Assignment 1 (linux internals)

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Q-1 Write a program using file operations that demonstrates copying of data from input file
and write into output file, untill reaches end of file data.

 Code –

```
#include<stdio.h>
#include<fcntl.h>
#include<sys/types.h>
#include<sys/stat.h>
#include<unistd.h>
int main()
{
        int fd,len;
        int x;
        char read_buf[100];
        char write_buf[60]="hello from mayur joshi department";


        fd = open ("abc.txt",O_CREAT |O_RDWR,0777); //open and read write


        len = write(fd,write_buf,60);
        printf("data from buffer %d\n",len);


        lseek(fd,0,SEEK_SET); //To reposition of pointer
        if(fd<0)
        printf("File is not there");


        read(fd,read_buf,len);//read from buffeer
        printf("data from buffer %s\n",read_buf);
```

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        close(fd);

        return 0;}

output1—

```
mayur@mayur-VirtualBox:~$ gedit assi1.c
mayur@mayur-VirtualBox:~$ gcc assi1.c
mayur@mayur-VirtualBox:~$ ./a.out
data from buffer 60
data from buffer hello from mayur joshi department
mayur@mayur-VirtualBox:~$
```

Q2.Write a program that demonstrates repositioning of file offset using SEEK_SET,

SEEK_END and SEEK_END.

Code-

#include<stdio.h>

#include<fcntl.h>

#include<sys/types.h>

#include<sys/stat.h>

#include<unistd.h>

int main()

{

        int fd,len;

        char writebuf[300]="hello,this is mayur joshi i am from earth";

        char readbuf[300];

        fd=open("linuxkernal.txt",O_CREAT|O_RDWR,777);

        len = write(fd,writebuf,300);

        printf("return value of write option:%d\n",len);

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```c
        printf("SEEK_SET:%ld\n",lseek(fd,0,SEEK_SET));


        lseek(fd,4,SEEK_SET);

        printf("SEEK_CURR:%ld\n",lseek(fd,0,SEEK_CUR));



        printf("SEEK_END:%ld\n",lseek(fd,0,SEEK_END));


        read(fd,readbuf,len);

        printf("data from buffer: %s\n",readbuf);


        close(fd);

        return 0;
}
```

Output2 –

```
mayur@mayur-VirtualBox:~$ gedit assi2.c
mayur@mayur-VirtualBox:~$ gcc assi2.c
mayur@mayur-VirtualBox:~$ ./a.out
return value of write option:300
SEEK_SET:0
SEEK_CURR:4
SEEK_END:300
data from buffer: ◆◆▓◆
mayur@mayur-VirtualBox:~$
```

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Q3 . Write program that returns "ls -l " kind of structure of information from an existing file or opend file.

Code –

```
#include<stdio.h>
#include<fcntl.h>
#include<unistd.h>
#include<sys/stat.h>
#include<sys/types.h>
int main()
{
                struct stat std;
                int fd;

                stat("ass1.c", &std);
                printf("File size =%lu\n",(std.st_size));

                printf("File inode =%lu \n", std.st_ino);

                printf("size disc of blocks =%lu \n",std.st_blksize);

                printf("\n \n");
                close(fd);
                return 0;
}
```

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Output3—

```
mayur@mayur-VirtualBox:~$ gedit assi3.c
mayur@mayur-VirtualBox:~$ gcc assi3.c
mayur@mayur-VirtualBox:~$ ./a.out
File size =0
File inode =0
size disc of blocks =0
```

Q4 .Write a program that implements all file operations(open/creat/write/read/lseek/close).

Code-

#include<stdio.h>

#include<fcntl.h>

#include<sys/types.h>

#include<sys/stat.h>

#include<unistd.h>

int main()

{

    int fd,len;

    int x;

    char read_buf[300];

    char write_buf[60]="Mayur from india nice to meet you my friend";

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```
        fd = open ("abc.txt",O_CREAT |O_RDWR,0777); //open and read write


        len = write(fd,write_buf,60);

        printf("data from buffer %d\n",len);


        lseek(fd,0,SEEK_SET); //To reposition of pointer


        if(fd<0)

        printf("File is not there");


        read(fd,read_buf,len);//read from buffeer

        printf("data from buffer %s\n",read_buf);


        close(fd);

        return 0;

}
```
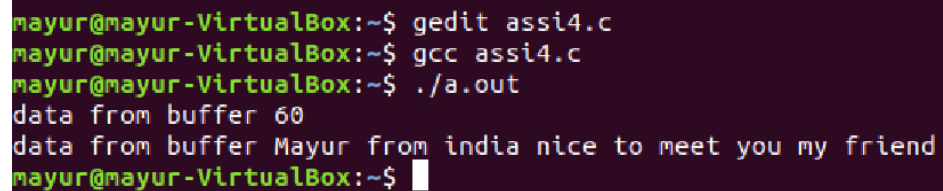
Output4. –

```
mayur@mayur-VirtualBox:~$ gedit assi4.c
mayur@mayur-VirtualBox:~$ gcc assi4.c
mayur@mayur-VirtualBox:~$ ./a.out
data from buffer 60
data from buffer Mayur from india nice to meet you my friend
mayur@mayur-VirtualBox:~$
```

Q5.Write a program that creates a file with a 4K bytes free space. (Such files are called files

with holes.)

code –

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```c
#include<stdio.h>

#include<stdlib.h>

#include <sys/types.h>

#include <sys/stat.h>

#include <fcntl.h>

#include <unistd.h>

char buf1[]="MAYUR";

char buf2[]="JOSHI A";


int main()

{
                int fd;

                if ((fd=creat("abc.txt", 0666)) < 0)

                {

                printf("Creation error");

                exit(1);

                }


                if (write(fd, buf1, sizeof(buf1)) < 0){

                printf("Writing error");

                exit(2);

                }


                if (lseek(fd, 4096, SEEK_SET) < 0){

                printf("Positioning error");

                exit(3);

                }


                if (write(fd, buf2, sizeof(buf2)) < 0){
```

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```
            printf("Writing error");

            exit(2);

            }

}
```

Output5—

abc.txt Properties

Basic	Permissions	Open With

Name: abc.txt

Type: plain text document (text/plain)
Size: 4.1 kB (4,104 bytes)

Parent Folder: /home/mayur

Accessed: Tuesday 15 March 2022 03:03:20 PM IST
Modified: Tuesday 15 March 2022 03:03:44 PM IST