**6.SOFM**

clc;

clear all;

close all;

v = [0 0 1 1; 1 0 0 0; 0 1 1 0; 0 0 0 1];

a = 0.5;

w = [0.2 0.9; 0.4 0.7; 0.6 0.5; 0.8 0.3]

for i = 1:4

w = Distance(w,v(i,:),a);

end

function [w] = Distance(w,x,a)

D = [0 0];

for j = 1:2

for i = 1:4

d(j) = sum((w(i,j) - x(i))^2);

D(j) = d(j) + D(j);

end

end

D

if(D(1)<D(2))

b = 1;

else

b = 2;

end

w(:,b) = w(:,b) + a.\*(x' - w(:,b));

w

return

end

**OUTPUT:**

w =

0.2000 0.9000

0.4000 0.7000

0.6000 0.5000

0.8000 0.3000

D =

0.4000 2.0400

w =

0.1000 0.9000

0.2000 0.7000

0.8000 0.5000

0.9000 0.3000

D =

2.3000 0.8400

w =

0.1000 0.9500

0.2000 0.3500

0.8000 0.2500

0.9000 0.1500

D =

1.5000 1.9100

w =

0.0500 0.9500

0.6000 0.3500

0.9000 0.2500

0.4500 0.1500

D =

1.4750 1.8100

w =

0.0250 0.9500

0.3000 0.3500

0.4500 0.2500

0.7250 0.1500