

面向对象第七次课程作业指导说明

一、程序功能

如指导书中所说，该程序可以实现对百辆出租车进行配单操作的功能。

二、程序运行所需环境和使用规范

运行环境：与课程提供的 JDK 和 Eclipse 相同即可。

运行步骤：将全部.java 导入工程文件，从属 stupid_Taxi 包，该工程文件中需要有 JRE System Library，之后运行 run Begin 文件，即可在控制台输入 Request 信息。

三、正确输入格式和使用操作说明

1. 控制台输入：

Request 语句的使用，要求需满足如下格式，"[CR,(x1,y2),(x2,y2)]"。

其中 CR 为标志符，无实际意义，(x1,y1)为请求发出时乘客所在位置，(x2,y2)为乘客想要去往的目的地，每个数字都是一到两位，即 0~99。

在上述格式中，需完全符合，不满足对空格或制表符的容错，如果不同会显示 Not Match 字样提示。

对于满足格式，但是超出地图大小的点坐标，会提示 INVALID。

对于同 100ms 内，输入的出发地、目的地均相同的请求，会提示 Same Request。

对于有效请求会给出 Matches 样式提示。

输入结束在最后会说明。

2.TestThread 制造与使用

应指导书要求，除了支持控制台输入以外，应提供 TestThread 接口供测试者进行信息获取，提供如下两个方法：

通过状态查询，当前时刻所有该状态下的出租车编号，参数为状态 int，如 Element.Serving 或 1 等。

```
1. // public final static int Serving = 1;
2. // public final static int Picking = 3;
3. // public final static int Waiting = 2;
4. // public final static int Stop = 0;
5. public static void searchStatus(int status){
6.     int i;
7.     for(i = 0; i < Element.TaxiNumber; i++){
```

```

8.         if(Begin.taxis[i].status == status){
9.             System.out.printf("Number:%d\n" , Begin.taxis[i].number);
10.        }
11.    }
12. }

```

通过编号查询，包括当前时刻、该编号出租车的坐标、和当前所处的状态。

```

1. public static void searchNumber(int number){
2.     String status;
3.     if(Begin.taxis[number].status == Element.Waiting){
4.         status = "Waiting";
5.     }
6.     else if(Begin.taxis[number].status == Element.Serving){
7.         status = "Serving";
8.     }
9.     else if(Begin.taxis[number].status == Element.Picking){
10.        status = "Picking";
11.    }
12.    else{
13.        status = "Stop";
14.    }
15.
16.    System.out.printf("SearchTime:%d Position:(%d,%d) Status:%s\n",
17.        System.currentTimeMillis() / 100 * 100 , Begin.taxis[number].x_now,
18.        Begin.taxis[number].y_now , status);
19. }

```

关于使用，测试者可自行编写 run 然后在主线程下建立线程，放在适当的地方运行。其他程序部分按理说不能修改，因为修改后无法保证程序的正确性，所以不建议改动。其实很大程度上只是为了响应指导书要求，作用个人认为不大，而且麻烦，又不具有复现性，很难想到良好的使用效果，不如结果和 Gui 来的直观。

3.地图文件输入说明

- A.地图采用文件读取的方式录入，满足对空格和制表符的容错。
- B.需要存放 80*80 的矩阵，具体要求与指导书相同。
- C.需要测试者自己判断地图是否连通，如果遇到不连通的题图，可能导致的后果无法设想。
- D.文件 map.txt 放置在与 Project 工程文件相同的目录下即可。

4.输出结果的说明

运行后会在程序所在的目录下生成一个文件，result.txt，存放着所有的请求以及相应的处理。

对于未被响应请求，输出结构为"SysTime:%d Request:[CR,(%d,%d),(%d,%d)] Not Picked", 对于被响应请求，输出结果包含请求自身、请求时间、出发地、目的地、响应车辆编号、当时参与抢单的所有车辆信息、接人路径与送达路径。

四、特殊情况 and 边界可能

1.由于请求数量过多导致的处理时差

使用系统时间不可避免的就是运算时差，可能出现的时间差不对问题希望测试者能够冷静合理分析，同时理性判断，双方均容易接受。

2.关于程序结束

输入结束，需要输入 END，来停止所有线程的运动，待所有请求都执行完毕后会提示 Simulation Over。当观察到 Gui 的地图上的出租车不再运动时，即可点击 Terminal 终端程序。

3.某些要求的个人理解

由于指导书说明极度不明确，截止到作业提交结束前，都未搞清楚能让测试者完成测试的测试接口为何，个人认为就是控制台的输入。同时提供线程安全的乘客叫车请求队列，个人认为就是一组数据吧，剩下的都还成 TAT。

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