NAME:VODINA EFEM

MAT NO: 16/ENG03/020

DEPT: CIVIL ENGINEERING

CODE:

Commandwindow

clear

clc

format short g

syms m1 m2 m3

A =[10 -2 1

 -2 10 -2

 -2 -5 10]

x =[m1;m2;m3]

B =[9;12;18]

C= [ 0 -A(1,2)/A(1,1) -A(1,3)/A(1,1)

 -A(2,1)/A(2,2) 0 -A(2,3)/A(2,2)

 -A(3,1)/A(3,3) -A(3,2)/A(3,3) 0]

 D= [B(1,1)/A(1,1); B(2,1)/A(2,2);B(3,1)/A(3,3)]

 x = [0;0;0]

 for i=1:inf

 normB = norm(x)

 x= (C\*x)+D

 normA =norm(x)

 error = abs(normA -normB)

 if error<=1E-15

 break

 end

 end

 i'

 x'

 error'

 tableau =[i', x', error']

%

COMMAND WINDOW:

A =

 10 -2 1

 -2 10 -2

 -2 -5 10

x =

 m1

 m2

 m3

B =

 9

 12

 18

C =

 0 0.2 -0.1

 0.2 0 0.2

 0.2 0.5 0

D =

 0.9

 1.2

 1.8

x =

 0

 0

 0

Warning: Too many FOR loop iterations. Stopping after 9223372036854775806 iterations.

> In Jacobi\_assignment (line 17)

normB =

 0

x =

 0.9

 1.2

 1.8

normA =

 2.3431

error =

 2.3431

normB =

 2.3431

x =

 0.96

 1.74

 2.58

normA =

 3.2566

error =

 0.91355

normB =

 3.2566

x =

 0.99

 1.908

 2.862

normA =

 3.5793

error =

 0.32271

normB =

 3.5793

x =

 0.9954

 1.9704

 2.952

normA =

 3.6861

error =

 0.10681

normB =

 3.6861

x =

 0.99888

 1.9895

 2.9843

normA =

 3.7231

error =

 0.036997

normB =

 3.7231

x =

 0.99947

 1.9966

 2.9945

normA =

 3.7353

error =

 0.012185

normB =

 3.7353

x =

 0.99987

 1.9988

 2.9982

normA =

 3.7395

error =

 0.0042271

normB =

 3.7395

x =

 0.99994

 1.9996

 2.9994

normA =

 3.7409

error =

 0.0013884

normB =

 3.7409

x =

 0.99999

 1.9999

 2.9998

normA =

 3.7414

error =

 0.0004829

normB =

 3.7414

x =

 0.99999

 2

 2.9999

normA =

 3.7416

error =

 0.00015816

normB =

 3.7416

x =

 1

 2

 3

normA =

 3.7416

error =

 5.5172e-05

normB =

 3.7416

x =

 1

 2

 3

normA =

 3.7416

error =

 1.8013e-05

normB =

 3.7416

x =

 1

 2

 3

normA =

 3.7417

error =

 6.3043e-06

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 2.0512e-06

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 7.2049e-07

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 2.3354e-07

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 8.2356e-08

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 2.6584e-08

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 9.4157e-09

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 3.0253e-09

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 1.0767e-09

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 3.4421e-10

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 1.2315e-10

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 3.9152e-11

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 1.409e-11

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 4.4516e-12

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 1.6125e-12

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 5.0626e-13

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 1.843e-13

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 5.7732e-14

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 2.176e-14

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 5.7732e-15

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 2.2204e-15

normB =

 3.7417

x =

 1

 2

 3

normA =

 3.7417

error =

 8.8818e-16

ans =

 34

ans =

 1 2 3

ans =

 8.8818e-16

tableau =

 34 1 2 3 8.8818e-16

>>