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Class :- AIDS/C

Roll Number :- 02

Subject :- OS

Assignment 4

Code :-

```python
import threading
import time

lock = threading.Lock()
dic = {}
def print_num(num,mode,val=''):
    dic[num] = mode
    time.sleep(0.001)
    lock.acquire()
    if(mode == 'w'):
        print(f'Writer {num} is writing in file')
        for i in range(1,6):
            if i != num:
                if dic[i] == 'w':
                    print(f'Writer {i} is waiting')
                else:
                    print(f'Reader {i} is waiting')
        with open("example1.txt",'a') as file:
            file.write(val)
    else:
        print(f'Reader {num} is reading file')
        for i in range(1,6):
            if i != num:
                if dic[i] == 'w':
                    print(f'Writer {i} is waiting')
                else:
                    print(f'Reader {i} is waiting')
        with open("example1.txt",'r') as file:
            print(file.read())
    time.sleep(3)
    lock.release()
    print()
```

```
thread1 = threading.Thread(target=print_num,args=(1,'w','Ritesh'))
thread2 = threading.Thread(target=print_num,args=(2,'w',' Parwal'))
thread3 = threading.Thread(target=print_num,args=(3,'r'))
thread4 = threading.Thread(target=print_num,args=(4,'w',' Nanded'))
thread5 = threading.Thread(target=print_num,args=(5,'r'))

thread1.start()
thread2.start()
thread3.start()
thread4.start()
thread5.start()

thread1.join()
thread2.join()
thread3.join()
thread4.join()
thread5.join()
```

Output :-

```
≡ example1.txt
  1    Ritesh Parwal Nanded
```

```
Writer 1 is writing in file
Writer 2 is waiting
Reader 3 is waiting
Writer 4 is waiting
Reader 5 is waiting

Writer 2 is writing in file
Writer 1 is waiting
Reader 3 is waiting
Writer 4 is waiting
Reader 5 is waiting
Reader 3 is reading file

Writer 1 is waiting
Writer 2 is waiting
Writer 4 is waiting
Reader 5 is waiting
Ritesh Parwal
Writer 4 is writing in file

Writer 1 is waiting
Writer 2 is waiting
Reader 3 is waiting
Reader 5 is waiting

Reader 5 is reading file
Writer 1 is waiting
Writer 2 is waiting
Reader 3 is waiting
Writer 4 is waiting
Ritesh Parwal Nanded
```