第二次习题作业5.2&5.9书面作业部分

5.2.f

根据敏感性报告，表项所示如下

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 可变单元格 | | |  |  |  |  |  |
|  |  |  | **终** | **递减** | **目标式** | **允许的** | **允许的** |
|  | **单元格** | **名字** | **值** | **成本** | **系数** | **增量** | **减量** |
|  | $D$11 | Activity1Cnt | 6 | 0 | 2 | 0.5 | 0.333333333 |
|  | $E$11 | Activity2Cnt | 2 | 0 | 5 | 1 | 1 |

活动1的利润范围是 1.666~ 2.5，和solver table 的结果比较，

|  |  |  |  |
| --- | --- | --- | --- |
| 活动1利润 从1变到3，变化单位0.25 | | | |
| 1.5 | 0 | 4 | 20 |
| 1.75 | 6 | 2 | 20.5 |
| 2 | 6 | 2 | 22 |
| 2.25 | 6 | 2 | 23.5 |
| 2.5 | 6 | 2 | 25 |
| 2.75 | 10 | 0 | 27.5 |

在该范围内最优解不变，活动1的利润范围正确。

活动2的利润范围是4~6，将其与solver table的结果比较

|  |  |  |  |
| --- | --- | --- | --- |
| 3.5 | 10 | 0 | 20 |
| 4 | 6.000000001 | 2 | 20 |
| 4.5 | 6 | 2 | 21 |
| 5 | 6 | 2 | 22 |
| 5.5 | 6 | 2 | 23 |
| 6 | 0 | 4 | 24 |

在表中 值为6时，最优解变为了（0， 4），需要对5.5到6范围再考察，

使用更细的粒度运行solver table 结果如下：

|  |  |  |  |
| --- | --- | --- | --- |
| 5.9 | 6 | 2 | 23.8 |
| 5.92 | 6 | 2 | 23.84 |
| 5.94 | 6 | 2 | 23.88 |
| 5.96 | 6 | 2 | 23.92 |
| 5.98 | 6 | 2 | 23.96 |

从结果看出，活动2利润趋向于6时，最优解不变，活动2的利润范围正确

5.9.e

依据敏感性报告

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 约束 | |  |  |  |  |  |  |
|  |  |  | **终** | **阴影** | **约束** | **允许的** | **允许的** |
|  | **单元格** | **名字** | **值** | **价格** | **限制值** | **增量** | **减量** |
|  | $F$6 | A | 10 | 1 | 10 | 2 | 2 |
|  | $F$7 | B | 12 | 1 | 12 | 3 | 2 |

资源A的影子价格为1的范围是8~12, 与solver table 结果比较，结果一致。

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 8 | 2.53664E-12 | 4 | 20 |  |
| 9 | 3 | 3 | 21 | 1 |
| 10 | 6 | 2 | 22 | 1 |
| 11 | 9 | 1 | 23 | 1 |
| 12 | 12 | 7.31E-12 | 24 | 1 |

资源B的影子价格为1的范围是10 ~15，与solver table 结果比较，结果一致。

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 10 | 10 | 0 | 20 | 2 |
| 11 | 8 | 1 | 21 | 1 |
| 12 | 6 | 2 | 22 | 1 |
| 13 | 4 | 3 | 23 | 1 |
| 14 | 2 | 4 | 24 | 1 |
| 15 | 4.5E-11 | 5 | 25 | 1 |
| 16 | 0 | 5 | 25 | -1E-11 |