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Experiment No. 7

Code:

```c
#include<stdio.h>
#define n 4
int compltedPhilo = 0,i;
struct fork{
int taken;
}ForkAvil[n];
struct philosp{
int left;
int right;
}Philostatus[n];
void goForDinner(int philID){
if(Philostatus[philID].left==10 && Philostatus[philID].right==10)
printf("Philosopher %d completed his dinner\n",philID+1);
else if(Philostatus[philID].left==1 && Philostatus[philID].right==1)
{
printf("Philosopher %d completed his dinner\n",philID+1);
Philostatus[philID].left = Philostatus[philID].right = 10;
int otherFork = philID-1;
if(otherFork== -1)
otherFork=(n-1);
ForkAvil[philID].taken = ForkAvil[otherFork].taken = 0;
printf("Philosopher %d released fork %d and fork %d\n",philID+1,philID+1,otherFork+1);
compltedPhilo++;
}
else if(Philostatus[philID].left==1 && Philostatus[philID].right==0){
if(philID==(n-1))
{
if(ForkAvil[philID].taken==0){
ForkAvil[philID].taken = Philostatus[philID].right = 1;
printf("Fork %d taken by philosopher %d\n",philID+1,philID+1);
}else{
printf("Philosopher %d is waiting for fork
%d\n",philID+1,philID+1); }
}else{
int dupphilID = philID;
philID-=1;
if(philID== -1)
philID=(n-1);
if(ForkAvil[philID].taken == 0){
ForkAvil[philID].taken = Philostatus[dupphilID].right = 1;
printf("Fork %d taken by Philosopher %d\n",philID+1,dupphilID+1);
}else{
printf("Philosopher %d is waiting for Fork %d\n",dupphilID+1,philID+1);
```

```c
}}}
else if(Philostatus[philID].left==0){
if(philID==(n-1)){
if(ForkAvil[philID-1].taken==0){
ForkAvil[philID-1].taken = Philostatus[philID].left = 1;
printf("Fork %d taken by philosopher %d\n",philID,philID+1);
}else{
printf("Philosopher %d is waiting for fork %d\n",philID+1,philID);
    }
  }else{
if(ForkAvil[philID].taken == 0){
ForkAvil[philID].taken = Philostatus[philID].left = 1;
printf("Fork %d taken by Philosopher %d\n",philID+1,philID+1);
  }else{
printf("Philosopher %d is waiting for Fork %d\n",philID+1,philID+1);
}
}
}else{}
}
int main(){
for(i=0;i<n;i++)
ForkAvil[i].taken=Philostatus[i].left=Philostatus[i].right=0;
while(compltedPhilo<n){
for(i=0;i<n;i++)
goForDinner(i);
printf("\nTill now num of philosophers completed dinner are %d\n\n",compltedPhilo);
}
return 0;
}
```

Output:
```
ospc-10@ospc10-H81M-S1:~/vedant$ gcc exp7.c
ospc-10@ospc10-H81M-S1:~/vedant$ ./a.out
Fork 1 taken by Philosopher 1
Fork 2 taken by Philosopher 2
Fork 3 taken by Philosopher 3
Philosopher 4 is waiting for fork 3

Till now num of philosophers completed dinner are 0

Fork 4 taken by Philosopher 1
Philosopher 2 is waiting for Fork 1
Philosopher 3 is waiting for Fork 2
Philosopher 4 is waiting for fork 3

Till now num of philosophers completed dinner are 0

Philosopher 1 completed his dinner
```

Philosopher 1 released fork 1 and fork 4
Fork 1 taken by Philosopher 2
Philosopher 3 is waiting for Fork 2
Philosopher 4 is waiting for fork 3

Till now num of philosophers completed dinner are 1

Philosopher 1 completed his dinner
Philosopher 2 completed his dinner
Philosopher 2 released fork 2 and fork 1
Fork 2 taken by Philosopher 3
Philosopher 4 is waiting for fork 3

Till now num of philosophers completed dinner are 2

Philosopher 1 completed his dinner
Philosopher 2 completed his dinner
Philosopher 3 completed his dinner
Philosopher 3 released fork 3 and fork 2
Fork 3 taken by philosopher 4

Till now num of philosophers completed dinner are 3

Philosopher 1 completed his dinner
Philosopher 2 completed his dinner
Philosopher 3 completed his dinner
Fork 4 taken by philosopher 4

Till now num of philosophers completed dinner are 3

Philosopher 1 completed his dinner
Philosopher 2 completed his dinner
Philosopher 3 completed his dinner
Philosopher 4 completed his dinner
Philosopher 4 released fork 4 and fork 3 Till now

num of philosophers completed dinner are 4