```
clear

C =.05;   % initialize constants
L = .05;
R=1;
dt = 0.01;


iL(1) = 0;  % initialize state
vC(1) = 0;
t(1) = 0;

vS=zeros(1,1001);   % program impulse
vS(101) = 100;   % height = 100, width = dt = .01, t = 1

for i=2:1001

   diL = (vS(i-1) - vC(i-1))/L;
   iL(i) = iL(i-1) + diL*dt;

   dvC = (iL(i-1) + (vS(i-1) - vC(i-1))/R)/C;
   vC(i) = vC(i-1) + dvC*dt;

   t(i) = t(i-1) + dt;


end

plot(t,vS - vC)  % plot L*iL' = L*(vS - vC)/L = vS - vC
```