```
%{
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Subject: Assignment Q5a
%}

clear all %clear stored variables
clc %clear the screen
close all %close all previously created plots

n = 4 %Given number of nodes
deltaPL= 101325/3/25400; % The value of DeltaP/L in terms of Pascal/
Micron
deltaY= 150/(n+1); % Calculating the value of Delta Y
u= 8.9*10^-4; % Viscosity of water at 25 Celcius in Pascal.Seconds
G = deltaY^2*deltaPL/u; %calculating G, which is basically a contains
 all the constants

% Considering the boundary condition
% Creating sparse matrix using sparse function
D = sparse(1:n,1:n,2*ones(1,n),n,n);
E = sparse(2:n,1:n-1,-1*ones(1,n-1),n,n);
matV = E+D+E'

GMat (1:n) = G; %Creating a vector of G

Vel=inv(matV)*GMat' %Solving the system of equations

Vel = [0;Vel;0] % Because we consider the boundary condition, we need
 to put a zero row on the top and bottom of the output vector

N1= 0:n+1; %Creating an array of for plotting

plot(Vel,N1,'-g') %Creating velocity profile by plotting Velocity at
 each node


n =

     4


matV =

   (1,1)        2
   (2,1)       -1
   (1,2)       -1
   (2,2)        2
   (3,2)       -1
   (2,3)       -1
   (3,3)        2
```
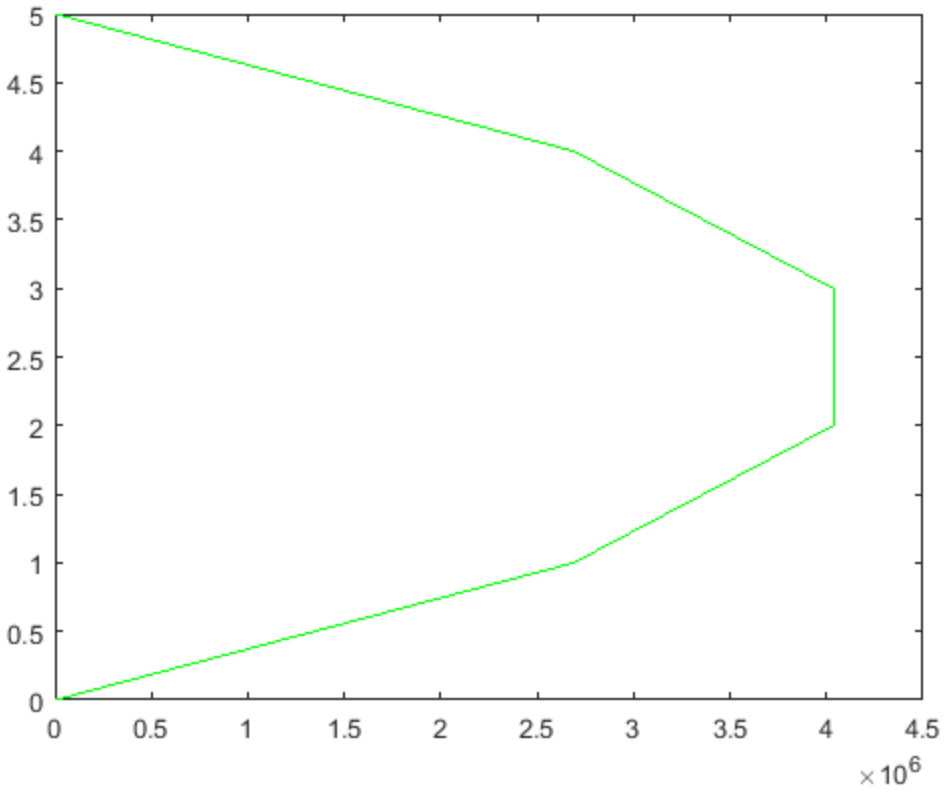

```
   (4,3)       -1
   (3,4)       -1
   (4,4)        2


Vel =

   1.0e+06 *

    2.6893
    4.0340
    4.0340
    2.6893


Vel =

   1.0e+06 *

         0
    2.6893
    4.0340
    4.0340
    2.6893
         0
```



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