

一. 填空题

1

2

Java语言实习6 线程(2023- )

题量: 2 满分: 100

作答时间: 2023-10-15 18:50 至 2023-10-21 00:50

一. 填空题 (共2题)

1. (填空题)

利用线程类设计一个抢票小程序，输入当日余票数后，有4个窗口同时开始抢票，每抢到一张票就在屏幕输出抢到票的窗口编号，当票数售完程序截止。效果如下图所示：

```
请输入今日票数：
10
开始售票！
窗口1抢到了票
窗口1抢到了票
窗口1抢到了票
窗口1抢到了票
窗口1抢到了票
窗口1抢到了票
窗口1抢到了票
窗口1抢到了票
窗口3抢到了票
窗口2抢到了票
窗口4抢到了票
```

类首引用的类是\_\_\_\_(1)\_\_\_\_类；假设程序名为ThreadShell，线程名为name，票数为整型的num，则定义num参数的代码为\_\_\_\_(2)\_\_\_\_；为name和num赋值的ThreadShell类的构造方法为：

```
public ThreadSell(String name, int num) {
    ____ (3) 为name赋值 ____;
    ____ (4) 为num赋值 ____;
}
```

截取run方法的代码图：\_\_\_\_(5) 注：5-7空为结果截图\_\_\_\_\_

现修改代码功能，假设用户输入学号，余票数为学号后2位，如余票≥35，则调整为35票后开始售票，main方法截图为\_\_\_\_(6)\_\_\_\_；结果截图为\_\_\_\_(7)\_\_\_\_\_

我的答案：

- (1) Thread
- (2) private int num
- (3) this.name = name
- (4) this.num = num
- (5)

```
public void run() {
    try {
        Random random = new Random();
        int randomnum = random.nextInt(100);
        Thread.sleep(randomnum);
    } catch (InterruptedException e) {
        e.printStackTrace();
    }

    while (!isRunning) {
        synchronized (buyticket.class) {
            if (num > 0) {
                System.out.println(name + "抢到票了");
                num--;
            } else {
                isRunning = true;
                buyticket.class.notifyAll();
                break;
            }
        }
    }
}
```





作业详情

一. 填空题

1

2

```
public void run() {
    for(;;) {
        try {
            }catch(InterruptedException e) {
            }
        }
    }
}

public static void main(String[] args) {
    Thread t;
    Output out = new Output();
    for(int i= 'N';i<='T';i++) {
        t = new CharThread((char)i, out);
        t.setPriority(Thread.NORM_PRIORITY-1);
        t.start();

        t = new Parall();
        t.setPriority(Thread.MAX_PRIORITY);
        t.setDaemon(true);
        t.start();
    }
}

class Output {
    int len=0;
    public synchronized void out(char c) {
        System.out.print(c);
        if(
        )
        System.out.println();
    }
}

class CharThread extends Thread{
    char me;
    Output out;
    public CharThread(char ch,Output o) {
        me = ch;
        out = o;
    }
    public void run() {
        for(
        )
        out.out(me);
    }
}
```

本题考核多线程。将类名定义为姓名首字母\_Thread，图片中有4处填空和1处需修改的代码，功能为休眠10毫秒，循环80次，每15次循环换行。

根据代码顺序，第一处填空\_\_ (1) \_\_，第二处填空\_\_ (2) \_\_，第三处为需要修改的代码\_\_ (3) \_\_，第四处填空\_\_ (4) \_\_，第五处填空\_\_ (5) \_\_。

将代码功能修改为从A至G的字符输出，回答以下问题：

该程序创建了\_ (6) \_个字符的输出，按顺序写出所有字符（无需空格或引号）\_\_ (7) \_\_，每个线程循环\_\_ (8) \_\_次，结果有\_\_ (9) \_\_行，行数计算公式为\_ (10) \_\_，Output对象借助synchronized关键字实现了\_\_ (11) \_\_，线程启动进入死循环，该线程在main()方法中被终止，原理为类线程被设置为\_ (12) \_\_线程，当字符输出完毕，线程终止。

输出结果截图为\_\_ (13) \_\_

我的答案：

- (1) cxy\_Thread
- (2) Thread.sleep(10);
- (3) t=new cxy\_Thread()
- (4) (++len % 15 == 0){
- (5) (int i = 0; i < 80; i++){
- (6) 560

作业详情

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1

2

AAAAAAAAAAAAAA  
AAAAAAAAAAAAAA  
AAAAAAAAAAAAAA  
AAAAAAAAAAAAAA  
AAAAABBBBBBBBB  
BBBBBBBBBBBBBB  
BBBBBBBBBBBBBB  
BBBBBBBBBBBBBB  
BBBBBBBBBBBBBB  
BBBBBBBBBBBBBB  
BBBBBBBBBCCCCC  
CCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCC  
DDDDDDDDDDDDDD  
DDDDDDDDDDDDDD  
DDDDDDDDDDDDDD  
DDDDDDDDDDDDDD  
DDDDDDDDDDDDDD  
DDDDDEEEEEEEEE  
EEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEE  
EEEEEEEEEEFFFFF  
FFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFF  
GGGGGGGGGGGGGG  
GGGGGGGGGGGGGG  
GGGGGGGGGGGGGG  
GGGGGGGGGGGGGG  
GGGGGGGGGGGGGG  
GGGGG

- (8) 80
- (9) 37
- (10) ++len % 15 == 0
- (11)

1.一次只有一个线程可以进入out方法的代码块，其他线程必须等待当前线程退出该方法后才能进入。这确保了线程之间不会互相干扰。

2.由于只有一个线程可以进入out方法，因此输出操作是按顺序执行的，不会出现混乱的输出。

3.使用synchronized确保了对共享数据（如 len变量）的访问是线程安全的，不会发生数据不一致的情况。
- (12) 守护线程

### 作业详情

AAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAA  
AAAAABBBBBBBBBBB  
BBBBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBBBB  
BBBBBBBBBBCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
DDDDDDDDDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDDEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
GGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGG  
GGGGG

(13)

正确答案:

- (1) 类首为首字母\_Thread extends Thread;
- (2) sleep(10);
- (3) t=new Parall()改为t=new 类名();
- (4) if (++count%15==0)
- (5) for(int i=0;i<80;i++)
- (6) 7
- (7) ABCDEFG
- (8) 80
- (9) 38
- (10) INT(7\*80/15)+1
- (11) 保证对System.out的顺序访问
- (12) 守护线程t.setDaemon(true)

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1

2

作业详情

BBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBB  
BBBBBBBBBBBBBBB  
BBBBBBBBBFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFF  
FFFFFFFFFFFFFFFFE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEEEEEEEEEEEEE  
EEEEDDDDDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDDDDDDDDDAAA  
AAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAA  
AAAAAAAAAAAAAAAAA  
AAAAACCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCCCCC  
CCCCCCCCCCCCAAAAA  
AAAAAADDDDDDDDD  
DDDDDDDDDDDDDDDD  
DDDDGGGGGGGGGGGG  
GGGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGGG  
GGGGGGGGGGGGGGGG

(13) GGGG

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1

2