CS302 OS Lab13 - Report

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Answers

1.解释 local_intr_save(intr_flag);的作用

Disable the interrupt.

2.在proc.c中，init_main在852行执行了check_sync()方法。方法通过sync/check_sync.c中part1的算法解决哲学家吃饭问题。

- （1）请描述part1的算法，并回答该算法是否能避免死锁？为什么？

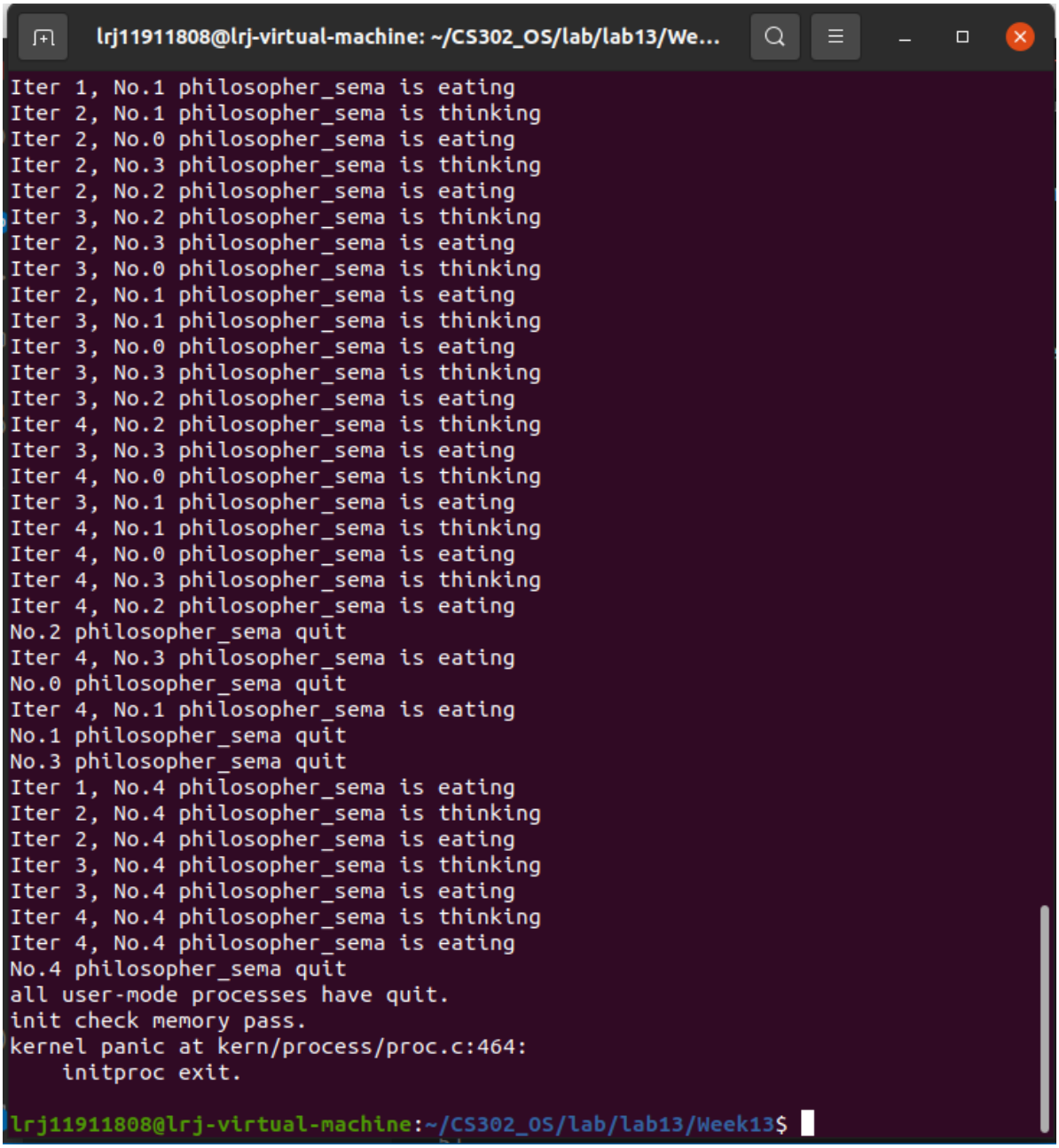
Yes, because at one time, only one philosopher can eat.

- （2）注释掉part1，并在part2中实现理论课件中哲学家问题的final solution算法（代码截图，运行结果截图）

```
//---------------part2-----------------
void phi_test_sema(int i)
{
    if (state_sema[i] == HUNGRY && state_sema[LEFT] != EATING && state_sema[RIGHT] != EATING)
    {
        state_sema[i] = EATING;
        up(&s[i]);
    }
}

void phi_take_forks_sema(int i)
{
    down(&mutex);
    state_sema[i] = HUNGRY;
    phi_test_sema(i);
    up(&mutex);
    down(&s[i]);
}

void phi_put_forks_sema(int i)
{
    down(&mutex);
    state_sema[i] = THINKING;
    phi_test_sema(LEFT);
    phi_test_sema(RIGHT);
    up(&mutex);
}
```


lrj11911808@lrj-virtual-machine: ~/CS302_OS/lab/lab13/We...
Iter 1, No.1 philosopher_sema is eating
Iter 2, No.1 philosopher_sema is thinking
Iter 2, No.0 philosopher_sema is eating
Iter 2, No.3 philosopher_sema is thinking
Iter 2, No.2 philosopher_sema is eating
Iter 3, No.2 philosopher_sema is thinking
Iter 2, No.3 philosopher_sema is eating
Iter 3, No.0 philosopher_sema is thinking
Iter 2, No.1 philosopher_sema is eating
Iter 3, No.1 philosopher_sema is thinking
Iter 3, No.0 philosopher_sema is eating
Iter 3, No.3 philosopher_sema is thinking
Iter 3, No.2 philosopher_sema is eating
Iter 4, No.2 philosopher_sema is thinking
Iter 3, No.3 philosopher_sema is eating
Iter 4, No.0 philosopher_sema is thinking
Iter 3, No.1 philosopher_sema is eating
Iter 4, No.1 philosopher_sema is thinking
Iter 4, No.0 philosopher_sema is eating
Iter 4, No.3 philosopher_sema is thinking
Iter 4, No.2 philosopher_sema is eating
No.2 philosopher_sema quit
Iter 4, No.3 philosopher_sema is eating
No.0 philosopher_sema quit
Iter 4, No.1 philosopher_sema is eating
No.1 philosopher_sema quit
No.3 philosopher_sema quit
Iter 1, No.4 philosopher_sema is eating
Iter 2, No.4 philosopher_sema is thinking
Iter 2, No.4 philosopher_sema is eating
Iter 3, No.4 philosopher_sema is thinking
Iter 3, No.4 philosopher_sema is eating
Iter 4, No.4 philosopher_sema is thinking
Iter 4, No.4 philosopher_sema is eating
No.4 philosopher_sema quit
all user-mode processes have quit.
init check memory pass.
kernel panic at kern/process/proc.c:464:
initproc exit.
lrj11911808@lrj-virtual-machine:~/CS302_OS/lab/lab13/Week13$