**Roll No. TIA28**

**Name : Pranav Jawale**

**Code :**

#include<stdio.h>

#include<semaphore.h>

#include<pthread.h>

#include<unistd.h>

int books[5];

sem\_t r,w;

int readCount=0;

void rread()

{

FILE \*fptr;

fptr = fopen("/home/pranav/TIA28/file.txt", "r");

char myString[100];

//fgets(myString, 100, fptr);

while (fgets(myString, sizeof(myString), fptr) != NULL)

{

printf("%s", myString);

}

//printf("%s", myString);

fclose(fptr);

}

void wwrite()

{

FILE \*fptr;

fptr = fopen("/home/pranav/TIA28/file.txt", "a");

printf("\nEnter Some text to write \n");

char text[100];

scanf("%s",text);

fprintf(fptr,"%s\n",text);

fclose(fptr);

}

void\* reading(void\* arg)

{

sem\_wait(&r);

readCount++;

if(readCount==1)

{

sem\_wait(&w);

}

sem\_post(&r);

printf("\nThread ID for Reading is %ld with count %d\n",pthread\_self(),readCount);

rread();

sem\_wait(&r);

readCount--;

if(readCount==0)

{

sem\_post(&w);

}

sem\_post(&r);

sleep(3);

}

void\* writing(void\* arg)

{

sem\_wait(&w);

printf("\nThread ID for Writing is %ld\n",pthread\_self());

wwrite();

sem\_post(&w);

sleep(3);

}

int main()

{

pthread\_t write[5],read[5];

sem\_init(&w, 0, 1);

sem\_init(&r, 0, 1);

for(int i=0;i<5;i++)

{

pthread\_create(&write[i], NULL, reading, NULL);

pthread\_create(&read[i], NULL, writing, NULL);

}

for (int i=0;i<5;i++)

{

pthread\_join(write[i], NULL);

pthread\_join(read[i], NULL);

}

return 0;

}

**Output :**

pranav@LAPTOP-TB69H925:~/TIA28$ gcc readwrite.c -lpthread

pranav@LAPTOP-TB69H925:~/TIA28$ ./a.out

Thread ID for Reading is 140697386092096 with count 1

Thread ID for Reading is 140697235088960 with count 2

Thread ID for Reading is 140697290143296 with count 2

Thread ID for Writing is 140697377699392

Enter Some text to write

pranav

Thread ID for Writing is 140697369306688

Enter Some text to write

abhi

Thread ID for Writing is 140697281750592

Enter Some text to write

kshitij

Thread ID for Reading is 140697273357888 with count 1

Thread ID for Reading is 140697256572480 with count 2

pranav

abhi

kshitij

pranav

abhi

kshitij

Thread ID for Writing is 140697264965184

Enter Some text to write

ayush

Thread ID for Writing is 140697248179776

Enter Some text to write

Parth

pranav@LAPTOP-TB69H925:~/TIA28$