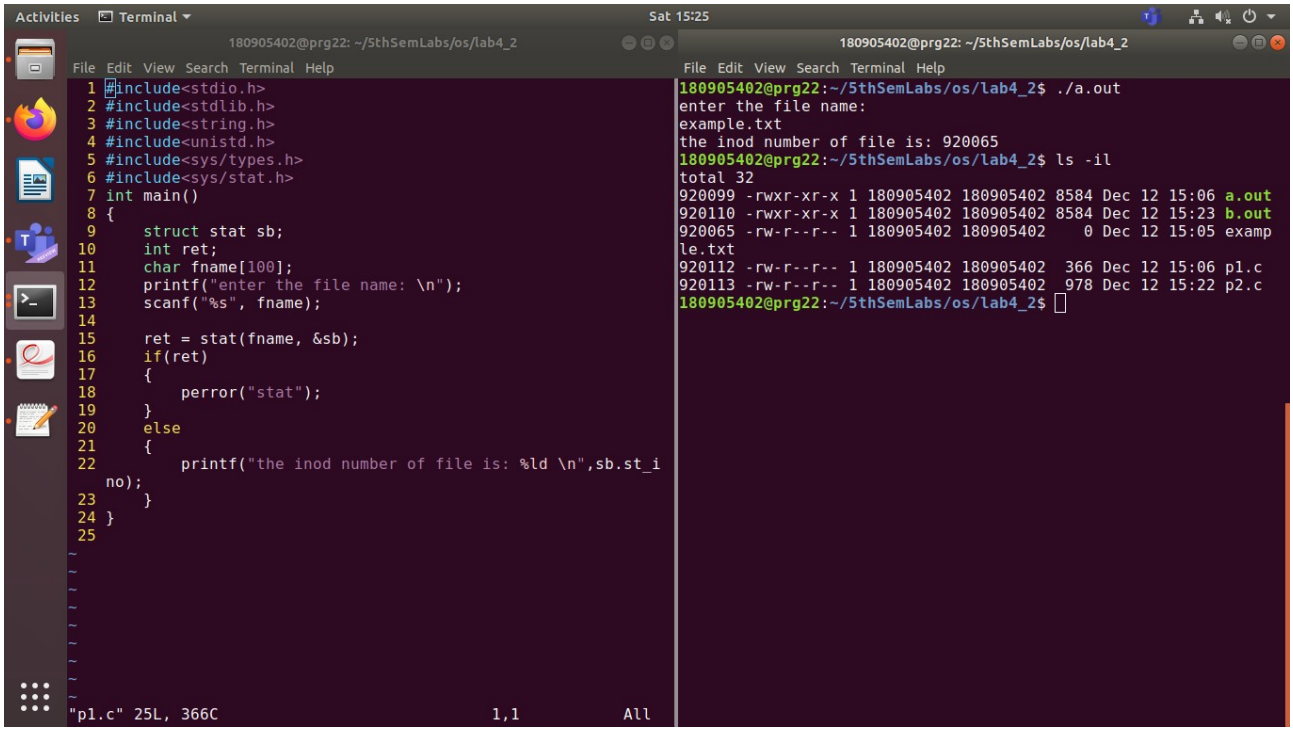
LAB4: FILE SYSTEM

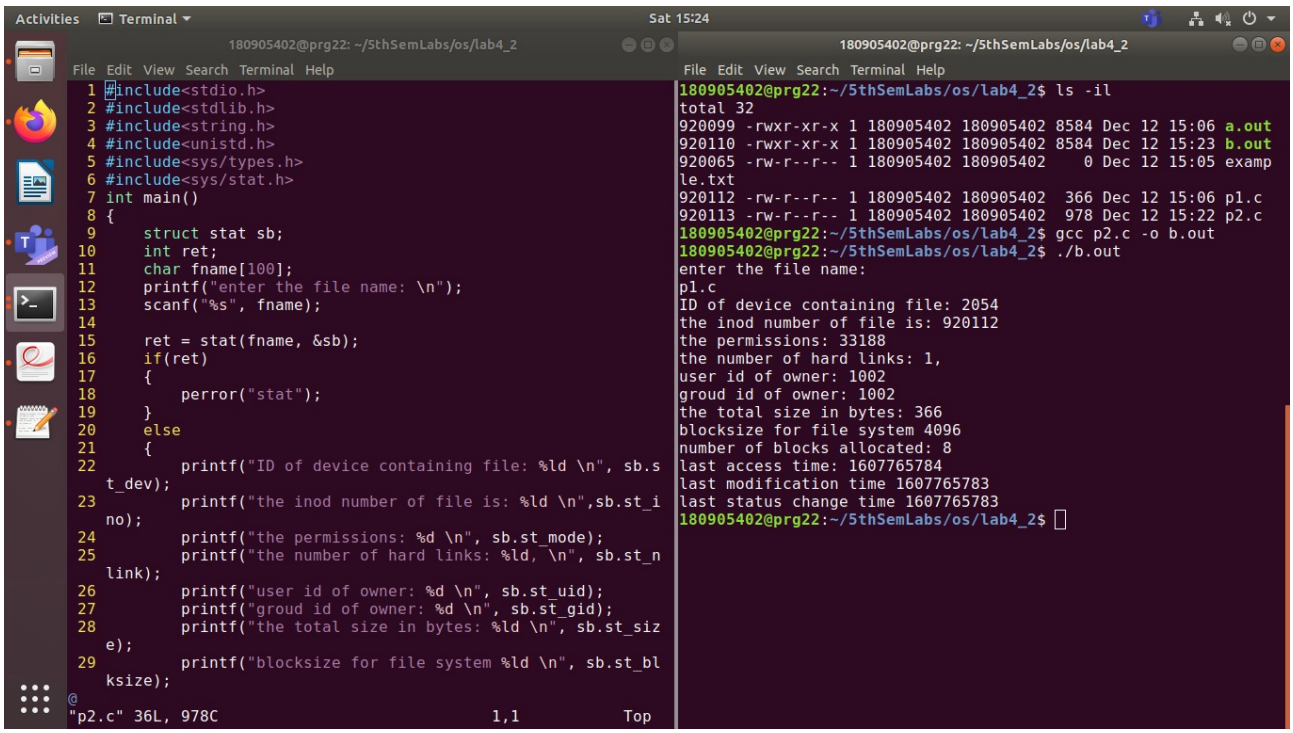
Q1) Find inode number of an existing file

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<unistd.h>
#include<sys/types.h>
#include<sys/stat.h>
int main()
{
	struct stat sb;
	int ret;
	char fname[100];
	printf("enter the file name: \n");
	scanf("%s", fname);

	ret = stat(fname, &sb);
	if(ret)
	{
		perror("stat");
	}
	else
	{
		printf("the inod number of file is: %ld \n",sb.st_ino);
	}
}
```



Q2) print the complete stat structure of the file

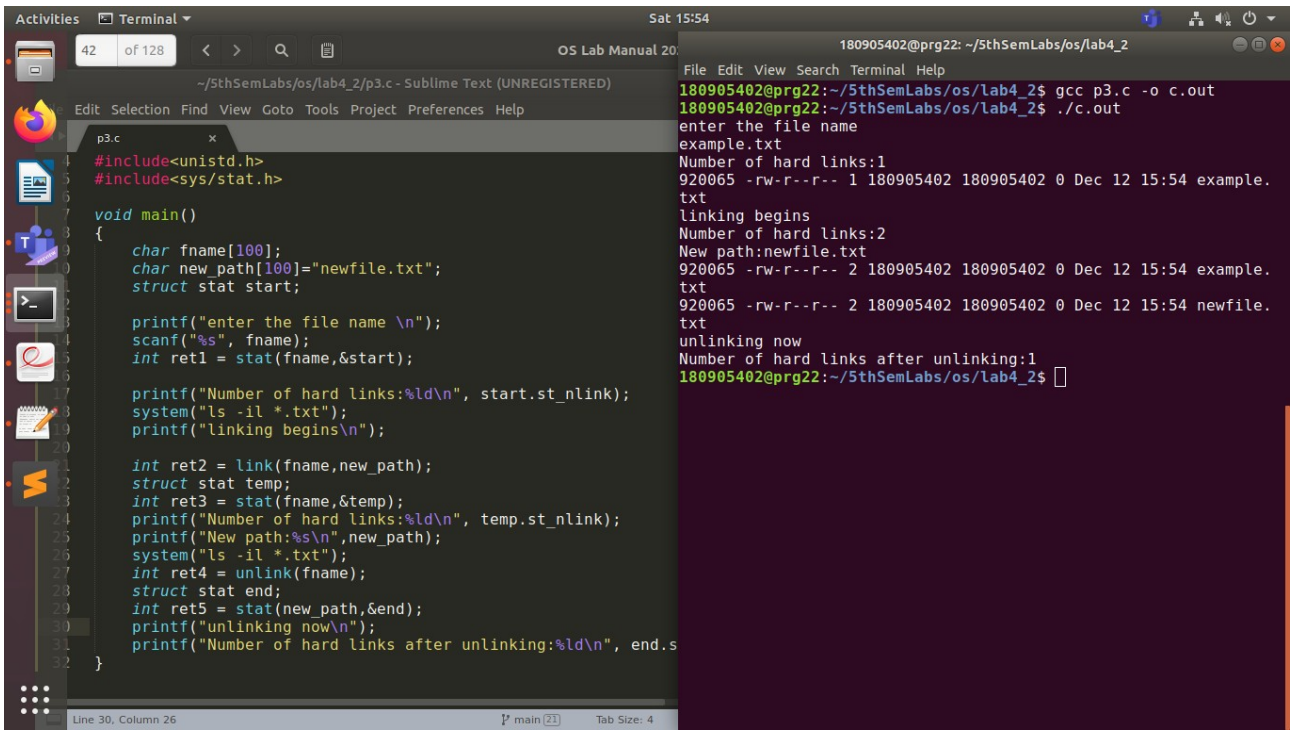
```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<unistd.h>
#include<sys/types.h>
#include<sys/stat.h>
int main()
{
	struct stat sb;
	int ret;
	char fname[100];
	printf("enter the file name: \n");
	scanf("%s", fname);

	ret = stat(fname, &sb);
	if(ret)
	{
		perror("stat");
	}
	else
	{
		printf("ID of device containing file: %ld \n", sb.st_dev);
		printf("the inod number of file is: %ld \n",sb.st_ino);
		printf("the permissions: %d \n", sb.st_mode);
		printf("the number of hard links: %ld, \n", sb.st_nlink);
		printf("user id of owner: %d \n", sb.st_uid);
		printf("groud id of owner: %d \n", sb.st_gid);
		printf("the total size in bytes: %ld \n", sb.st_size);
		printf("blocksize for file system %ld \n", sb.st_blksize);
		printf("number of blocks allocated: %ld \n", sb.st_blocks);
		printf("last access time: %ld \n", sb.st_atime);
		printf("last modification time %ld \n", sb.st_mtime);
		printf("last status change time %ld \n", sb.st_ctime);
	}
}
```



Q3)create a new hard link to an existing file and unlink the old link

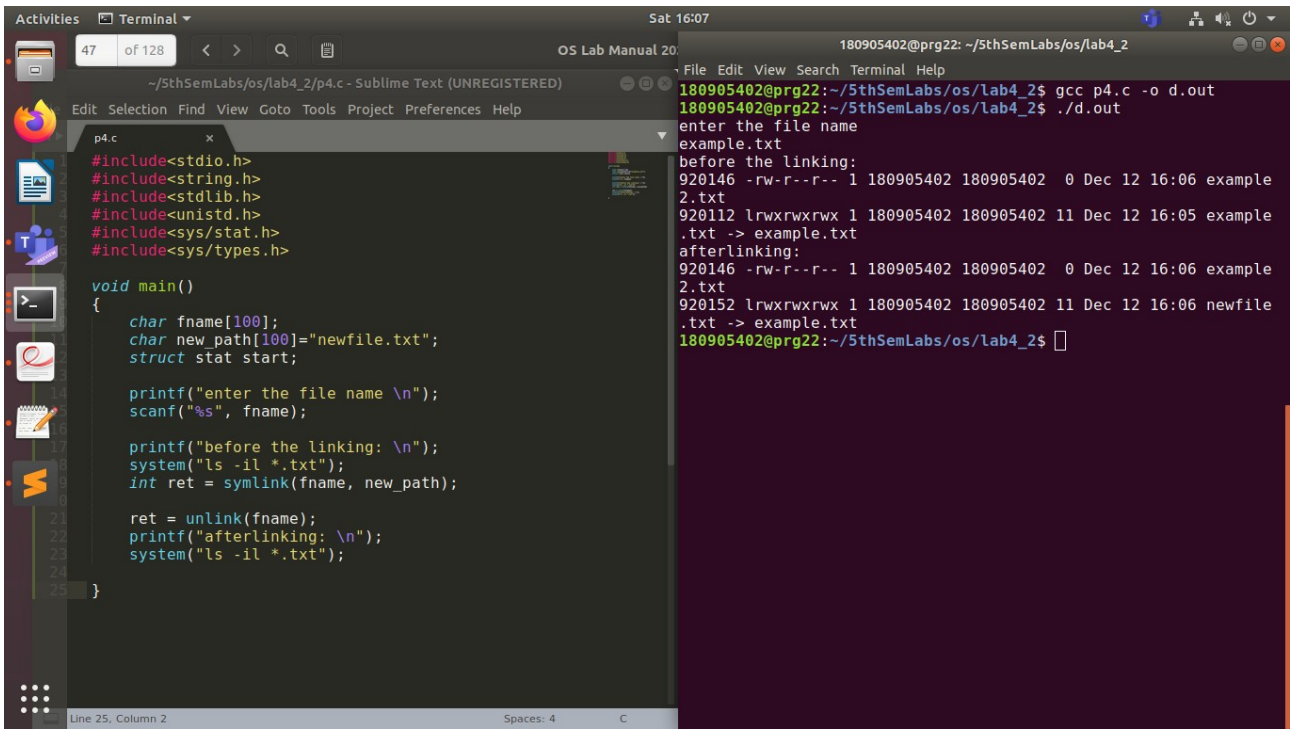
```
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/stat.h>

void main()
{
        char fname[100];
   char new_path[100]="newfile.txt";
   struct stat start;

   printf("enter the file name \n");
   scanf("%s", fname);
   int ret1 = stat(fname,&start);

   printf("Number of hard links:%ld\n", start.st_nlink);
   system("ls -il *.txt");
   printf("linking begins\n");

   int ret2 = link(fname,new_path);
   struct stat temp;
   int ret3 = stat(fname,&temp);
   printf("Number of hard links:%ld\n", temp.st_nlink);
   printf("New path:%s\n",new_path);
   system("ls -il *.txt");
   int ret4 = unlink(fname);
   struct stat end;
   int ret5 = stat(new_path,&end);
   printf("unlinking now\n");
```

```
    printf("Number of hard links after unlinking:%ld\n", end.st_nlink);
}
```



Q4)

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

void main()
{
        char fname[100];
   char new_path[100]="newfile.txt";
   struct stat start;

   printf("enter the file name \n");
   scanf("%s", fname);

   printf("before the linking: \n");
   system("ls -il *.txt");
   int ret = symlink(fname, new_path);

   ret = unlink(fname);
   printf("afterlinking: \n");
   system("ls -il *.txt");
}
```


Activities
Terminal
Sat 16:07
47 of 128
OS Lab Manual 20
~/5thSemLabs/os/lab4_2/p4.c - Sublime Text (UNREGISTERED)
Edit Selection Find View Goto Tools Project Preferences Help
p4.c
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
#include<unistd.h>
#include<sys/stat.h>
#include<sys/types.h>
void main()
{
char fname[100];
char new_path[100]="newfile.txt";
struct stat start;
printf("enter the file name \n");
scanf("%s", fname);
printf("before the linking: \n");
system("ls -il *.txt");
int ret = symlink(fname, new_path);
ret = unlink(fname);
printf("afterlinking: \n");
system("ls -il *.txt");
}
Line 25, Column 2
Spaces: 4
C
180905402@prg22: ~/5thSemLabs/os/lab4_2
File Edit View Search Terminal Help
180905402@prg22:~/5thSemLabs/os/lab4_2$ gcc p4.c -o d.out
180905402@prg22:~/5thSemLabs/os/lab4_2$ ./d.out
enter the file name
example.txt
before the linking:
920146 -rw-r--r-- 1 180905402 180905402 0 Dec 12 16:06 example
2.txt
920112 lrwxrwxrwx 1 180905402 180905402 11 Dec 12 16:05 example
.txt -> example.txt
afterlinking:
920146 -rw-r--r-- 1 180905402 180905402 0 Dec 12 16:06 example
2.txt
920152 lrwxrwxrwx 1 180905402 180905402 11 Dec 12 16:06 newfile
.txt -> example.txt
180905402@prg22:~/5thSemLabs/os/lab4_2$