```
#include <pthread.h>
    #include <stdio.h>
    #include <stdlib.h>
    #include <unistd.h>
    #include <errno.h>
    // condition variables - Fuel refill example
 8
9
   pthread_mutex_t mutexFuel;
   pthread_cond_t condFuel;
int fuel = 0;
11
   void* fuel filling(void* arg) {
        for (int i = 0; i < 5; i++) {
14
15
            pthread mutex lock(&mutexFuel);
            fuel += 30;
            printf("Filled fuel... %d\n", fuel);
            pthread_mutex unlock(&mutexFuel);
18
19
            pthread cond broadcast (&condFuel);
            sleep(1);
21
        return NULL;
23
    }
24
    void* car(void* arg) {
25
26
        pthread_mutex_lock(&mutexFuel);
27
        while (\overline{f}uel < 40) {
28
            printf("No fuel. Waiting...\n");
            pthread cond wait(&condFuel, &mutexFuel);
29
            // Equivalent to:
31
            // pthread mutex unlock(&mutexFuel);
            // wait for signal on condFuel
32
            // pthread_mutex_lock(&mutexFuel);
34
        fuel -= 40;
        printf("Got fuel. Now left: %d\n", fuel);
36
        pthread_mutex_unlock(&mutexFuel);
38
        return NULL;
39
    }
40
    int main(int argc, char* argv[]) {
    pthread_t th[6];
41
42
43
        pthread mutex init(&mutexFuel, NULL);
44
        pthread_cond_init(&condFuel, NULL);
45
        for (int i = 0; i < 6; i++) {
            if (i == 4 || i == 5) {
46
                 if (pthread_create(&th[i], NULL, &fuel_filling, NULL) != 0) {
47
48
                     perror("Failed to create thread");
49
            } else {
51
                 if (pthread_create(&th[i], NULL, &car, NULL) != 0) {
                     perror("Failed to create thread");
53
54
            }
56
57
        for (int i = 0; i < 6; i++) {
58
            if (pthread_join(th[i], NULL) != 0) {
59
                perror("Failed to join thread");
60
61
62
        pthread mutex destroy(&mutexFuel);
63
        pthread cond destroy(&condFuel);
64
        return \overline{0};
65
    }
```