```
%%%%%%%%%% sample code for Google Page Rank also %%%%%%%%%%

clear all;

G = [0 0 0 0 1/2 0;
     1/4 0 0 0 0 0;
     0 1/2 0 0 0 0;
     1/4 1/2 0 0 1/2 0;
     1/4 0 1 0 0 1;
     1/4 0 0 0 0 0];

% G = [0 0 0 0 1/2 0;
%      1/3   0 0 0 0 0;
%      0 1/2 0 0 0 0;
%      1/3 1/2   0 0 1/2 0;
%      1/3 0 1 1 0 1;
%      0 0 0 0 0 0;
%       ]

[EV_G, ev_G] = eig(G);

eigenvalues_G = diag(ev_G);

v0_G = [1/6 1/6 1/6 1/6 1/6 1/6]';
tol=0.00001; max_iter = 10000; EV_dom = [] ;
%%%%%%%%%%% Power method to G %%%%%%%%%%%
for i=[1:max_iter]
     v_now = G*v0_G;
     v_next = G*v_now;
     if abs(v_next - v_now) < tol
          EV_dom = v_next;
          break;
     end
     v0_G = v_now;
     ev_dom = dot(G*v_now, v_now)/dot(v_now,v_now);
     if i==max_iter-1
          fprintf('Power method failed to converge!! OOPS!!\n')
     end
end
if isempty( null(G - eye(6)) ) ~= 1 % when: isempty( null(G - eye(6)) ) == 1,
     % we have only the "O-vector" that satisfies the eq. Gv = v, i.e. no EV
     % of G corresponding to ev = 1
     ev_dom
     EV_dom % corresponds to soln (R1 R2 R3 R4 R5 R6)
     [temp page_rank] = sort(EV_dom,'descend');
     for j=1:6
          fprintf('Page %d \n',page_rank(j));
     end
end
```