

## OS Lab 4

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roll - 58

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Q1.

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

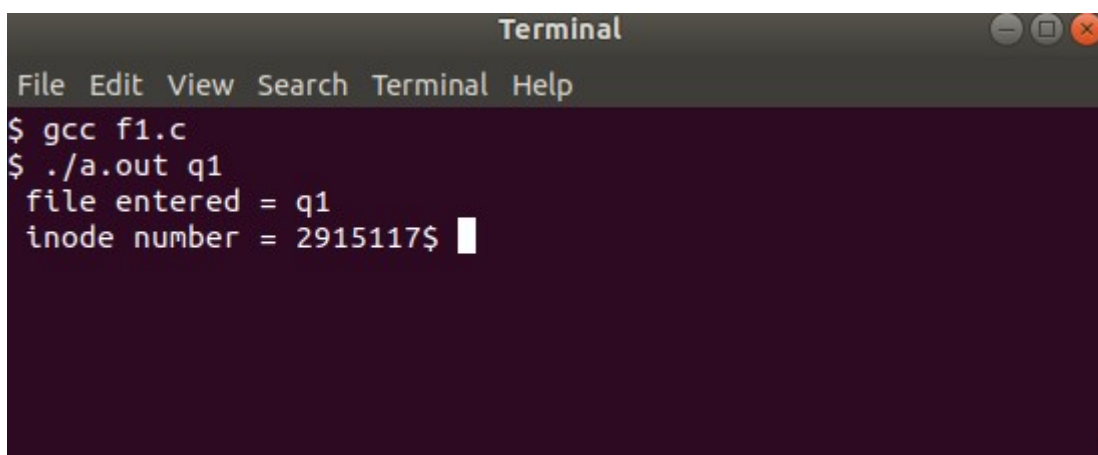
int main(int argc , char*argv[])
{
    struct stat sb;
    int ret;
    if(argc < 2){
        printf(" enter file name \n");
        exit(0);
    }

    printf(" file entered = %s",argv[1]);
    ret = stat(argv[1],&sb);

    if(ret){
        perror("stat");
        exit(0);
    }

    printf("\n inode number = %ld",sb.st_ino);

    return 0;
}
```

A screenshot of a terminal window titled "Terminal". The window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal shows the following commands and output:

```
$ gcc f1.c
$ ./a.out q1
file entered = q1
inode number = 2915117$
```

Q2.

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

int main(int argc , char*argv[])
{
    struct stat sb;
    int ret;
    if(argc < 2){
        printf(" enter file name \n");
        exit(0);
    }

    printf(" file entered = %s",argv[1]);
    ret = stat(argv[1],&sb);

    if(ret){
        perror("stat");
        exit(0);
    }

    printf("\n dev number = %ld\n",sb.st_dev);
    printf("\n inode number = %ld\n",sb.st_ino);
    printf("\n mode = %d\n",sb.st_mode);
    printf("\n nlink = %ld\n",sb.st_nlink);
    printf("\n uid number = %d\n",sb.st_uid);
    printf("\n gid number = %d\n",sb.st_gid);
    printf("\n device id = %ld\n",sb.st_rdev);
    printf("\n file size = %ld\n",sb.st_size);
    printf("\n block size = %ld\n",sb.st_blksize);
    printf("\n number of 512B blocks = %ld\n",sb.st_blksize);
    printf("\n time last accessed = %s\n",ctime(&sb.st_atim));
    printf("\n Last modified time: %s\n", ctime(&sb.st_mtim));
    printf("\n status change time: %s\n", ctime(&sb.st_ctim));
    return 0;
}
```

```
Terminal
File Edit View Search Terminal Help
$ ./a.out q1
file entered = q1
dev number = 2055

inode number = 2915117

mode = 33263

nlink = 3

uid number = 1004

gid number = 1004

device id = 0

file size = 8520

block size = 4096

number of 512B blocks = 4096

time last accessed = Thu Dec 10 13:23:20 2020

Last modified time: Thu Dec 10 13:23:01 2020

status change time: Thu Dec 10 15:09:19 2020
$
```

//

Q3

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

int main(int argc , char*argv[])
{
    struct stat sb;
    int ret,ret2;
    FILE * fptr;
    // if(argc < 2){
    //     printf(" enter file name \n");
```

```

//      exit(0);
// }
char oldpath[100];
char c;
printf("Enter old path\n");
scanf("%s", oldpath);

// printf(" file entered = %s",argv[1]);
// ret = link("/home/student/Desktop/hello.txt","/home/student/Desktop/newname4");
ret = link(oldpath,"/home/student/Desktop/newname4");
fptr = fopen("/home/student/Desktop/newname4", "r");

// print file using new filename
printf(" content of file using new file name\n");
c = fgetc(fptr);
while(c!=EOF ){

    printf("%c\n",c );
    c = getc(fptr);
}

if(ret !=0){
    perror("link");
    // printf(" %m \n",errno );
    exit(0);
}else{
    printf("link created \n");
}

ret2 = unlink("/home/student/Desktop/newname4");

if(ret2!=0){
    perror("unlink");
}
else{
    printf("path is unlinked \n");
}

return 0;
}

```

```
Terminal
File Edit View Search Terminal Help
$ gcc f4.c
$ ./a.out
Enter old path
/home/student/Desktop/hello.txt
content of file using new file name
h
e
l
l
o

link created
path is unlinked
$
```

//

Q4.

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

int main(int argc , char*argv[])
{
    struct stat sb;
    int ret,ret2;
    FILE * fptr;
    // if(argc < 2){
    //     printf(" enter file name \n");
    //     exit(0);
    // }
    char oldpath[100];
    char c;
    printf("Enter old path\n");
    scanf("%s", oldpath);

    // printf(" file entered = %s",argv[1]);
    // ret = link("/home/student/Desktop/hello.txt","/home/student/Desktop/newname4");
    ret = symlink(oldpath,"/home/student/Desktop/newname4");
    fptr = fopen("/home/student/Desktop/newname4", "r");

    // print file using new filename
```

```

printf(" content of file using new file name\n");
c = fgetc(fp);
while(c!=EOF ){

    printf("%c\n",c );
    c = fgetc(fp);
}

if(ret !=0){
    perror("symlink");
    // printf(" %m \n",errno );
    exit(0);
}else{
    printf("soft link created new path : /home/student/Desktop/newname4 \n");
}

// ret2 = unlink("/home/student/Desktop/newname4");

// if(ret2!=0){
//     perror("unlink");
// }
// else{
//     printf("path is unlinked \n");
// }

return 0;
}

```

The image shows a terminal window with a dark background and light-colored text. The terminal title is "Terminal". The menu bar at the top includes "File", "Edit", "View", "Search", "Terminal", and "Help". The command prompt shows the following sequence of commands and outputs:

```

$ gcc f3.c
$ ./a.out
Enter old path
/home/student/Desktop/hello.txt
 content of file using new file name
h
e
l
l
o

soft link created
$ cat newname4
hello
$ rm hello.txt
$ cat newname4
cat: newname4: No such file or directory
$

```