

Lab3 Report

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实验结果

A1

```
Xk:
1.000000
1.000000
1.000000
1.000000
1.000000
Yk:
1.000000
1.000000
1.000000
1.000000
1.000000
lamda: 1.000000000000

Xk:
629.999939
-1119.999874
629.999915
-119.999980
4.999999
Yk:
1.000000
-1.777778
1.000000
-0.190476
0.007937
lamda: 0.000002867343

Xk:
260004.962887
-529508.812412
348754.948819
-80203.321290
4226.229501
Yk:
0.745523
-1.518283
1.000000
-0.229970
0.012118
lamda: 0.000003283421

special_value: 0.000003283421
special_vector:
226395.400311
-461630.038938
304560.416021
-70212.533578
3714.569906
iteration cycles: 3
```

A2

```
0.000000
2.000000
-0.000000
1.000000
Yk:
0.000000
1.000000
-0.000000
0.500000
lamda: 0.177777777778

Xk:
-0.625000
5.625000
-2.375000
3.500000
Yk:
-0.111111
1.000000
-0.422222
0.622222
lamda: 0.123796423659

Xk:
-0.933333
8.077778
-3.433333
5.044444
Yk:
-0.115543
1.000000
-0.425034
0.624484
lamda: 0.123610550254

Xk:
-0.936210
8.089924
-3.443776
5.054333
Yk:
-0.115725
1.000000
-0.425687
0.624769
lamda: 0.123551079276

Xk:
-0.936712
8.093818
-3.445490
5.056811
Yk:
-0.115732
1.000000
-0.425694
0.624774
lamda: 0.123550503590

special_value: 0.123550503590
special_vector:
-0.936719
8.093856
-3.445513
5.056838
iteration cycles: 6
```

结果分析

1. 分析迭代次数

A1特征值 $3e-6$, 迭代3次; A2特征值0.12355,迭代6次

故有特征值越小迭代次数越少

2. 数值问题

用最大分量做计算没有数值问题