[**Practical No. 3**](http://moodle.mitaoe.ac.in/course/view.php?id=647#section-9)

Name = Tanmay Pramod Varade

Roll No : 36

----------------------------------------------------------------------------------------------------

**Write a program to generate XOR function using McCulloch-Pitts neural net**

**Code –**

x1 = [0,0,1,1];

x2 = [0,1,0,1];

ygiven = [0,1,1,0];

y1=[];

y2=[];

y=[];

w11 = input("\n\nEnter the value of w11 : ");

w12 = input("Enter the value of w12 : ");

w21 = input("Enter the value of w21 : ");

w22 = input("Enter the value of w22 : ");

w31 = input("Enter the value of w31 : ");

w32 = input("Enter the value of w32 : ");

th = input("Enter threwshould value (th) : ");

fprintf("\n\n");

for i=1:numel(x1)

y11 = (x1(i)\*w11) + (x2(i)\*w21);

y22 = (x1(i)\*w12) + (x2(i)\*w22);

if y11>=th

y1(i) = 1;

elseif y11<th

y1(i)=0;

end

if y22>=th

y2(i) = 1;

elseif y22<th

y2(i)=0;

end

end

for i = 1:numel(x1)

y11 = (y1(i)\*w31) + (y2(i)\*w32);

if y11>=th

y(i)=1;

else

y(i)=0;

end

end

fprintf("\tx1\t\tx2\t\tz1\t\tz2\t\tgiven y\tcalculated y");

for i = 1:numel(x1)

fprintf("\n\t%d\t\t%d\t\t%d\t\t%d\t\t%d\t\t%d\n",x1(i),x2(i),y1(i),y2(i),ygiven(i),y(i))

end

if y == ygiven

fprintf("\n\tw11 = %d\n\tw12 = %d\n\tw21 = %d\n\tw22 = %d\n\tw31 = %d\n\tw32 = %d\n\tThreshould Value = %d",w11,w12,w21,w22,w31,w32,th)

fprintf("\n\n\tFor given weight Newron get fired!!!!!!!\n\n")

else

fprintf("\n\n\tFor given weight Newron not get fired!!!!!!!\n\n")

end

**OUTPUT-**

Enter the value of w11 : 1

Enter the value of w12 : -1

Enter the value of w21 : -1

Enter the value of w22 : 1

Enter the value of w31 : 1

Enter the value of w32 : 1

Enter threwshould value (th) : 1

x1 x2 z1 z2 given y calculated y

0 0 0 0 0 0

0 1 0 1 1 1

1 0 1 0 1 1

1 1 0 0 0 0

w11 = 1

w12 = -1

w21 = -1

w22 = 1

w31 = 1

w32 = 1

Threshould Value = 1

For given weight Newron get fired!!!!!!!

>> ass3xor

Enter the value of w11 : 1

Enter the value of w12 : 1

Enter the value of w21 : 1

Enter the value of w22 : 1

Enter the value of w31 : 1

Enter the value of w32 : 1

Enter threwshould value (th) : 1

x1 x2 z1 z2 given y calculated y

0 0 0 0 0 0

0 1 1 1 1 1

1 0 1 1 1 1

1 1 1 1 0 1

For given weight Newron not get fired!!!!!!!