main.c

```c
1  #include <pthread.h>
2  #include <stdio.h>
3  #include <stdlib.h>
4  #include <sys/types.h>
5  #include <unistd.h>
6  int g = 0;
7  void* myThreadFun(void* vargp)
8  {
9      int myid = getpid();
10     static int s = 0;
11     ++s;
12     ++g;
13     printf("Thread ID: %d, Static: %d, Global: %d\n", myid,
14             ++s, ++g);
15 }
16 int main()
17 {
18     int i;
19     pthread_t tid;
20     for (i = 0; i < 3; i++)
21         pthread_create(&tid, NULL, myThreadFun, NULL);
22     pthread_exit(NULL);
23     return 0;
24 }
```

Output

```
gfg@ubuntu:~/$
gfg@ubuntu:~/$ ./a.out
Thread ID: 3, Static: 2, Global: 2
Thread ID: 3, Static: 4, Global: 4
Thread ID: 3, Static: 6, Global: 6
gfg@ubuntu:~/$
```

```c
1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <pthread.h>
4  #include <unistd.h>
5  #define NUM_PHILOSOPHERS 5
6  pthread_mutex_t forks[NUM_PHILOSOPHERS];
7  void* philosopher(void* num) {
8      int phil = *(int*)num;
9      while (1) {
10         printf("Philosopher %d is thinking.\n", phil);
11         sleep(1);
12         pthread_mutex_lock(&forks[phil]);
13         pthread_mutex_lock(&forks[(phil + 1) % NUM_PHILOSOPHERS]);
14         printf("Philosopher %d is eating.\n", phil);
15         sleep(2);
16         pthread_mutex_unlock(&forks[(phil + 1) % NUM_PHILOSOPHERS]);
17         pthread_mutex_unlock(&forks[phil]);
18
19         printf("Philosopher %d is done eating.\n", phil);
20     }
21 }
22 int main() {
23     pthread_t philosophers[NUM_PHILOSOPHERS];
24     int philosopher_numbers[NUM_PHILOSOPHERS];
25     for (int i = 0; i < NUM_PHILOSOPHERS; i++) {
26         pthread_mutex_init(&forks[i], NULL);
27     }
```

Output

```
Philosopher 0 is thinking.
Philosopher 1 is thinking.
Philosopher 2 is thinking.
Philosopher 3 is thinking.
Philosopher 4 is thinking.
Philosopher 0 is eating.
Philosopher 1 is eating.
Philosopher 2 is eating.
Philosopher 3 is eating.
Philosopher 4 is eating.
Philosopher 0 is done eating.
Philosopher 1 is done eating.
Philosopher 2 is done eating.
Philosopher 3 is done eating.
Philosopher 4 is done eating.
Philosopher 0 is thinking.
...
```