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function A = scenario3(y,t)

% Example 1 return the value A defined by
% dy/dt = Ay
% Input:
% y: population
% t: time

% Rate infected people on Ping and Pong
PiIR = 0.2; PoIR = 0.2;



% Death rate on ping
PiDR = 0.1; PoDR = 0.1;

% cure rate
CR = 0.15;

% Commuters rate Ping to Pong
Pi2Po = 0.05;

% Commuters rate from Pong to Ping
Po2Pi = 0.05;

% proportion of healty commuters
Xpi = 0.5;
Xpo = 0.5;

% matrix of coefficients
A = [-(PiIR+Pi2Po*Xpi) CR                          0.0    Po2Pi*Xpo
   0.0                      0.0;
       PiIR            -(PiDR+Pi2Po*(1-Xpi)+CR) 0.0    0.0
   Po2Pi*(1-Xpo)            0.0;
       0.0             PiDR                       0.0    0.0
   0.0                      0.0;
       Pi2Po*Xpi       0.0                        0.0    -(PoIR
+Po2Pi*Xpo) CR                        0.0;
       0.0             Pi2Po*(1-Xpi)              0.0    PoIR
   -(PoDR+Po2Pi*(1-Xpo)+CR) 0.0;
       0.0             0.0                        0.0    0.0
   PoDR                     0.0;];

end


ans =

   -0.2250    0.1500         0    0.0250         0         0
    0.2000   -0.2750         0         0    0.0250         0
         0    0.1000         0         0         0         0
    0.0250         0         0   -0.2250    0.1500         0
         0    0.0250         0    0.2000   -0.2750         0
```

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     0          0          0          0     0.1000          0
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Published with MATLAB® R2016b