```
>> A = [7 5 -3; 3 -5 2; 5 3 -7];
>> B = [16; -8; 0];
>> C = [A, B]

C =

     7     5    -3    16
     3    -5     2    -8
     5     3    -7     0

>> fprintf('Rank of A: %d\n',rank(A))
Rank of A: 3

>> fprintf('Rank of Augmented matrix: %d\n',rank(C))
Rank of Augmented matrix: 3

>> if rank(A)==rank(C)
    fprintf('Consistent System\n')
    if rank(A)==numel(B)
        fprintf('Unique Solution\n')
        X = inv(A)*B;
        display(X)
    else
        fprintf('Infinite Solution\n')
        fprintf('Degree of freedom is %d\n',numel(B)-rank(A))
    end
else
    fprintf('Inconsistent System\n')
end

Consistent System
Unique Solution

X =

     1
     3
     2

>> invA = inv(A)

invA =

    0.1133    0.1016   -0.0195
    0.1211   -0.1328   -0.0898
    0.1328    0.0156   -0.1953

>> X = invA*B

X =

     1
     3
     2

>>
```