

(globals)

Project C ROUNDROBIN.C diningphilos.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #include<pthread.h>
4 #include<semaphore.h>
5 #include<unistd.h>
6 sem_t room;
7 sem_t chopstick[5];
8 void * philosopher(void *);
9 void eat(int);
10 int main()
11 {
12     int i,a[5];
13     pthread_t tid[5];
14     sem_init(&room,0,4);
15     for(i=0;i<5;i++)
16         sem_init(&chopstick[i],0,1);
17     for(i=0;i<5;i++){
18         a[i]=i;
19         pthread_create(&tid[i],NULL,philosopher,(void *)&a[i]);
20     }
21     for(i=0;i<5;i++)
22         pthread_join(tid[i],NULL);
23 }
24 void * philosopher(void * num)
25 {
26     int phil=*(int *)num;
27     sem_wait(&room);
28     printf("\nPhilosopher %d has entered room",phil);
29     sem_wait(&chopstick[phil]);
30     sem_wait(&chopstick[(phil+1)%5]);
31     eat(phil);
32     sleep(2);
33     printf("\nPhilosopher %d has finished eating",phil);
34     sem_post(&chopstick[(phil+1)%5]);
35     sem_post(&chopstick[phil]);
36     sem_post(&room);
37 }
38 void eat(int phil)
39 {
40     printf("\nPhilosopher %d is eating",phil);
41 }
```

```
Philosopher 0 has entered room
Philosopher 3 has entered room
Philosopher 2 has entered room
Philosopher 1 has entered room
Philosopher 0 is eating
Philosopher 3 is eating
Philosopher 3 has finished eating
Philosopher 0 has finished eating
Philosopher 2 is eating
Philosopher 4 has entered room
Philosopher 4 is eating
Philosopher 2 has finished eating
Philosopher 4 has finished eating
Philosopher 1 is eating
Philosopher 1 has finished eating
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Process exited after 10.84 seconds with return value 0
Press any key to continue . . .
```