EGME 2050 Computational Methods
Spring 2022

Lab Week 8

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Problem 1: Section 32.4

```
function x = GaussJordan(A,b)

% Pivot code
    N=length(A);
    ii=0;
    for k=1:(N-1)
        %Finds the maximum value in the column, not including the rows that have
already been sorted.
        [m,i]=max(abs(A([k:N],k)));

        %Pivots A
        A([(ii+1),(i+ii)],:)=A([(i+ii),(ii+1)],:);
        %Pivots b
        b([(ii+1),(i+ii)],:)=b([(i+ii),(ii+1)],:);

        ii=ii+1;
    end


% Gauss-Jordan code
    Aa=[A b]; %Creats N by N+1 matrix

    %Forward elimination
    for c=1:N
          Aa(c,:)=Aa(c,:)/Aa(c,c);
          for r=(c+1):N
                Aa(r,:)=Aa(r,:)-Aa(r,c)*Aa(c,:);
          end
    end

    %Backward elimination
    for c=N:-1:2
          for r=(c-1):-1:1
            Aa(r,:)=Aa(r,:)-Aa(r,c)*(Aa(c,:)/Aa(c,c));
        end
       end

    %Assigns x to the updated b, N+1 column
       x=Aa(:,(N+1));
end
```