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%=====================================================================
% Program that implements the modified Gram-Schmidt algorithm for
% computing the QR factorization of a m by n matrix A, where m>=n.
% input : real m by n matrix A
% output : real m by n matrix q
%          real n by n matrix r
%=====================================================================

function [q,r] = MGS(A)

    [m,n] = size(A);

    v = zeros(m,n);
    r = zeros(n,n);
    q = zeros(m,n);

    for i = 1:n
        v(:,i) = A(:,i);
    end

    for i = 1:n

       r(i,i) = norm(v(:,i),2);
       q(:,i) = v(:,i)/r(i,i);

       for j = i+1:n

          r(i,j) = q(:,i)'*v(:,j);
          v(:,j) = v(:,j) - r(i,j)*q(:,i);

       end

    end

end
```

```
Not enough input arguments.

Error in MGS (line 11)
    [m,n] = size(A);
```

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