```matlab
function [x,iter]=mynewton(x0,tol,max_it)
% [x,iter]=Newton(x0, tol, max_it) is a Matlab code Newton's method for finding a
% root of f(x)=0
%
% Input: a,b,tol,max_it
% Output: x,iter --- one root and the number of iterations
%
   iter=0;
   err=1.0;
   xx=zeros(max_it,1);
  while err > tol & iter< max_it
      fx=f(x0);
      dfx=df(x0);
      if dfx==0
          disp('The derivative is zero. Stop')
          return
      end
      x= x0 - fx/dfx;

      err=abs(x-x0);
      x0=x;
      iter=iter+1;
      fprintf('x(%d)=%g,err=%g\n',iter, x,err);
      xx(iter)=x;
   end

   if(iter>=max_it)
      disp('The number of iterates calculated exceeded max_iter');
   else
      fprintf('x(%d)=%g\n',iter, x);
   end

   for i=3:iter
      lambda=(xx(i)-xx(i-1))/(xx(i-1)-xx(i-2));
 fprintf('iter(%d),err=%g\n',iter, lambda);
      end
return
%
% End of Newton

function result=f(x)
    % result=x^3-x^2-x-1;
    result=x^2-1;
return

function result=df(x)
%    result=3*x^2-2*x-1;
 result=2*x;
return
```