```
function [l,u,x,my_det] = my_gaussb(n,a,b)

a = [a, b];

for k=1:n-1,
  for i=k+1:n
   a(i,k) = a(i,k)/a(k,k);
   for j = k+1: n+1
       a(i,j) = a(i,j) - a(i,k)*a(k,j);
    end
  end
end


l = zeros(n,n); u=zeros(n,n);
for i=1:n
  l(i,i) = 1;
end
for i=2:n
  for j=1:i-1
     l(i,j) = a(i,j);
  end
end

for i=1:n
  for j=i:n
    u(i,j) = a(i,j);
  end
end

%--------- Begin backward substitution -------------------------

x = zeros(n,1);
x(n) = a(n,n+1)/a(n,n);
for i=n-1:-1:1,
   x(i) = a(i,n+1);
   for j=i+1:n
     x(i) = x(i) - a(i,j) * x(j);
   end
   x(i) = x(i)/a(i,i);
end

%--------- Begin evaluate the determinant ---------------

my_det = 1;
for i=1:n
  my_det = my_det*a(i,i);
end
```

```
function [l,u,x,my_det,p] = my_gauss_pp(n,a,b)

a = [a, b];
p = 1:n-1;

det_sign = 1;

for k=1:n-1,

    ip = k; ap = abs(a(k,k));   % starting column pivoting
    for i=k+1:n
        if(abs(a(i,k)) >ap)
            ip = i; ap = abs(a(i,k));
        end
    end

    if ip ~= k
        det_sign = -det_sign;
    end

    p(k) = ip;      % Now switch rows
    for j=k:n+1
      tmp = a(k,j);
      a(k,j) = a(ip,j);
      a(ip,j) = tmp;
    end

  for i=k+1:n
   a(i,k) = a(i,k)/a(k,k);
   for j = k+1: n+1
       a(i,j) = a(i,j) - a(i,k)*a(k,j);
    end
  end
end


l = zeros(n,n); u=zeros(n,n);
for i=1:n
  l(i,i) = 1;
end
for i=2:n
  for j=1:i-1
     l(i,j) = a(i,j);
  end
end

for i=1:n
  for j=i:n
    u(i,j) = a(i,j);
  end
end

%--------- Begin backward substitution -------------------------

x = zeros(n,1);
x(n) = a(n,n+1)/a(n,n);
for i=n-1:-1:1,
   x(i) = a(i,n+1);
   for j=i+1:n
     x(i) = x(i) - a(i,j) * x(j);
   end
   x(i) = x(i)/a(i,i);
end

%--------- Begin evaluate the determinant ---------------

my_det = 1;
for i=1:n
  my_det = my_det*a(i,i);
```

```
end

my_det = my_det*det_sign;
```

```
function [l,u,x,my_det] = my_gauss(n,a,b)

a = [a, b];

for k=1:n-1,
  for i=k+1:n
    a(i,k) = a(i,k)/a(k,k);
    for j = k+1: n+1
       a(i,j) = a(i,j) - a(i,k)*a(k,j);
    end
  end
end


l = zeros(n,n); u=zeros(n,n);
for i=1:n
  l(i,i) = 1;
end
for i=2:n
  for j=1:i-1
     l(i,j) = a(i,j);
  end
end

for i=1:n
  for j=i:n
    u(i,j) = a(i,j);
  end
end

%--------- Begin backward substitution -------------------------

x = zeros(n,1);
x(n) = a(n,n+1)/a(n,n);
for i=n-1:-1:1,
   x(i) = a(i,n+1);
   for j=i+1:n
     x(i) = x(i) - a(i,j) * x(j);
   end
   x(i) = x(i)/a(i,i);
end

%--------- Begin evaluate the determinant ---------------

my_det = 1;
for i=1:n
  my_det = my_det*a(i,i);
end
```

```
a=[ 3 2 1
      2 0 1
      -1 1 0];
b=[6 3 0]';

[l,u,x,my_det] = my_gauss(3,a,b);
% [l,u,x,my_det] = my_gaussb(3,a,b);
```