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function det = myDeterminant(A)

[N, N] = size(A);

if N == 1
    det = A(1,1);
elseif N == 2
    det = A(1,1)*A(2,2) - A(1,2)*A(2,1);
else
    det = 0;
    for j = 1:N
        cutmatrix = A; %
        cutmatrix(1,:) = [];
        cutmatrix(:,j) = [];
        det = det + (-1)^(j+1) * A(1,j) * myDeterminant(cutmatrix);
    end
end

%% Example with n =4

%N=4
%A = zeros(N,N);
%A(1:1+N:N*N) = 2;
%A(N+1:1+N:N*N) = -1;
%A(2:1+N:N*N-N) = -1
%myDeterminant(A)    equals 5
%det(A)              equals 5

%% example with N=5

%N=5
%A = zeros(N,N);
%A(1:1+N:N*N) = 2;
%A(N+1:1+N:N*N) = -1;
%A(2:1+N:N*N-N) = -1
%myDeterminant(A)    equals 6
%det(A)              equals 6
```