4 input OR Gate

```matlab
clear ;
clc ;
// Generate weights and threshold value
disp("60001180046 - Reeha Parkar");
disp("4 input OR Gate McCulloch Pitts Model")

// Weights
w = [1 1 1 1];

x = [0 0 0 0 0 0 0 0 1 1 1 1; 0 0 0 0 1 1 1 1 0 0 0 1; 0 0 1 1 0 0 0 1 0 0 1 1; 0 1
0 1 0 1 0 1 0 1 0 1];

threshold = input("Enter threshold value ");

y =[0 0 0 0 0 0 0 0];

expected_output = [0 1 1 1 1 1 1 1 1 1 1 1];

flag = 1 // will check if the output matches, and iterate till it does
while flag
    for i = 1:12
        zin = x(1,i)*w(1) + x(2,i)*w(2) + x(3,i)*w(3) + x(4,i)*w(4);
        if zin >= threshold
            y(i) = 1;
        else
            y(i) = 0;
        end
    end

    disp ('Outputs') ;
    disp("zin = ");
    disp(zin);
    disp ("y = ");
    disp(y);

    if y == expected_output
        disp("Output matches!");
        flag = 0;
    else
        disp ("Output does not match so change the threshold");
        threshold = input("Enter threshold value ");
    end
end

disp("Final McCulloch Pitts 4 input OR Gate Model Parameters:");
disp("Weights: ");
disp(w);
disp("Threshold: ");
disp(threshold);

//Testing
disp("Enter 4 bit input");
for i = 1:4
    test_x(i) = input("");
end

test_x = test_x';
test_zin = test_x(1)*w(1) + test_x(2)*w(2) + test_x(3)*w(3) + test_x(4)*w(4);
test_y = 0;
for i = 1:4
    if test_zin  >= threshold
        test_y = 1;
    else
        test_y = 0;
    end
end
```
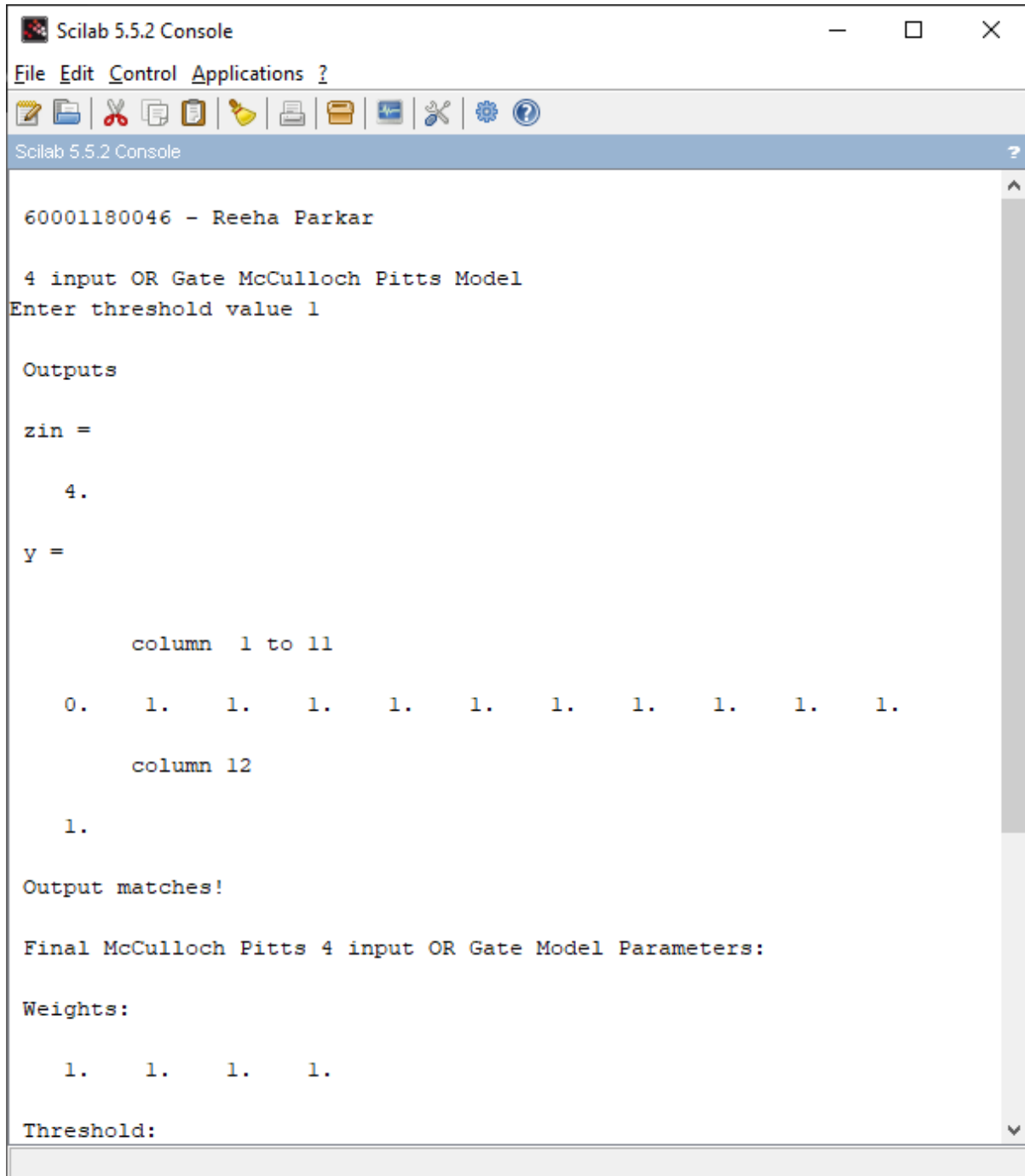
```

disp("Final OR output of the Model is:");
disp(test_y);
```

Output:


```
Scilab 5.5.2 Console                                    —    □    ✕
File Edit Control Applications ?

Scilab 5.5.2 Console                                              ?

 60001180046 - Reeha Parkar

 4 input OR Gate McCulloch Pitts Model
Enter threshold value 1

 Outputs

 zin =

    4.

 y =


        column  1 to 11

   0.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.

        column 12

   1.

Output matches!

Final McCulloch Pitts 4 input OR Gate Model Parameters:

Weights:

   1.    1.    1.    1.

Threshold:
```
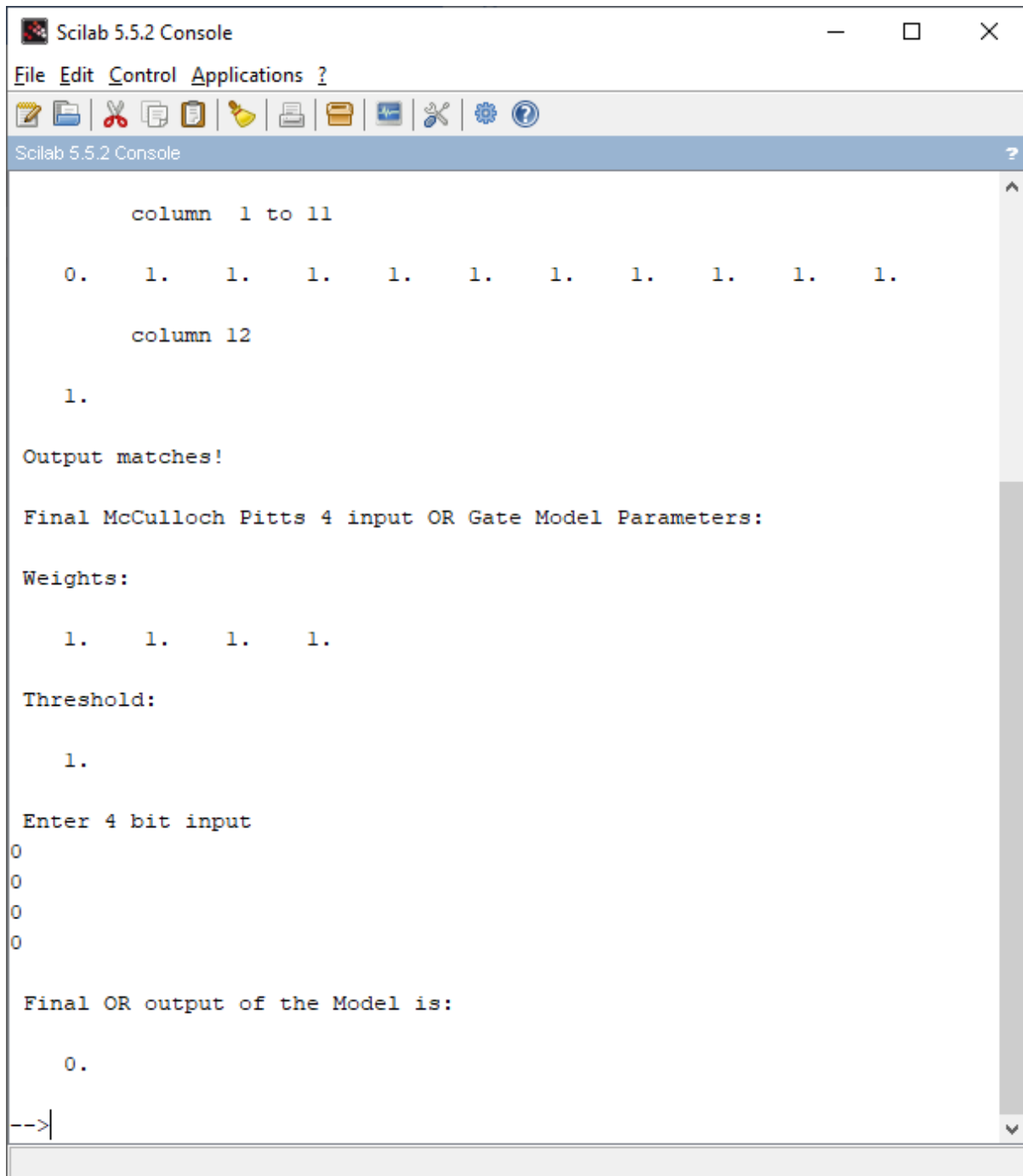
Scilab 5.5.2 Console — □ ✕

File Edit Control Applications ?

Scilab 5.5.2 Console

```
        column  1 to 11

    0.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.

        column 12

    1.

Output matches!

Final McCulloch Pitts 4 input OR Gate Model Parameters:

Weights:

    1.    1.    1.    1.

Threshold:

    1.

 Enter 4 bit input
0
0
0
0

 Final OR output of the Model is:

    0.

-->
```