Operating Systems
CT-353

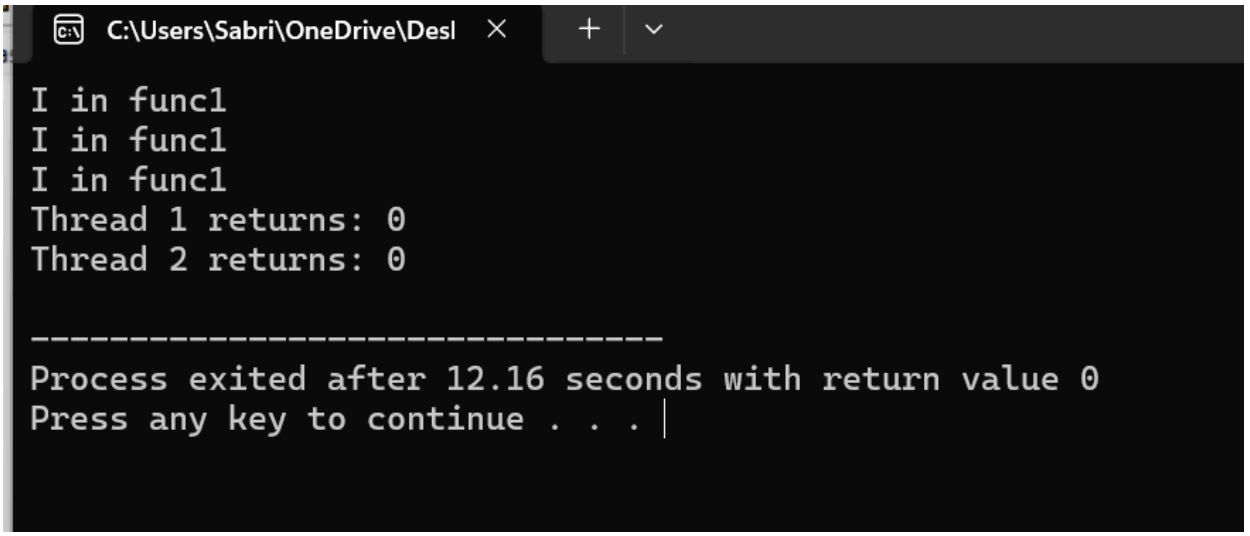
Name: Sabrina Shahzad
Roll No. : DT-026

Lab 03:

- **Threads:**

```
#include <stdio.h>

#include <stdlib.h>

#include <pthread.h>

#include <unistd.h>

#include <time.h>

typedef struct {

    int id;

} thread_data;

void *func1(void *ptr);

void *func2(void *ptr);

int main() {

    pthread_t thread1, thread2;

    int iret1, iret2;

    thread_data data1 = {1};
```

```
    thread_data data2 = {2};
    iret1 = pthread_create(&thread1, NULL, func1, (void*)&data1);
    iret2 = pthread_create(&thread2, NULL, func2, (void*)&data2);
    pthread_join(thread1, NULL);
    pthread_join(thread2, NULL);
    printf("Thread 1 returns: %d\n", iret1);
    printf("Thread 2 returns: %d\n", iret2);
    exit(0);
}

void *func1(void *ptr) {
    struct timespec delay;
    delay.tv_sec = 1;  // 1 second
    delay.tv_nsec = 0; // 0 nanoseconds

    for (int i = 0; i < 3; i++) {
        printf("I in func1\n");
        nanosleep(&delay, NULL);
```

```
    }

    pthread_exit(NULL);

}



void *func2(void *ptr) {

    sleep(3);

     for (int i = 0; i < 3; i++) {

       sleep(3);

                    }

    pthread_exit(NULL);

}
```

Output: