```
%Please give feadback on how to utilize cvx better.

clear;clc;

J=ones(10,10);
A1=zeros(10,10);
A2=A1;
A3=A1;
A4=A1;
A5=A1;
A6=A1;
A7=A1;
A8=A1;
A9=A1;
A10=A1;
A11=A1
A12=A1;
A13=A1;
A14=A1;
A15=A1;

A1(1,2)=1;
A2(2,3)=1;
A3(3,4)=1;
A4(4,5)=1;
A5(5,1)=1;
A6(1,6)=1;
A7(2,7)=1;
A8(8,3)=1;
A9(4,9)=1;
A10(5,10)=1;
A11(10,7)=1;
A12(6,8)=1;
A13(7,9)=1;
A14(8,10)=1;
A15(9,6)=1;

cvx_begin
variable X(10,10) semidefinite;
    maximize( trace(J*X) );
    subject to
        trace(X) == 1;
        trace(A1*X) == 0;
        trace(A2*X) == 0;
        trace(A3*X) == 0;
        trace(A4*X) == 0;
        trace(A5*X) == 0;
        trace(A6*X) == 0;
        trace(A7*X) == 0;
        trace(A8*X) == 0;
        trace(A9*X) == 0;
        trace(A10*X) == 0;
```

```
        trace(A11*X) == 0;
        trace(A12*X) == 0;
        trace(A13*X) == 0;
        trace(A14*X) == 0;
        trace(A15*X) == 0;
cvx_end


A11 =

     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0
     0     0     0     0     0     0     0     0     0     0


Calling SDPT3 4.0: 55 variables, 16 equality constraints
------------------------------------------------------------

 num. of constraints = 16
 dim. of sdp    var  = 10,   num. of sdp  blk  =  1
*****************************************************************
   SDPT3: Infeasible path-following algorithms
*****************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj
 cputime
-----------------------------------------------------------------
 0|0.000|0.000|5.0e+01|3.6e+00|1.1e+03|-1.000000e+02  0.000000e+00|
 0:0:00| chol  1  1
 1|0.936|1.000|3.2e+00|2.9e-02|6.9e+01|-2.231465e+01 -1.234411e+01|
 0:0:00| chol  1  1
 2|1.000|1.000|1.1e-07|2.9e-03|6.8e+00|-3.419658e+00 -1.016430e+01|
 0:0:00| chol  1  1
 3|1.000|0.948|2.0e-08|4.2e-04|3.4e-01|-3.852168e+00 -4.193105e+00|
 0:0:00| chol  1  1
 4|0.986|0.985|9.1e-09|3.5e-05|5.0e-03|-3.997854e+00 -4.002724e+00|
 0:0:00| chol  1  1
 5|0.989|0.989|3.6e-10|3.2e-06|5.5e-05|-3.999976e+00 -4.000020e+00|
 0:0:00| chol  1  1
 6|0.989|0.989|6.2e-11|3.6e-08|6.1e-07|-4.000000e+00 -4.000000e+00|
 0:0:00| chol  1  1
 7|1.000|0.998|8.6e-13|7.1e-11|7.3e-09|-4.000000e+00 -4.000000e+00|
 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.49e-08
-----------------------------------------------------------------
 number of iterations   =  7
```

```
 primal objective value = -4.00000000e+00
 dual   objective value = -4.00000000e+00
 gap := trace(XZ)       = 7.28e-09
 relative gap           = 8.09e-10
 actual relative gap    = 7.82e-10
 rel. primal infeas (scaled problem)   = 8.62e-13
 rel. dual     "        "       "      = 7.08e-11
 rel. primal infeas (unscaled problem) = 0.00e+00
 rel. dual     "        "       "      = 0.00e+00
 norm(X), norm(y), norm(Z) = 5.0e-01, 1.6e+01, 1.3e+01
 norm(A), norm(b), norm(C) = 5.2e+00, 2.0e+00, 1.1e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS: 8.6e-13  0.0e+00  3.9e-10  0.0e+00  7.8e-10  8.1e-10
------------------------------------------------------------------

------------------------------------------------------------
Status: Solved
Optimal value (cvx_optval): +4
```

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