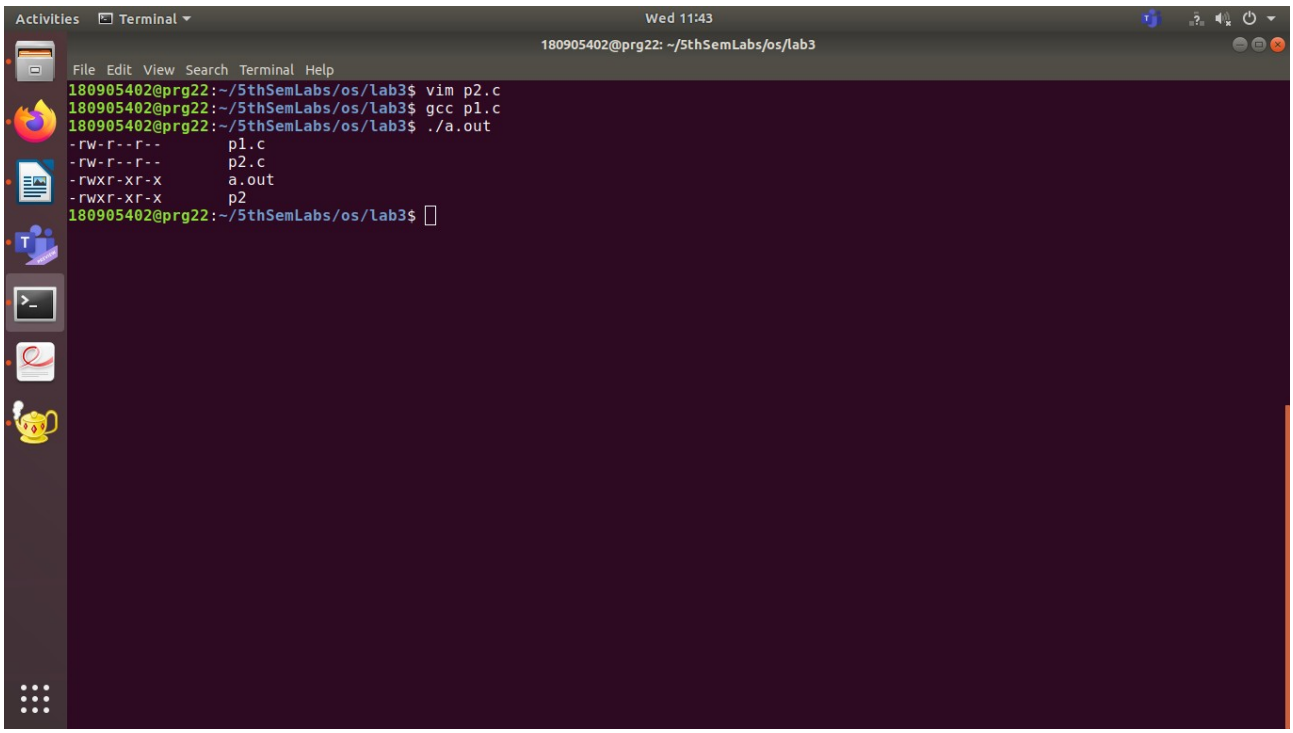
OS LAB 2

q1. print all files and access privileges for the current directory

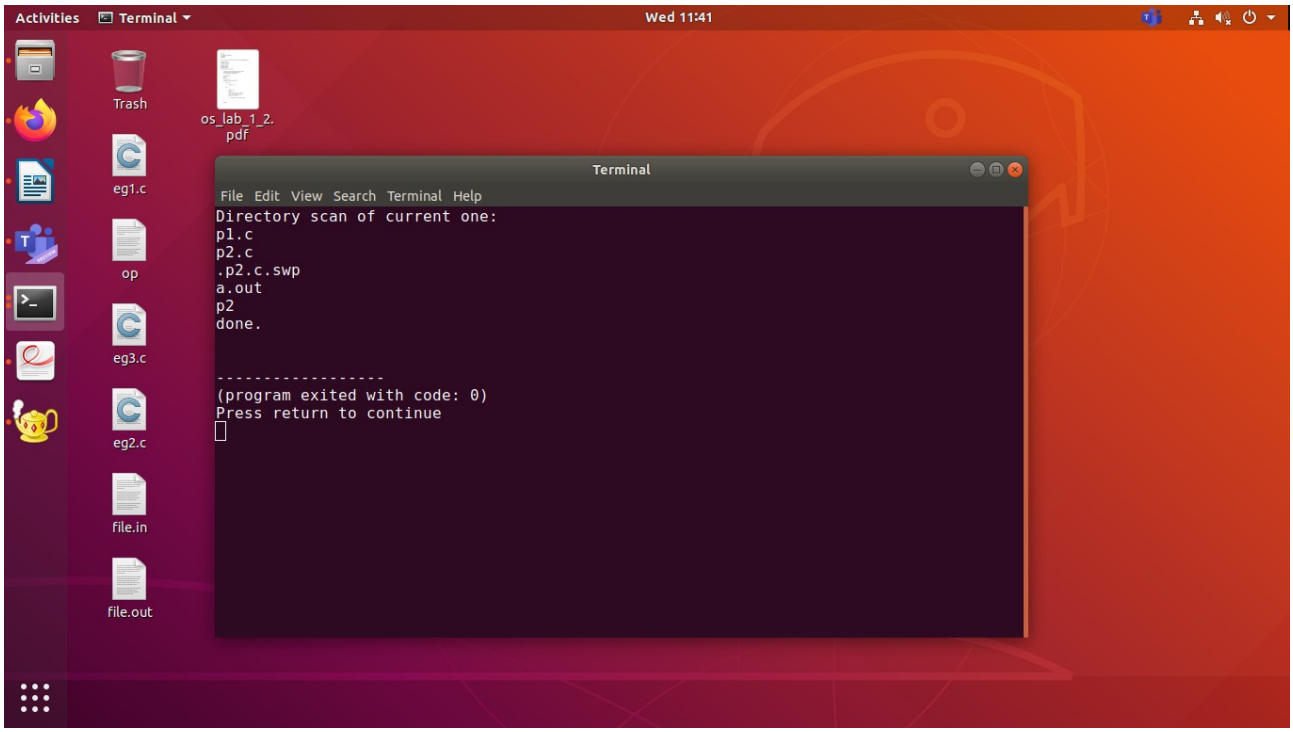
```
#include <unistd.h>
#include <stdio.h>
#include <sys/stat.h>
#include <sys/types.h>
#include<dirent.h>
#include<stdlib.h>
int main()
{
    DIR* dp;
    struct dirent* entry;
    struct stat statbuf;
    if((dp = opendir(".")) == NULL)
    {
        printf("Cannot open directory \n");
        return 0;
    }
    chdir(".");
    while((entry = readdir(dp)) != NULL)
    {
        lstat(entry->d_name,&statbuf);
        if(!S_ISDIR(statbuf.st_mode))
     {
            //printf("%s \t    ",entry->d_name);
            printf( (S_ISDIR(statbuf.st_mode)) ? "d" : "-");
            printf( (statbuf.st_mode & S_IRUSR) ? "r" : "-");
            printf( (statbuf.st_mode & S_IWUSR) ? "w" : "-");
            printf( (statbuf.st_mode & S_IXUSR) ? "x" : "-");
            printf( (statbuf.st_mode & S_IRGRP) ? "r" : "-");
            printf( (statbuf.st_mode & S_IWGRP) ? "w" : "-");
            printf( (statbuf.st_mode & S_IXGRP) ? "x" : "-");
            printf( (statbuf.st_mode & S_IROTH) ? "r" : "-");
            printf( (statbuf.st_mode & S_IWOTH) ? "w" : "-");
            printf( (statbuf.st_mode & S_IXOTH) ? "x" : "-");
         printf("\t %s \t  ", entry->d_name);
            printf("\n");
        }
    }
}
```



q2. List all the directories and the subdirectories

```
#include <unistd.h>
#include <stdio.h>
#include <dirent.h>
#include <string.h>
#include <sys/stat.h>
#include <stdlib.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))
          {
               /* Found a directory, but ignore . and .. */
               if(strcmp(".",entry->d_name) == 0 ||
strcmp("..",entry->d_name) == 0)
               {
                    continue;
               }
               printf("%*s%s/\n",depth,"",entry->d_name);
```

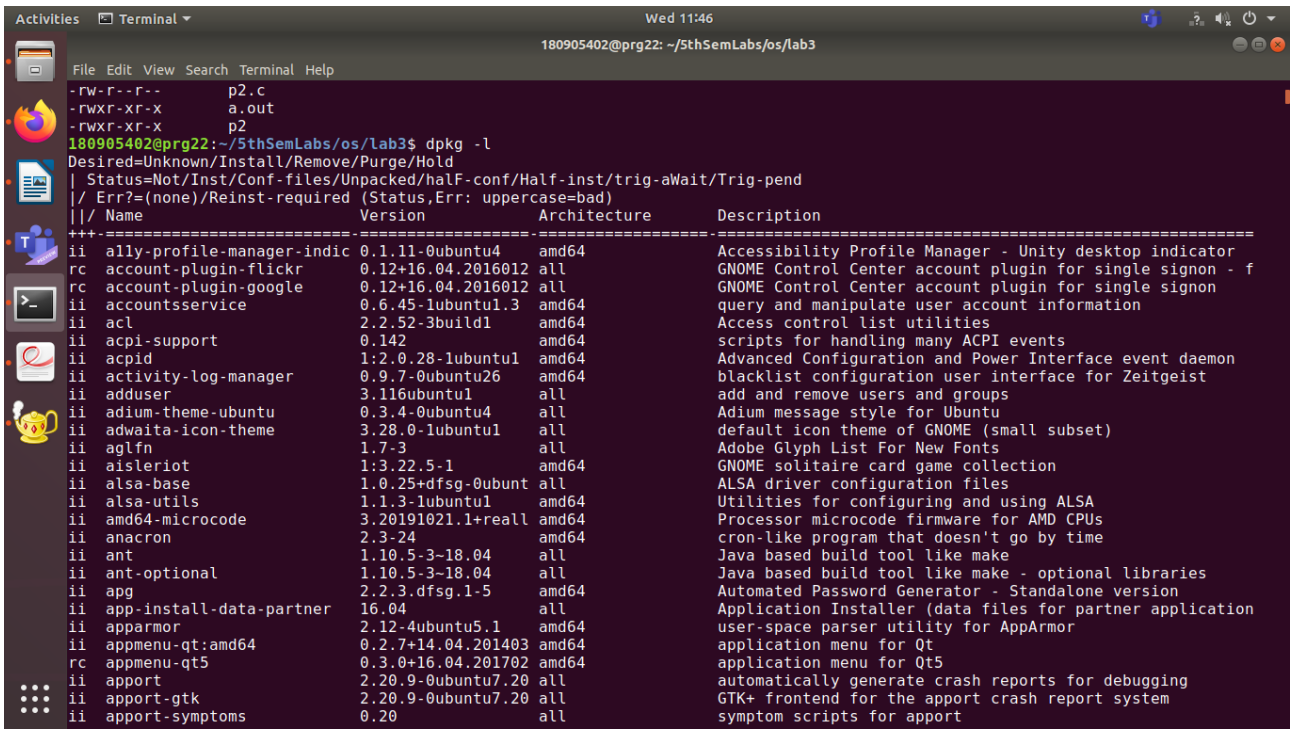
```
                /* Recurse at a new indent level */
                printdir(entry->d_name,depth+4);
            }
            else
            {
                printf("%*s%s\n",depth,"",entry->d_name);
            }
        }
        chdir("..");
        closedir(dp);
}

int main()
{
        printf("Directory scan of current one:\n");
        printdir(".",0);
        printf("done.\n");
        exit(0);
}
```



q3.
command to list all installed programs:

```
dpkg -l
```

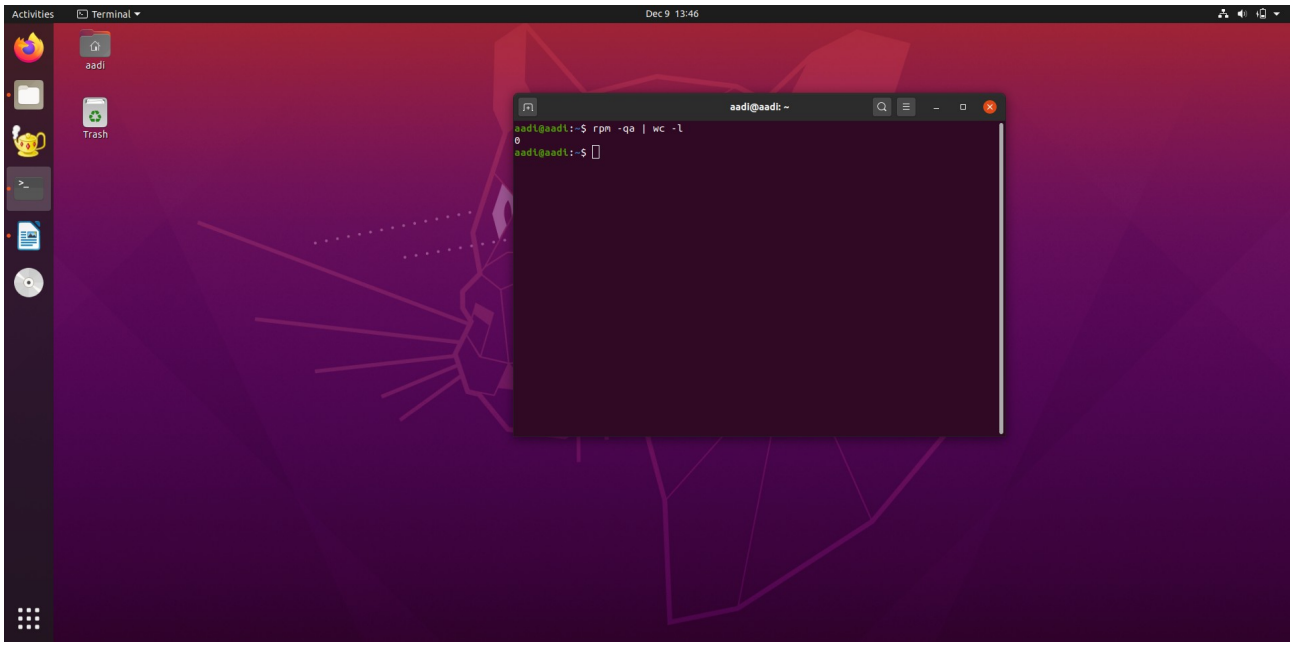
dpkg is used to install, remove, and provide information about .deb packages. It is a low level tool. To install a new package, we use: dpkg -i <file name>



q4. List the rpm packages.

Rpm -qa

RPM stands for red-hat package manager. It is a free and open source package management tool.



(My ubuntu 20.04 LTS does not have any rp based packages)