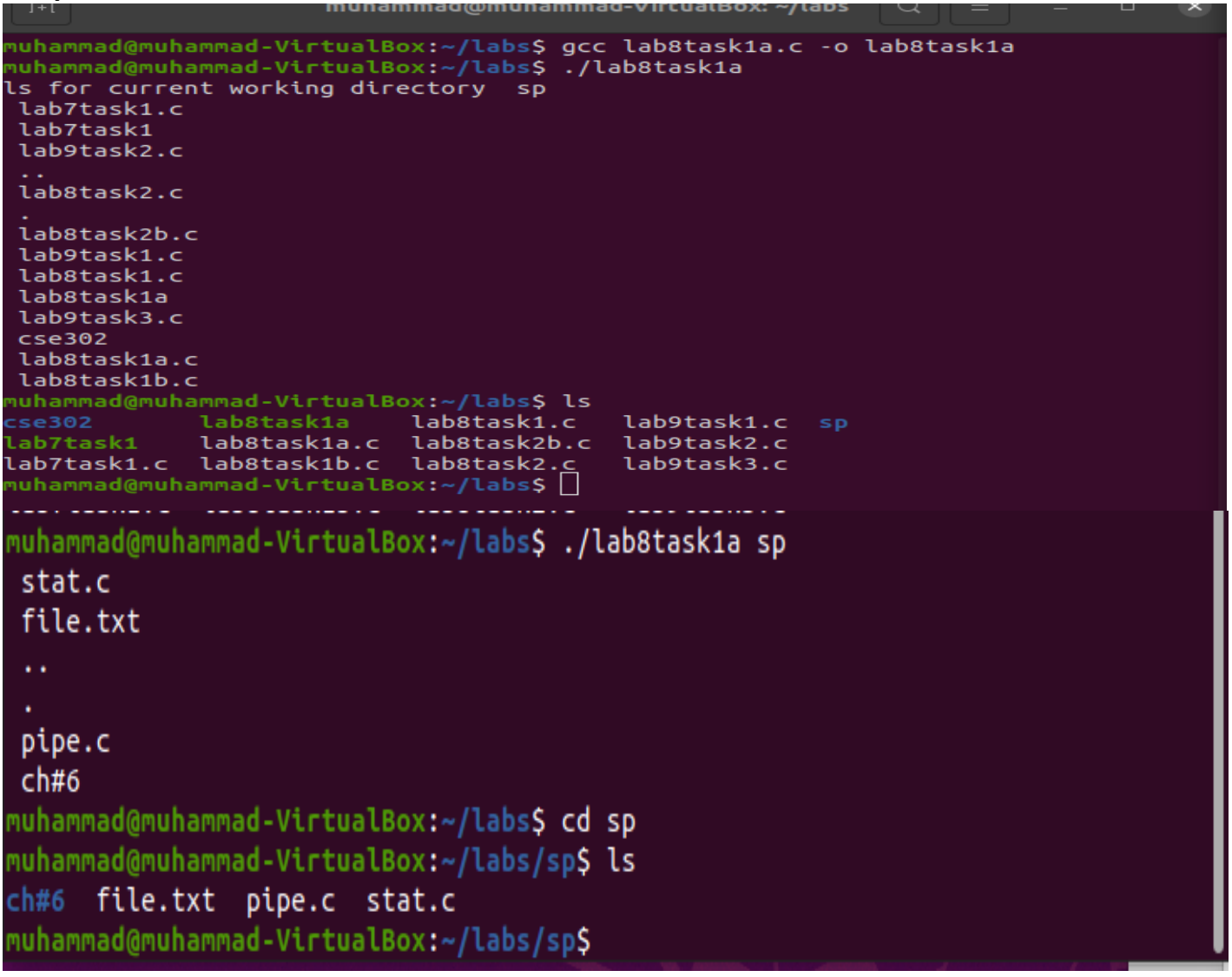
In this task we simple implement ‘ls’ command which display the list of files or directories inside the specified directory.

Code: -

```
#include<stdio.h>
#include<unistd.h>
#include<error.h>
#include<sys/stat.h>
#include<time.h>
#include<dirent.h>
int main(int arg, char* av[]){

      DIR *dirp;
     struct dirent *dp;
    char * fname;

         if (arg==1){
         printf("ls for current working directory  ");
         fname=".";
  }

      else
{
     fname=av[1];
}
  dirp=opendir(fname);

       if (dirp==NULL) {
      perror("failed to open directory: ");
  }

    while ((dp=readdir(dirp))!=NULL)
   {

    if (dp==NULL)
   {
    perror("can't read: ");
  }

     else
  {
    printf(" %s ",dp->d_name);
```

```
    printf(" \n");
   }
  }

  closedir(dirp);
  return 0;
}
```

Output: -



Task no 2: -

Here I implement 'ls -l' which list out all files and directories with all information included in 'struct dirent * ' of inode table executing the program without argument run ls-l for current working directory but we can run ls-l for specific directory by mentioning at first command line argument.

Code: -

```
#include<unistd.h>
#include <stdio.h>
#include <sys/stat.h>
#include <sys/types.h>
#include<stdlib.h>
#include<error.h>
#include<dirent.h>
#include<time.h>
#include<pwd.h>
#include <grp.h>
int main(int argc, char *argv[])
{
  struct passwd *pw;
  struct group *gp;
  DIR *mydir;
  char *c;
  int i;
  struct dirent *myfile;
  struct stat fileStat;

  if (argc==1)
  {
  printf("ls -l for cwd ");
  fname=".";
  }
else {
    fname=argv[1];
}
  mydir=opendir(fname);

   if (mydir==NULL)
   {
     perror("failed to open directory: ");
    }

  while((myfile=readdir(mydir))!=NULL)
```

```
 {
  stat(argv[1],&fileStat);

       if (myfile==NULL)
 {
      perror("failed to directory: ");
 }
      if(stat(myfile->d_name,&fileStat)==-1)
  {
     perror("failed");
  }

  else {

  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(" ");

  printf("%ld ",fileStat.st_nlink);
  pw=getpwuid(fileStat.st_uid);
  printf("%s ",pw->pw_name);
  gp=getgrgid(fileStat.st_gid);
  printf("%s ",gp->gr_name);
  printf("%4ld ",fileStat.st_size);
  c=ctime(&fileStat.st_mtime);

  for(i=4;i<=15;i++)
  printf("%c",c[i]);
  printf(" ");
  printf("%s\n",myfile->d_name);
 }
}
 closedir(mydir);
 return 0;
}
```

Output: -

```
muhammad@muhammad-VirtualBox:~/labs$ ./lab8task2b
ls -l for cwd drwxrwxr-x 3 muhammad muhammad 4096 Feb 14 21:38 sp
-rw-rw-r-- 1 muhammad muhammad  425 Feb 16 19:38 lab7task1.c
-rwxrwxr-x 1 muhammad muhammad 16832 Feb 16 19:07 lab7task1
-rw-rw-r-- 1 muhammad muhammad  746 Feb 16 20:46 lab9task2.c
drwxr-xr-x 17 muhammad muhammad 4096 Feb 17 00:38 ..
-rw-rw-r-- 1 muhammad muhammad 1274 Feb 16 23:58 lab8task2.c
drwxrwxr-x 4 muhammad muhammad 4096 Feb 17 20:46 .
-rw-rw-r-- 1 muhammad muhammad 1772 Feb 17 20:46 lab8task2b.c
-rw-rw-r-- 1 muhammad muhammad  576 Feb 15 00:46 lab9task1.c
-rw-rw-r-- 1 muhammad muhammad 1207 Feb 16 19:34 lab8task1.c
-rwxrwxr-x 1 muhammad muhammad 16928 Feb 17 20:33 lab8task1a
-rw-rw-r-- 1 muhammad muhammad  771 Feb 15 00:03 lab9task3.c
drwxrwxr-x 2 muhammad muhammad 4096 Feb  9 23:38 cse302
-rwxrwxr-x 1 muhammad muhammad 17256 Feb 17 20:46 lab8task2b
-rw-rw-r-- 1 muhammad muhammad  629 Feb 17 20:33 lab8task1a.c
-rw-rw-r-- 1 muhammad muhammad 1400 Feb 16 20:47 lab8task1b.c
muhammad@muhammad-VirtualBox:~/labs$
```

```
muhammad@muhammad-VirtualBox:~/labs$ gcc lab8task2b.c -o lab8task2b
muhammad@muhammad-VirtualBox:~/labs$ ./lab8task2b .
drwxrwxr-x 3 muhammad muhammad 4096 Feb 14 21:38 sp
-rw-rw-r-- 1 muhammad muhammad  425 Feb 16 19:38 lab7task1.c
-rwxrwxr-x 1 muhammad muhammad 17064 Feb 15 00:03 lab9task3
-rwxrwxr-x 1 muhammad muhammad 16832 Feb 16 19:07 lab7task1
-rwxrwxr-x 1 muhammad muhammad 17024 Feb 14 14:48 lab9task1
-rw-rw-r-- 1 muhammad muhammad  746 Feb 16 20:46 lab9task2.c
drwxr-xr-x 17 muhammad muhammad 4096 Feb 14 21:28 ..
-rwxrwxr-x 1 muhammad muhammad 17120 Feb 16 23:58 lab8task2
-rw-rw-r-- 1 muhammad muhammad 1274 Feb 16 23:58 lab8task2.c
-rwxrwxr-x 1 muhammad muhammad 17160 Feb 14 21:38 lab9task2
-rwxrwxr-x 1 muhammad muhammad 16984 Feb 16 19:35 lab8task1
drwxrwxr-x 4 muhammad muhammad 4096 Feb 17 00:06 .
-rw-rw-r-- 1 muhammad muhammad 1569 Feb 17 00:03 lab8task2b.c
-rw-rw-r-- 1 muhammad muhammad  576 Feb 15 00:46 lab9task1.c
-rw-rw-r-- 1 muhammad muhammad 1207 Feb 16 19:34 lab8task1.c
-rw-rw-r-- 1 muhammad muhammad  771 Feb 15 00:03 lab9task3.c
drwxrwxr-x 2 muhammad muhammad 4096 Feb  9 23:38 cse302
-rwxrwxr-x 1 muhammad muhammad 17256 Feb 17 00:06 lab8task2b
-rw-rw-r-- 1 muhammad muhammad 1400 Feb 16 20:47 lab8task1b.c
```

```
muhammad@muhammad-VirtualBox:~/labs$ ls -l
total 180
drwxrwxr-x 2 muhammad muhammad  4096 23:38 9   فروری cse302
-rwxrwxr-x 1 muhammad muhammad 16832 19:07 16  فروری lab7task1
-rw-rw-r-- 1 muhammad muhammad   425 19:38 16  فروری lab7task1.c
-rwxrwxr-x 1 muhammad muhammad 16984 19:35 16  فروری lab8task1
-rw-rw-r-- 1 muhammad muhammad  1400 20:47 16  فروری lab8task1b.c
-rw-rw-r-- 1 muhammad muhammad  1207 19:34 16  فروری lab8task1.c
-rwxrwxr-x 1 muhammad muhammad 17120 23:58 16  فروری lab8task2
-rwxrwxr-x 1 muhammad muhammad 17256 00:06 17  فروری lab8task2b
-rw-rw-r-- 1 muhammad muhammad  1569 00:03 17  فروری lab8task2b.c
-rw-rw-r-- 1 muhammad muhammad  1274 23:58 16  فروری lab8task2.c
-rwxrwxr-x 1 muhammad muhammad 17024 14:48 14  فروری lab9task1
-rw-rw-r-- 1 muhammad muhammad   576 00:46 15  فروری lab9task1.c
-rwxrwxr-x 1 muhammad muhammad 17160 21:38 14  فروری lab9task2
-rw-rw-r-- 1 muhammad muhammad   746 20:46 16  فروری lab9task2.c
-rwxrwxr-x 1 muhammad muhammad 17064 00:03 15  فروری lab9task3
-rw-rw-r-- 1 muhammad muhammad   771 00:03 15  فروری lab9task3.c
drwxrwxr-x 3 muhammad muhammad  4096 21:38 14  فروری sp
muhammad@muhammad-VirtualBox:~/labs$
```