**附件1 问题一中原方案I中相关数据计算**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 房型 | 编号 | 住宅  类型 | 容积率 | | | 开发  成本 | 房型面  积 m2 | | | 建房  套数 | 开发成  本(元/m2) | | | 售价  (元/m2) |
| 房型1 | 1 | 普 | 列入 | | | 允许 | 77 | | | 250 | 4263 | | | 12000 |
| 房型2 | 2 | 普 | 列入 | | | 允许 | 98 | | | 250 | 4323 | | | 10800 |
| 房型3 | 3 | 普 | 列入 | | | 不允许 | 117 | | | 150 | 4532 | | | 11200 |
| 房型4 | 4 | 非普 | 列入 | | | 允许 | 145 | | | 250 | 5288 | | | 12800 |
| 房型5 | 5 | 非普 | 列入 | | | 允许 | 156 | | | 250 | 5268 | | | 12800 |
| 房型6 | 6 | 非普 | 列入 | | | 允许 | 167 | | | 250 | 5533 | | | 13600 |
| 房型7 | 7 | 非普 | 列入 | | | 允许 | 178 | | | 250 | 5685 | | | 14000 |
| 房型8 | 8 | 非普 | 列入 | | | 不允许 | 126 | | | 75 | 4323 | | | 10400 |
| 房型9 | 9 | 普 | 不列入 | | | 允许 | 26.06626 | | | 150 | 2663 | | | 6400 |
| 房型9 | 10 | 非普 | 不列入 | | | 允许 | 76.93374 | | | 150 | 2663 | | | 6400 |
| 房型10 | 11 | 普 | 不列入 | | | 允许 | 32.64609 | | | 150 | 2791 | | | 6800 |
| 房型10 | 12 | 非普 | 不列入 | | | 允许 | 96.35391 | | | 150 | 2791 | | | 6800 |
| 房型11 | 13 | 非普 | 不列入 | | | 不允许 | 133 | | | 75 | 2982 | | | 7200 |
| 房型 | 编号 | 建筑总  面积 | | | 开发  总成本 | | | 允许扣除  开发成本 | | | 取得土地  支付金额 | | | 房地产  开发费用 |
| 房型1 | 1 | 19250 | | | 82062750 | | | 82062750 | | | 54004901 | | | 13606765 |
| 房型2 | 2 | 24500 | | | 105913500 | | | 105913500 | | | 68733511 | | | 17464701 |
| 房型3 | 3 | 17550 | | | 79536600 | | | 0 | | | 49235637 | | | 4923564 |
| 房型4 | 4 | 36250 | | | 191690000 | | | 191690000 | | | 101697542 | | | 29338754 |
| 房型5 | 5 | 39000 | | | 205452000 | | | 205452000 | | | 109412528 | | | 31486453 |
| 房型6 | 6 | 41750 | | | 231002750 | | | 231002750 | | | 117127513 | | | 34813026 |
| 房型7 | 7 | 44500 | | | 252982500 | | | 252982500 | | | 124842499 | | | 37782500 |
| 房型8 | 8 | 9450 | | | 40852350 | | | 0 | | | 26511497 | | | 2651150 |
| 房型9 | 9 | 3909.939106 | | | 10412168 | | | 10412168 | | | 10969136 | | | 2138130 |
| 房型9 | 10 | 11540.06089 | | | 30731182 | | | 30731182 | | | 32375057 | | | 6310624 |
| 房型10 | 11 | 4896.914026 | | | 13667287 | | | 13667287 | | | 13738045 | | | 2740533 |
| 房型10 | 12 | 14453.08597 | | | 40338563 | | | 40338563 | | | 40547402 | | | 8088596 |
| 房型11 | 13 | 9975 | | | 29745450 | | | 0 | | | 27984358 | | | 2798436 |
| 房型 | 编号 | 转让房  地产税率 | | 其他  扣除项目 | | | | 扣除项目金额 | | | 增值额 | | 增值率% | |
| 房型1 | 1 | 13051500 | | 27213530 | | | | 189939447 | | | 41060553.1 | | 21.61771 | |
| 房型2 | 2 | 14949900 | | 34929402 | | | | 241991014 | | | 22608985.8 | | 9.342903 | |
| 房型3 | 3 | 11105640 | | 9847127 | | | | 75111969 | | | 121448031 | | 161.6893 | |
| 房型4 | 4 | 26216000 | | 58677508 | | | | 407619804 | | | 56380195.8 | | 13.83156 | |
| 房型5 | 5 | 28204800 | | 62972906 | | | | 437528686 | | | 61671314.1 | | 14.09538 | |
| 房型6 | 6 | 32080700 | | 69626053 | | | | 484650043 | | | 83149957.5 | | 17.1567 | |
| 房型7 | 7 | 35199500 | | 75565000 | | | | 526371999 | | | 96628000.8 | | 18.35736 | |
| 房型8 | 8 | 5552820 | | 5302299 | | | | 40017766 | | | 58262233.8 | | 145.5909 | |
| 房型9 | 9 | 1413834 | | 4276261 | | | | 29209530 | | | -4185919.2 | | -14.3307 | |
| 房型9 | 10 | 4172886 | | 12621248 | | | | 86210997 | | | -12354607 | | -14.3307 | |
| 房型10 | 11 | 1881394 | | 5481066 | | | | 37508326 | | | -4209310.2 | | -11.2223 | |
| 房型10 | 12 | 5552876 | | 16177193 | | | | 110704630 | | | -12423645 | | -11.2223 | |
| 房型11 | 13 | 4057830 | | 5596872 | | | | 40437495 | | | 31382504.6 | | 77.60744 | |
| 房型 | 编号 | 增值税 | | 总成本 | | | | | 净收益 | | | 回报率 | | |
| 房型1 | 1 | 12318166 | | 162725916.6 | | | | | 55955917.48 | | | 0.343866 | | |
| 房型2 | 2 | 0 | | 207061612 | | | | | 57538387.99 | | | 0.277881 | | |
| 房型3 | 3 | 49457220 | | 152755101.2 | | | | | -5652321.54 | | | -0.037 | | |
| 房型4 | 4 | 16914059 | | 348942295.8 | | | | | 98143645.42 | | | 0.28126 | | |
| 房型5 | 5 | 18501394 | | 374555780.3 | | | | | 106142825.4 | | | 0.283383 | | |
| 房型6 | 6 | 24944987 | | 415023989.8 | | | | | 127831022.9 | | | 0.308009 | | |
| 房型7 | 7 | 28988400 | | 450806999.4 | | | | | 143204600.4 | | | 0.317663 | | |
| 房型8 | 8 | 23128452 | | 79653051.77 | | | | | -4501503.75 | | | -0.05651 | | |
| 房型9 | 9 | 0 | | 24933268.66 | | | | | 90341.61547 | | | 0.003623 | | |
| 房型9 | 10 | 0 | | 73589749.32 | | | | | 266640.4042 | | | 0.003623 | | |
| 房型10 | 11 | 0 | | 32027259.22 | | | | | 1271756.154 | | | 0.039709 | | |
| 房型10 | 12 | 0 | | 94527436.79 | | | | | 3753547.832 | | | 0.039709 | | |
| 房型11 | 13 | 10531127 | | 67560618.82 | | | | | -6271745.88 | | | -0.09283 | | |

总计：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 开发成本 | 土地成本 | | 房地产开发费用 | | | 房地产转让税率 | |
| 1314387100 | 777179627 | | 209156672.7 | | | 183439680 | |
| 增值税 | | 总成本 | | 总收益 | 净收益 | | 收益率% |
| 184783805.8 | | 2484163080 | | 3246720000 | 577773114 | | 23.25826 |

**附件2：问题二中平均满意度优化模型Lingo求解命令**

model:

sets:

ts/1..11/:amin,amax,x,bl,mj,myd;

endsets

data:

amin=50,50,50,150,100,150,50,100,50,50,50;

amax=450,500,300,500,550,350,450,250,350,400,250;

mj=77,98,117,145,156,167,178,126,103,129,133;

myd=0.4,0.6,0.5,0.6,0.7,0.8,0.9,0.6,0.2,0.3,0.4;

enddata

@for(ts:@gin(x));

@sum(ts:mj\*x)-mj(9)\*x(9)-mj(10)\*x(10)-mj(11)\*x(11)<=232736;

@for(ts:x>=amin);

@for(ts:x<=amax);

max=@sum(ts:x\*myd)/@sum(ts:x);

end

**附件3 问题二中方案II中相关数据计算**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 房型 | 编号 | 住宅  类型 | 容积率 | | | 开发  成本 | 房型面  积 m2 | | | 建房  套数 | 开发成  本(元/m2) | | | 售价  (元/m2) |
| 房型1 | 1 | 普 | 列入 | | | 允许 | 77 | | | 50 | 4263 | | | 12000 |
| 房型2 | 2 | 普 | 列入 | | | 允许 | 98 | | | 50 | 4323 | | | 10800 |
| 房型3 | 3 | 普 | 列入 | | | 不允许 | 117 | | | 50 | 4532 | | | 11200 |
| 房型4 | 4 | 非普 | 列入 | | | 允许 | 145 | | | 150 | 5288 | | | 12800 |
| 房型5 | 5 | 非普 | 列入 | | | 允许 | 156 | | | 100 | 5268 | | | 12800 |
| 房型6 | 6 | 非普 | 列入 | | | 允许 | 167 | | | 350 | 5533 | | | 13600 |
| 房型7 | 7 | 非普 | 列入 | | | 允许 | 178 | | | 450 | 5685 | | | 14000 |
| 房型8 | 8 | 非普 | 列入 | | | 不允许 | 126 | | | 100 | 4323 | | | 10400 |
| 房型9 | 9 | 普 | 不列入 | | | 允许 | 7.169487 | | | 50 | 2663 | | | 6400 |
| 房型9 | 10 | 非普 | 不列入 | | | 允许 | 95.83051 | | | 50 | 2663 | | | 6400 |
| 房型10 | 11 | 普 | 不列入 | | | 允许 | 8.979261 | | | 50 | 2791 | | | 6800 |
| 房型10 | 12 | 非普 | 不列入 | | | 允许 | 120.0207 | | | 50 | 2791 | | | 6800 |
| 房型11 | 13 | 非普 | 不列入 | | | 不允许 | 133 | | | 50 | 2982 | | | 7200 |
| 房型 | 编号 | 建筑总  面积 | | | 开发  总成本 | | | 允许扣除  开发成本 | | | 取得土地  支付金额 | | | 房地产  开发费用 |
| 房型1 | 1 | 3850 | | | 46200000 | | | 16412550 | | | 16412550 | | | 13517694 |
| 房型2 | 2 | 4900 | | | 52920000 | | | 21182700 | | | 21182700 | | | 17204338 |
| 房型3 | 3 | 5850 | | | 65520000 | | | 26512200 | | | 0 | | | 20539873 |
| 房型4 | 4 | 21750 | | | 278400000 | | | 115014000 | | | 115014000 | | | 76366193 |
| 房型5 | 5 | 15600 | | | 199680000 | | | 82180800 | | | 82180800 | | | 54772994 |
| 房型6 | 6 | 58450 | | | 794920000 | | | 323403850 | | | 323403850 | | | 205223172 |
| 房型7 | 7 | 80100 | | | 1121400000 | | | 455368500 | | | 455368500 | | | 281238257 |
| 房型8 | 8 | 12600 | | | 131040000 | | | 54469800 | | | 0 | | | 44239726 |
| 房型9 | 9 | 358.4744 | | | 2294235.995 | | | 954617.26 | | | 954617.26 | | | 1258635.6 |
| 房型9 | 10 | 4791.526 | | | 30665764 | | | 12759833 | | | 12759833 | | | 16823475 |
| 房型10 | 11 | 448.9631 | | | 3052948.749 | | | 1253055.9 | | | 1253055.9 | | | 1576349.4 |
| 房型10 | 12 | 6001.037 | | | 40807051.25 | | | 16748894 | | | 16748894 | | | 21070177 |
| 房型11 | 13 | 6650 | | | 47880000 | | | 19830300 | | | 0 | | | 23348744 |
| 房型 | 编号 | 转让房  地产税率 | | 其他  扣除项目 | | | | 扣除项目金额 | | | 增值额 | | 增值率% | |
| 房型1 | 1 | 2610300 | | 5986048.8 | | | | 41519617.2 | | | 4680382.8 | | 11.2727 | |
| 房型2 | 2 | 2989980 | | 7677407.56 | | | | 52893129.1 | | | 26870.858 | | 0.050802 | |
| 房型3 | 3 | 3701880 | | 4107974.54 | | | | 30403714.5 | | | 35116286 | | 115.5 | |
| 房型4 | 4 | 15729600 | | 38276038.7 | | | | 264523851 | | | 13876149 | | 5.245708 | |
| 房型5 | 5 | 11281920 | | 27390758.8 | | | | 189321852 | | | 10358148 | | 5.471185 | |
| 房型6 | 6 | 44912980 | | 105725404 | | | | 732128109 | | | 62791891 | | 8.576626 | |
| 房型7 | 7 | 63359100 | | 147321351 | | | | 1020947884 | | | 100452116 | | 9.839103 | |
| 房型8 | 8 | 7403760 | | 8847945.15 | | | | 64915403.5 | | | 66124596 | | 101.8627 | |
| 房型9 | 9 | 129624.3 | | 442650.563 | | | | 3006852.99 | | | -712617 | | -23.6998 | |
| 房型9 | 10 | 1732616 | | 5916661.46 | | | | 40190915.2 | | | -9525151 | | -23.6998 | |
| 房型10 | 11 | 172491.6 | | 565881.053 | | | | 3850718.45 | | | -797769.7 | | -20.7174 | |
| 房型10 | 12 | 2305598 | | 7563814.21 | | | | 51470390.7 | | | -10663339 | | -20.7174 | |
| 房型11 | 13 | 2705220 | | 4669748.83 | | | | 33058587.4 | | | 14821413 | | 44.83377 | |
| 房型 | 编号 | 增值税 | | 总成本 | | | | | 净收益 | | | 回报率 | | |
| 房型1 | 1 | 0 | | 35533568.4 | | | | | 10666431.6 | | | 0.300179 | | |
| 房型2 | 2 | 0 | | 45215721.6 | | | | | 7704278.42 | | | 0.170389 | | |
| 房型3 | 3 | 12997585.6 | | 55459159.9 | | | | | -2936745.5 | | | -0.05295 | | |
| 房型4 | 4 | 4162844.61 | | 226247813 | | | | | 47989342.8 | | | 0.21211 | | |
| 房型5 | 5 | 3107444.41 | | 161931093 | | | | | 34641462.4 | | | 0.213927 | | |
| 房型6 | 6 | 18837567.3 | | 626402705 | | | | | 149679728 | | | 0.238951 | | |
| 房型7 | 7 | 30135634.9 | | 873626532 | | | | | 217637833 | | | 0.24912 | | |
| 房型8 | 8 | 23324987.7 | | 115984238 | | | | | -8269226.1 | | | -0.0713 | | |
| 房型9 | 9 | 0 | | 2564202.43 | | | | | -269966.44 | | | -0.10528 | | |
| 房型9 | 10 | 0 | | 34274253.7 | | | | | -3608489.7 | | | -0.10528 | | |
| 房型10 | 11 | 0 | | 3284837.39 | | | | | -231888.64 | | | -0.07059 | | |
| 房型10 | 12 | 0 | | 43906576.5 | | | | | -3099525.3 | | | -0.07059 | | |
| 房型11 | 13 | 4446423.78 | | 50202168.6 | | | | | -6768592.4 | | | -0.13483 | | |

总计：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 开发成本 | 土地成本 | | 房地产开发费用 | | | 房地产转让税率 | |
| 1146091100 | 777179627 | | 192327072.7 | | | 159035070 | |
| 增值税 | | 总成本 | | 总收益 | 净收益 | | 收益率% |
| 97012488 | | 2274632870 | | 2814780000 | 443134642 | | 19.48159 |

**附件4：问题三中平均满意度、回报率优化模型Lingo求解命令**

model:

sets:

ts/1..11/:amin,amax,x,bl,mj,myd,kfcb,sj,jzzmj,xszje,kfzcb,tdje,pd,kffy,fdcfy,qtxm,kcxm,zze,zzl,zzs;

endsets

data:

amin=50,50,50,150,100,150,50,100,50,50,50;

amax=450,500,300,500,550,350,450,250,350,400,250;

mj=77,98,117,145,156,167,178,126,103,129,133;

myd=0.4,0.6,0.5,0.6,0.7,0.8,0.9,0.6,0.2,0.3,0.4;

kfcb=0.4263,0.4323,0.4532,0.5288,0.5268,0.5533,0.5685,0.4323,0.2663,0.2791,0.2982;

sj=1.2,1.08,1.12,1.28,1.28,1.36,1.4,1.04,0.64,0.68,0.72;

pd=1,1,0,1,1,1,1,0,1,1,0;

enddata

@for(ts:jzzmj=x\*mj);

@for(ts:xszje=jzzmj\*sj);

@for(ts:kfzcb=kfcb\*jzzmj);

zjzzmj=@sum(ts:jzzmj);

@for(ts:tdje=jzzmj/zjzzmj\*77717.9627);

@for(ts:kffy=(pd\*kfzcb+tdje)\*0.1);

@for(ts:fdcfy=0.0565\*xszje);

@for(ts:qtxm=kffy\*2);

@for(ts:kcxm=pd\*kfzcb+kffy+tdje+fdcfy+qtxm);

@for(ts:@free(zze));

@for(ts:@free(zzl));

@for(ts:zze=xszje-kcxm);

@for(ts:zzl=zze/kcxm);

p=(jzzmj(1)+jzzmj(2)+jzzmj(3))/(@sum(ts:jzzmj)-jzzmj(9)-jzzmj(10));

fp=(jzzmj(4)+jzzmj(5)+jzzmj(6)+jzzmj(7)+jzzmj(8)+jzzmj(11))/(@sum(ts:jzzmj)-jzzmj(9)-jzzmj(10));

@for(ts:zzs=@if(zzl#le#0,0,@if(zzl#le#0.5,0.3\*zze,@if(zzl#le#1,0.4\*zze-0.05\*kcxm,@if(zzl#le#2,0.5\*zze-0.15\*kcxm,0.6\*zze-0.35\*kcxm)))));

zzs1=@if(zzl(1)#le#0.2,0,zzs(1));

zzs2=@if(zzl(2)#le#0.2,0,zzs(2));

@free(zzs91);

@free(zzs92);

@free(zzs101);

@free(zzs102);

zzs91=@if(zzl(9)#le#0.2,0,zzs(9)\*p);

zzs92=zzs(9)\*fp;

zzs101=@if(zzl(10)#le#0.2,0,zzs(10)\*p);

zzs102=zzs(10)\*fp;

kfzzcb=@sum(ts:kfzcb);

tdzje=@sum(ts:tdje);

fdczfy=(kfzzcb+tdzje)\*0.1;

fdcsl=@sum(ts:fdcfy);

zzzs=@sum(ts:zzs)-zzs(1)-zzs(2)-zzs(9)-zzs(10)+zzs1+zzs2+zzs91+zzs92+zzs101+zzs102;

zcb=kfzzcb+tdzje+fdczfy+fdcsl;

zsy=@sum(ts:xszje);

jsy=zsy-zcb-zzzs;

syl=jsy/zcb;

syl>=0.25;

@for(ts:@gin(x));

@sum(ts:x\*mj)-mj(9)\*x(9)-mj(10)\*x(10)-mj(11)\*x(11)<=232736;

@for(ts:x>=amin);

@for(ts:x<=amax);

max=@sum(ts:x\*myd)/@sum(ts:x);

end

**附件5 问题三中方案II中相关数据计算**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 房型 | 编号 | 住宅  类型 | 容积率 | | | 开发  成本 | 房型面  积 m2 | | | 建房  套数 | 开发成  本(元/m2) | | | 售价  (元/m2) |
| 房型1 | 1 | 普 | 列入 | | | 允许 | 77.00 | | | 50 | 4263 | | | 12000 |
| 房型2 | 2 | 普 | 列入 | | | 允许 | 98.00 | | | 50 | 4323 | | | 10800 |
| 房型3 | 3 | 普 | 列入 | | | 不允许 | 117.00 | | | 50 | 4532 | | | 11200 |
| 房型4 | 4 | 非普 | 列入 | | | 允许 | 145.00 | | | 150 | 5288 | | | 12800 |
| 房型5 | 5 | 非普 | 列入 | | | 允许 | 156.00 | | | 291 | 5268 | | | 12800 |
| 房型6 | 6 | 非普 | 列入 | | | 允许 | 167.00 | | | 349 | 5533 | | | 13600 |
| 房型7 | 7 | 非普 | 列入 | | | 允许 | 178.00 | | | 450 | 5685 | | | 14000 |
| 房型8 | 8 | 非普 | 列入 | | | 不允许 | 126.00 | | | 100 | 4323 | | | 10400 |
| 房型9 | 9 | 普 | 不列入 | | | 允许 | 6.28 | | | 50 | 2663 | | | 6400 |
| 房型9 | 10 | 非普 | 不列入 | | | 允许 | 96.72 | | | 50 | 2663 | | | 6400 |
| 房型10 | 11 | 普 | 不列入 | | | 允许 | 7.86 | | | 260 | 2791 | | | 6800 |
| 房型10 | 12 | 非普 | 不列入 | | | 允许 | 121.14 | | | 260 | 2791 | | | 6800 |
| 房型11 | 13 | 非普 | 不列入 | | | 不允许 | 133.00 | | | 51 | 2982 | | | 7200 |
| 房型 | 编号 | 建筑总  面积 | | | 开发  总成本 | | | 允许扣除  开发成本 | | | 取得土地  支付金额 | | | 房地产  开发费用 |
| 房型1 | 1 | 3850 | | | 46200000 | | | 16412550 | | | 16412550 | | | 10755284 |
| 房型2 | 2 | 4900 | | | 52920000 | | | 21182700 | | | 21182700 | | | 13688543 |
| 房型3 | 3 | 5850 | | | 65520000 | | | 26512200 | | | 0 | | | 16342445 |
| 房型4 | 4 | 21750 | | | 278400000 | | | 115014000 | | | 115014000 | | | 60760372 |
| 房型5 | 5 | 45396 | | | 581068800 | | | 239146128 | | | 239146128 | | | 126817371 |
| 房型6 | 6 | 58283 | | | 792648800 | | | 322479839 | | | 322479839 | | | 162818241 |
| 房型7 | 7 | 80100 | | | 1121400000 | | | 455368500 | | | 455368500 | | | 223765782 |
| 房型8 | 8 | 12600 | | | 131040000 | | | 54469800 | | | 0 | | | 35199112 |
| 房型9 | 9 | 313.93 | | | 2009152 | | | 835996 | | | 835996 | | | 876989 |
| 房型9 | 10 | 4836.07 | | | 30950848 | | | 12878454 | | | 12878454 | | | 13509950 |
| 房型10 | 11 | 2044.51 | | | 13902649 | | | 5706219 | | | 5706219 | | | 5711495 |
| 房型10 | 12 | 31495.49 | | | 214169351 | | | 87903921 | | | 87903921 | | | 87985188 |
| 房型11 | 13 | 6783 | | | 48837600 | | | 20226906 | | | 0 | | | 18948855 |
| 房型 | 编号 | 转让房  地产税率 | | 其他  扣除项目 | | | | 扣除项目金额 | | | 增值额 | | 增值率% | |
| 房型1 | 1 | 2610300 | | 5433566.832 | | | | 37928484 | | | 8271516 | | 21.81 | |
| 房型2 | 2 | 2989980 | | 6974248.695 | | | | 48322597 | | | 4597403 | | 9.51 | |
| 房型3 | 3 | 3701880 | | 3268488.953 | | | | 24947058 | | | 40572942 | | 162.64 | |
| 房型4 | 4 | 15729600 | | 35154874.31 | | | | 244236283 | | | 34163717 | | 13.99 | |
| 房型5 | 5 | 32830387.2 | | 73192699.87 | | | | 508582936 | | | 72485864 | | 14.25 | |
| 房型6 | 6 | 44784657.2 | | 97059615.94 | | | | 675672161 | | | 116976639 | | 17.31 | |
| 房型7 | 7 | 63359100 | | 135826856.4 | | | | 946233667 | | | 175166333 | | 18.51 | |
| 房型8 | 8 | 7403760 | | 7039822.359 | | | | 53162605 | | | 77877395 | | 146.49 | |
| 房型9 | 9 | 113517.0847 | | 342596.841 | | | | 2340397 | | | -331245 | | -14.15 | |
| 房型9 | 10 | 1748722.915 | | 5277680.869 | | | | 36053649 | | | -5102801 | | -14.15 | |
| 房型10 | 11 | 785499.6526 | | 2283542.887 | | | | 15628528 | | | -1725880 | | -11.04 | |
| 房型10 | 12 | 12100568.35 | | 35177821.77 | | | | 240756410 | | | -26587059 | | -11.04 | |
| 房型11 | 13 | 2759324.4 | | 3789771.037 | | | | 27392836 | | | 21444764 | | 78.29 | |
| 房型 | 编号 | 增值税 | | 总成本 | | | | | 净收益 | | | 回报率 | | |
| 房型1 | 1 | 2481455 | | 32494918 | | | | | 11223628 | | | 0.345396 | | |
| 房型2 | 2 | 0 | | 41348348 | | | | | 11571652 | | | 0.279858 | | |
| 房型3 | 3 | 16544412 | | 50841989 | | | | | -1866401 | | | -0.03671 | | |
| 房型4 | 4 | 10249115 | | 209081409 | | | | | 59069476 | | | 0.282519 | | |
| 房型5 | 5 | 21745759 | | 435390236 | | | | | 123932804 | | | 0.284648 | | |
| 房型6 | 6 | 35092992 | | 578612545 | | | | | 178943263 | | | 0.309263 | | |
| 房型7 | 7 | 52549900 | | 810406810 | | | | | 258443290 | | | 0.318906 | | |
| 房型8 | 8 | 30964307 | | 106039563 | | | | | -5963870 | | | -0.05624 | | |
| 房型9 | 9 | 0 | | 1997800 | | | | | 11352 | | | 0.005682 | | |
| 房型9 | 10 | 0 | | 30775968 | | | | | 174880 | | | 0.005682 | | |
| 房型10 | 11 | 0 | | 13344986 | | | | | 557663 | | | 0.041788 | | |
| 房型10 | 12 | 0 | | 205578588 | | | | | 8590763 | | | 0.041788 | | |
| 房型11 | 13 | 7208264 | | 45852662 | | | | | -4223325 | | | -0.09211 | | |

总计：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 开发成本 | 土地成本 | | 房地产开发费用 | | | 房地产转让税率 | |
| 1378137213 | 777179627 | | 215531684 | | | 190917296.8 | |
| 增值税 | | 总成本 | | 总收益 | 净收益 | | 收益率% |
| 176836203 | | 2561765821 | | 3379067200 | 640465176 | | 25.00092596 |

**附件6：改进第二题优化模型Lingo求解命令**

model:

sets:

ts/1..11/:amin,amax,x,bl,mj,myd;

endsets

data:

amin=50,50,50,150,100,150,50,100,50,50,50;

amax=450,500,300,500,550,350,450,250,350,400,250;

mj=77,98,117,145,156,167,178,126,103,129,133;

myd=0.4,0.6,0.5,0.6,0.7,0.8,0.9,0.6,0.2,0.3,0.4;

enddata

@for(ts:@gin(x));

zmj=@sum(ts:mj\*x)-mj(9)\*x(9)-mj(10)\*x(10)-mj(11)\*x(11);

zmj<=232736;

@for(ts:x>=amin);

@for(ts:x<=amax);

zx=@sum(ts:x);

y=

!1; @sum(ts(i):@if(x(i)#le#myd(i)\*zx,0,x(i)-myd(i)\*zx))+

!2; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:

@if((x(i)+x(j))#le#(@smax(myd(i),myd(j))\*zx),0,

((x(i)+x(j))-@smax(myd(i),myd(j))\*zx)\*(1-myd(i))\*(1-myd(j))/(1-@smax(myd(i),myd(j)))

)))+

!3; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:

@if((x(i)+x(j)+x(k))#le#(@smax(myd(i),myd(j),myd(k))\*zx),0,

((x(i)+x(j)+x(k))-@smax(myd(i),myd(j),myd(k))\*zx)\*(1-myd(i))\*(1-myd(j))\*(1-myd(k))/(1-@smax(myd(i),myd(j),myd(k)))

))))+

!4; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:

@if((x(i)+x(j)+x(k)+x(l))#le#(@smax(myd(i),myd(j),myd(k),myd(l))\*zx),0,

((x(i)+x(j)+x(k)+x(l))-@smax(myd(i),myd(j),myd(k),myd(l))\*zx)\*(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))/(1-@smax(myd(i),myd(j),myd(k),myd(l)))

)))))+

!5; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:

@if((x(i)+x(j)+x(k)+x(l)+x(m))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m)))

))))))+

!6; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n)))

)))))))+

!7; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o)))

))))))))+

!8; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:@sum(ts(p)|(o+1)#le#p:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))\*(1-myd(p))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p)))

)))))))))+

!9; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:@sum(ts(p)|(o+1)#le#p:@sum(ts(q)|(p+1)#le#q:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))\*(1-myd(p))\*(1-myd(q))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q)))

))))))))))+

!10; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:@sum(ts(p)|(o+1)#le#p:@sum(ts(q)|(p+1)#le#q:@sum(ts(r)|(q+1)#le#r:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q)+x(r))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q),myd(r))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q)+x(r))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q),myd(r))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))\*(1-myd(p))\*(1-myd(q))\*(1-myd(r))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q),myd(r)))

)))))))))))+

!11; (@sum(ts:x)-@smax(myd(1),myd(2),myd(3),myd(4),myd(5),myd(6),myd(7),myd(8),myd(9),myd(10),myd(11)))\*(1-myd(1))\*(1-myd(2))\*(1-myd(3))\*(1-myd(4))\*(1-myd(5))\*(1-myd(6))\*(1-myd(7))\*(1-myd(8))\*(1-myd(9))\*(1-myd(10))\*(1-myd(11))/(1-@smax(myd(1),myd(2),myd(3),myd(4),myd(5),myd(6),myd(7),myd(8),myd(9),myd(10),myd(11)));

min=y/zx;

end

**附件7：改进第三题优化模型Lingo求解命令**

model:

sets:

ts/1..11/:amin,amax,x,bl,mj,myd,kfcb,sj,jzzmj,xszje,kfzcb,tdje,pd,kffy,fdcfy,qtxm,kcxm,zze,zzl,zzs;

endsets

data:

amin=50,50,50,150,100,150,50,100,50,50,50;

amax=450,500,300,500,550,350,450,250,350,400,250;

mj=77,98,117,145,156,167,178,126,103,129,133;

myd=0.4,0.6,0.5,0.6,0.7,0.8,0.9,0.6,0.2,0.3,0.4;

kfcb=0.4263,0.4323,0.4532,0.5288,0.5268,0.5533,0.5685,0.4323,0.2663,0.2791,0.2982;

sj=1.2,1.08,1.12,1.28,1.28,1.36,1.4,1.04,0.64,0.68,0.72;

pd=1,1,0,1,1,1,1,0,1,1,0;

enddata

@for(ts:jzzmj=x\*mj);

@for(ts:xszje=jzzmj\*sj);

@for(ts:kfzcb=kfcb\*jzzmj);

zjzzmj=@sum(ts:jzzmj);

@for(ts:tdje=jzzmj/zjzzmj\*77717.9627);

@for(ts:kffy=(pd\*kfzcb+tdje)\*0.1);

@for(ts:fdcfy=0.0565\*xszje);

@for(ts:qtxm=kffy\*2);

@for(ts:kcxm=pd\*kfzcb+kffy+tdje+fdcfy+qtxm);

@for(ts:@free(zze));

@for(ts:@free(zzl));

@for(ts:zze=xszje-kcxm);

@for(ts:zzl=zze/kcxm);

sp=(jzzmj(1)+jzzmj(2)+jzzmj(3))/(@sum(ts:jzzmj)-jzzmj(9)-jzzmj(10));

fp=(jzzmj(4)+jzzmj(5)+jzzmj(6)+jzzmj(7)+jzzmj(8)+jzzmj(11))/(@sum(ts:jzzmj)-jzzmj(9)-jzzmj(10));

@for(ts:zzs=@if(zzl#le#0,0,@if(zzl#le#0.5,0.3\*zze,@if(zzl#le#1,0.4\*zze-0.05\*kcxm,@if(zzl#le#2,0.5\*zze-0.15\*kcxm,0.6\*zze-0.35\*kcxm)))));

zzs1=@if(zzl(1)#le#0.2,0,zzs(1));

zzs2=@if(zzl(2)#le#0.2,0,zzs(2));

@free(zzs91);

@free(zzs92);

@free(zzs101);

@free(zzs102);

zzs91=@if(zzl(9)#le#0.2,0,zzs(9)\*sp);

zzs92=zzs(9)\*fp;

zzs101=@if(zzl(10)#le#0.2,0,zzs(10)\*sp);

zzs102=zzs(10)\*fp;

kfzzcb=@sum(ts:kfzcb);

tdzje=@sum(ts:tdje);

fdczfy=(kfzzcb+tdzje)\*0.1;

fdcsl=@sum(ts:fdcfy);

zzzs=@sum(ts:zzs)-zzs(1)-zzs(2)-zzs(9)-zzs(10)+zzs1+zzs2+zzs91+zzs92+zzs101+zzs102;

zcb=kfzzcb+tdzje+fdczfy+fdcsl;

zsy=@sum(ts:xszje);

jsy=zsy-zcb-zzzs;

syl=jsy/zcb;

syl>=0.25;

@for(ts:@gin(x));

@sum(ts:x\*mj)-mj(9)\*x(9)-mj(10)\*x(10)-mj(11)\*x(11)<=232736;

@for(ts:x>=amin);

@for(ts:x<=amax);

zx=@sum(ts:x);

y=

!1; @sum(ts(i):@if(x(i)#le#myd(i)\*zx,0,x(i)-myd(i)\*zx))+

!2; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:

@if((x(i)+x(j))#le#(@smax(myd(i),myd(j))\*zx),0,

((x(i)+x(j))-@smax(myd(i),myd(j))\*zx)\*(1-myd(i))\*(1-myd(j))/(1-@smax(myd(i),myd(j)))

)))+

!3; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:

@if((x(i)+x(j)+x(k))#le#(@smax(myd(i),myd(j),myd(k))\*zx),0,

((x(i)+x(j)+x(k))-@smax(myd(i),myd(j),myd(k))\*zx)\*(1-myd(i))\*(1-myd(j))\*(1-myd(k))/(1-@smax(myd(i),myd(j),myd(k)))

))))+

!4; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:

@if((x(i)+x(j)+x(k)+x(l))#le#(@smax(myd(i),myd(j),myd(k),myd(l))\*zx),0,

((x(i)+x(j)+x(k)+x(l))-@smax(myd(i),myd(j),myd(k),myd(l))\*zx)\*(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))/(1-@smax(myd(i),myd(j),myd(k),myd(l)))

)))))+

!5; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:

@if((x(i)+x(j)+x(k)+x(l)+x(m))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m)))

))))))+

!6; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n)))

)))))))+

!7; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o)))

))))))))+

!8; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:@sum(ts(p)|(o+1)#le#p:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))\*(1-myd(p))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p)))

)))))))))+

!9; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:@sum(ts(p)|(o+1)#le#p:@sum(ts(q)|(p+1)#le#q:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))\*(1-myd(p))\*(1-myd(q))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q)))

))))))))))+

!10; @sum(ts(i):@sum(ts(j)|(i+1)#le#j:@sum(ts(k)|(j+1)#le#k:@sum(ts(l)|(k+1)#le#l:@sum(ts(m)|(l+1)#le#m:@sum(ts(n)|(m+1)#le#n:@sum(ts(o)|(n+1)#le#o:@sum(ts(p)|(o+1)#le#p:@sum(ts(q)|(p+1)#le#q:@sum(ts(r)|(q+1)#le#r:

@if((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q)+x(r))#le#(@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q),myd(r))\*zx),0,

((x(i)+x(j)+x(k)+x(l)+x(m)+x(n)+x(o)+x(p)+x(q)+x(r))-

@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q),myd(r))\*zx)\*

(1-myd(i))\*(1-myd(j))\*(1-myd(k))\*(1-myd(l))\*(1-myd(m))\*(1-myd(n))\*(1-myd(o))\*(1-myd(p))\*(1-myd(q))\*(1-myd(r))/

(1-@smax(myd(i),myd(j),myd(k),myd(l),myd(m),myd(n),myd(o),myd(p),myd(q),myd(r)))

)))))))))))+

!11; (@sum(ts:x)-@smax(myd(1),myd(2),myd(3),myd(4),myd(5),myd(6),myd(7),myd(8),myd(9),myd(10),myd(11)))\*(1-myd(1))\*(1-myd(2))\*(1-myd(3))\*(1-myd(4))\*(1-myd(5))\*(1-myd(6))\*(1-myd(7))\*(1-myd(8))\*(1-myd(9))\*(1-myd(10))\*(1-myd(11))/(1-@smax(myd(1),myd(2),myd(3),myd(4),myd(5),myd(6),myd(7),myd(8),myd(9),myd(10),myd(11)));

min=y/zx;

end