

RBFN

```
clc;
clear all;
close all;
o=[0 0 1 1;0 1 0 1];
c=[0 0;1 1];
t=[0; 1; 1; 0];
[m1,n1]=size(o);
i=1;j=1;

for i=1:m1
    for j=1:n1
        C=c(i:i,:);
        O=o(:,j:j)';
        a=O-C;
        a=a.*a;
        s=sum(a);
        d(i,j)=sqrt(s);
        f(i,j)=exp(-(d(i,j)^2));
    end
end

for i=1:n1
    one(i)=1;
end

fi=[f' one'];%bias 1
w=((inv(fi'*fi))*fi')*t; % pseudo inverse technique to find an inverse of a
non-sq matrix

x=[o' one'];
y=fi*w;
scatter(f(1,:),f(2,:));
hold on;

x3=[-4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9];
y1=-(w(1)/w(2))*(x3-1);
axis([-2 2 -2 2]);
plot(x3,y1);
```

OUTPUT:

f=
1.0000 0.3679 0.3679 0.1353
0.1353 0.3679 0.3679 1.0000

y=
0.0000
1.0000
1.0000
0.0000

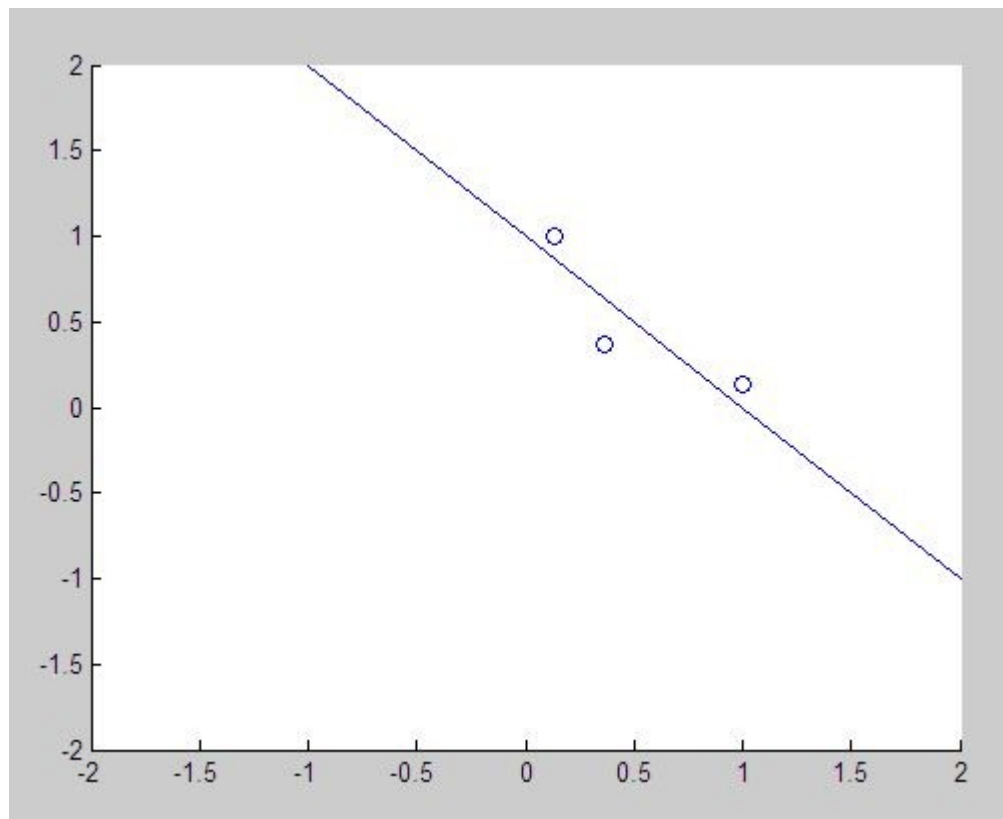


Fig1: Output of RBFN