

Make

```
In [ ]: !make  
  
gcc -O2 -g -Werror LarryCurlyMoe.c -o LCM -lpthread  
gcc -O2 -g -Werror Faneuil.c -o Faneuil -lpthread
```

```
In [ ]: !make clean  
  
rm -rf LCM Faneuil
```

Task:LCM

Make and Run

```
In [ ]: !gcc -O2 -g -w LarryCurlyMoe.c -o LCM -lpthread
```

```
In [ ]: !./LCM 10
```

Invalid input

```
In [ ]: !./LCM  
  
Too few arguments  
Usage: ./LCM n
```

```
In [ ]: !./LCM 10 20 abc  
  
Too many arguments  
Usage: ./LCM n
```

Output too much, just get a glance of it

```
In [ ]: !./LCM 10 | head -n 50
```

```
Larry digs another hole #1
Moe plants a seed in hole#1
Curly fills another hole#1
Larry digs another hole #2
Moe plants a seed in hole#2
Larry digs another hole #3
Larry digs another hole #4
Moe plants a seed in hole#3
Curly fills another hole#2
Curly fills another hole#3
Moe plants a seed in hole#4
Curly fills another hole#4
Larry digs another hole #5
Moe plants a seed in hole#5
Curly fills another hole#5
Larry digs another hole #6
Larry digs another hole #7
Larry digs another hole #8
Moe plants a seed in hole#6
Moe plants a seed in hole#7
Curly fills another hole#6
Moe plants a seed in hole#8
Curly fills another hole#7
Curly fills another hole#8
Larry digs another hole #9
Moe plants a seed in hole#9
Curly fills another hole#9
Larry digs another hole #10
Moe plants a seed in hole#10
Larry digs another hole #11
Moe plants a seed in hole#11
Curly fills another hole#10
Larry digs another hole #12
Larry digs another hole #13
Curly fills another hole#11
Moe plants a seed in hole#12
Larry digs another hole #14
Moe plants a seed in hole#13
Moe plants a seed in hole#14
Curly fills another hole#12
Curly fills another hole#13
Larry digs another hole #15
Larry digs another hole #16
Moe plants a seed in hole#15
Moe plants a seed in hole#16
Larry digs another hole #17
Moe plants a seed in hole#17
Larry digs another hole #18
Curly fills another hole#14
Moe plants a seed in hole#18
^C
```

Correctness Check

- I write a Python program to check whether the synchronization is correct or not

```
In [ ]: #first arg is the same as the LCM, the second arg is the timelimit
        #if the output is right, it will put "OK"
```

```
#otherwise, it will put an assertation failure  
!python3 test-LCM.py 10 2
```

OK

Task:Faneuil

Make and Run

```
In [ ]: !gcc -O2 -g -w Faneuil.c -o Faneuil -lpthread
```

```
In [ ]: !./Faneuil
```

Invalid Input

```
In [ ]: !./Faneuil 5
```

Too many arguments
Usage:./Faneuil

Output too much, get a glance of it

```
In [ ]: !./Faneuil | head -n 200
```

Immigrant #0 enter
Immigrant #1 enter
Immigrant #2 enter
Immigrant #3 enter
Immigrant #4 enter
Judge #0 enter
Immigrant #0 checkin
Immigrant #1 checkin
Immigrant #2 checkin
Immigrant #1 sitdown
Immigrant #1 swear
Immigrant #3 checkin
Immigrant #0 sitdown
Immigrant #0 swear
Immigrant #4 checkin
Immigrant #3 sitdown
Immigrant #3 swear
Immigrant #2 sitdown
Immigrant #2 swear
Immigrant #4 sitdown
Immigrant #4 swear
Judge #0 confirm immigrant #0 #1 #2 #3 #4
Immigrant #0 get certificated
Immigrant #2 get certificated
Immigrant #3 get certificated
Immigrant #1 get certificated
Immigrant #4 get certificated
Judge #0 leave
Immigrant #0 leave
Spectator #0 enter
Immigrant #1 leave
Spectator #1 enter
Immigrant #2 leave
Immigrant #3 leave
Immigrant #5 enter
Immigrant #6 enter
Immigrant #7 enter
Judge #1 enter
Spectator #0 leave
Spectator #1 leave
Immigrant #7 checkin
Immigrant #6 checkin
Immigrant #5 checkin
Immigrant #6 sitdown
Immigrant #6 swear
Immigrant #7 sitdown
Immigrant #7 swear
Immigrant #5 sitdown
Immigrant #5 swear
Judge #1 confirm immigrant #5 #6 #7
Immigrant #7 get certificated
Immigrant #6 get certificated
Judge #1 leave
Immigrant #5 get certificated
Immigrant #4 leave
Immigrant #8 enter
Immigrant #6 leave
Spectator #3 enter
Immigrant #7 leave
Spectator #2 enter

Immigrant #8 checkin
Spectator #3 leave
Immigrant #5 leave
Judge #2 enter
Spectator #2 leave
Immigrant #8 sitdown
Immigrant #8 swear
Judge #2 confirm immigrant #8
Immigrant #8 get certificated
Judge #2 leave
Immigrant #11 enter
Spectator #5 enter
Immigrant #9 enter
Judge #3 enter
Immigrant #12 enter
Immigrant #11 checkin
Immigrant #9 checkin
Spectator #5 leave
Immigrant #11 sitdown
Immigrant #11 swear
Immigrant #12 checkin
Immigrant #9 sitdown
Immigrant #9 swear
Immigrant #12 sitdown
Immigrant #12 swear
Judge #3 confirm immigrant #11 #9 #12
Immigrant #9 get certificated
Immigrant #11 get certificated
Immigrant #12 get certificated
Judge #3 leave
Immigrant #9 leave
Immigrant #8 leave
Spectator #4 enter
Immigrant #11 leave
Immigrant #10 enter
Spectator #7 enter
Immigrant #12 leave
Spectator #4 leave
Judge #4 enter
Immigrant #10 checkin
Spectator #7 leave
Immigrant #10 sitdown
Immigrant #10 swear
Judge #4 confirm immigrant #10
Judge #4 leave
Immigrant #10 get certificated
Immigrant #17 enter
Immigrant #14 enter
Immigrant #16 enter
Immigrant #13 enter
Spectator #6 enter
Immigrant #14 checkin
Immigrant #16 checkin
Immigrant #10 leave
Spectator #9 enter
Immigrant #17 checkin
Judge #5 enter
Spectator #6 leave
Spectator #9 leave
Immigrant #13 checkin

Immigrant #16 sitdown
Immigrant #16 swear
Immigrant #14 sitdown
Immigrant #14 swear
Immigrant #17 sitdown
Immigrant #17 swear
Immigrant #13 sitdown
Immigrant #13 swear
Judge #5 confirm immigrant #17 #14 #16 #13
Immigrant #14 get certificated
Immigrant #17 get certificated
Immigrant #16 get certificated
Immigrant #13 get certificated
Judge #5 leave
Immigrant #17 leave
Immigrant #14 leave
Immigrant #16 leave
Immigrant #15 enter
Spectator #8 enter
Immigrant #13 leave
Spectator #11 enter
Immigrant #19 enter
Immigrant #22 enter
Judge #6 enter
Immigrant #15 checkin
Immigrant #22 checkin
Immigrant #19 checkin
Spectator #8 leave
Spectator #11 leave
Immigrant #15 sitdown
Immigrant #15 swear
Immigrant #19 sitdown
Immigrant #19 swear
Immigrant #22 sitdown
Immigrant #22 swear
Judge #6 confirm immigrant #15 #19 #22
Immigrant #15 get certificated
Immigrant #19 get certificated
Immigrant #22 get certificated
Judge #6 leave
Immigrant #15 leave
Immigrant #21 enter
Immigrant #18 enter
Spectator #10 enter
Immigrant #19 leave
Spectator #13 enter
Immigrant #20 enter
Judge #7 enter
Spectator #10 leave
Immigrant #18 checkin
Spectator #13 leave
Immigrant #20 checkin
Immigrant #21 checkin
Immigrant #18 sitdown
Immigrant #18 swear
Immigrant #20 sitdown
Immigrant #20 swear
Immigrant #21 sitdown
Immigrant #21 swear
Judge #7 confirm immigrant #21 #18 #20

Immigrant #18 get certificated
Immigrant #20 get certificated
Immigrant #21 get certificated
Judge #7 leave
Immigrant #22 leave
Immigrant #18 leave
Spectator #12 enter
Immigrant #24 enter
Immigrant #20 leave
Spectator #15 enter
Judge #8 enter
Immigrant #24 checkin
Immigrant #24 sitdown
Immigrant #24 swear
Spectator #15 leave
Spectator #12 leave
Judge #8 confirm immigrant #24
Immigrant #24 get certificated
Judge #8 leave
Immigrant #21 leave
^C

In []: `!./Faneuil | head -n 100`

Immigrant #0 enter
Immigrant #1 enter
Immigrant #0 checkin
Immigrant #1 checkin
Immigrant #0 sitdown
Immigrant #0 swear
Immigrant #1 sitdown
Immigrant #1 swear
Spectator #0 enter
Immigrant #2 enter
Immigrant #3 enter
Judge #0 enter
Immigrant #3 checkin
Immigrant #3 sitdown
Immigrant #3 swear
Spectator #0 leave
Immigrant #2 checkin
Immigrant #2 sitdown
Immigrant #2 swear
Judge #0 confirm immigrant #0 #1 #2 #3
Immigrant #0 get certificated
Immigrant #1 get certificated
Immigrant #2 get certificated
Immigrant #3 get certificated
Judge #0 leave
Immigrant #0 leave
Immigrant #1 leave
Immigrant #4 enter
Spectator #1 enter
Immigrant #2 leave
Immigrant #3 leave
Immigrant #5 enter
Immigrant #6 enter
Judge #1 enter
Immigrant #4 checkin
Spectator #1 leave
Immigrant #6 checkin
Immigrant #5 checkin
Immigrant #4 sitdown
Immigrant #4 swear
Immigrant #6 sitdown
Immigrant #6 swear
Immigrant #5 sitdown
Immigrant #5 swear
Judge #1 confirm immigrant #4 #5 #6
Immigrant #4 get certificated
Immigrant #5 get certificated
Immigrant #6 get certificated
Judge #1 leave
Immigrant #8 enter
Spectator #2 enter
Spectator #3 enter
Immigrant #4 leave
Immigrant #7 enter
Immigrant #6 leave
Immigrant #5 leave
Immigrant #8 checkin
Judge #2 enter
Immigrant #7 checkin
Spectator #3 leave

Immigrant #8 sitdown
Spectator #2 leave
Immigrant #8 swear
Immigrant #7 sitdown
Immigrant #7 swear
Judge #2 confirm immigrant #8 #7
Immigrant #8 get certificated
Immigrant #7 get certificated
Judge #2 leave
Immigrant #7 leave
Immigrant #8 leave
Immigrant #10 enter
Immigrant #13 enter
Judge #3 enter
Immigrant #10 checkin
Immigrant #13 checkin
Immigrant #10 sitdown
Immigrant #10 swear
Immigrant #13 sitdown
Immigrant #13 swear
Judge #3 confirm immigrant #10 #13
Immigrant #10 get certificated
Immigrant #13 get certificated
Judge #3 leave
Immigrant #13 leave
Spectator #4 enter
Spectator #5 enter
Immigrant #9 enter
Immigrant #10 leave
Immigrant #11 enter
Immigrant #12 enter
Judge #4 enter
Spectator #4 leave
Immigrant #11 checkin
Immigrant #12 checkin
Spectator #5 leave
Immigrant #9 checkin
Immigrant #11 sitdown
Immigrant #11 swear
Immigrant #12 sitdown
^C

Correctness Check

- I write a Python program to check whether the synchronization is correct or not

```
In [ ]: #the arg is the timelimit  
#do not set the timelimit too big, it will crush the memory  
!python3 test-Faneuil.py 5
```

OK