**EXPERIMENT: 19** To Design a C program to implement process synchronization using mutex locks.

**PROGRAM:**

#include <stdio.h>

#include <pthread.h>

#include <unistd.h>

int counter = 0;

pthread\_mutex\_t lock;

void\* thread\_func(void\* arg) {

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

pthread\_mutex\_lock(&lock);

counter++;

printf("Thread %ld incremented counter to %d\n", (long)arg, counter);

pthread\_mutex\_unlock(&lock);

sleep(1);

}

return NULL;

}

int main() {

pthread\_t t1, t2;

pthread\_mutex\_init(&lock, NULL);

pthread\_create(&t1, NULL, thread\_func, (void\*)1);

pthread\_create(&t2, NULL, thread\_func, (void\*)2);

pthread\_join(t1, NULL);

pthread\_join(t2, NULL);

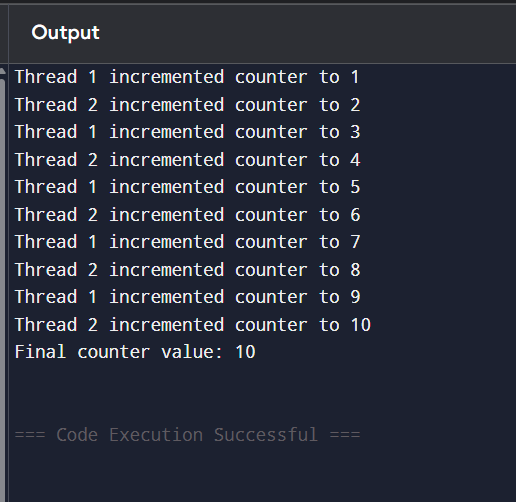
pthread\_mutex\_destroy(&lock);

printf("Final counter value: %d\n", counter);

return 0;

}

**OUTPUT:**

****