

```
1 import java.util.ArrayList;
2 public class Neuron {
3     private float activationValue, weight;
4     private String neuronName;
5     private ArrayList<Neuron> outputs = new ArrayList<Neuron>();
6     private float[] inputs;
7     int inputCounter = 0, nInputs;
8
9     public Neuron(float activationValue, float weight, String neuronName, int nInputs){
10         this.activationValue = activationValue;
11         this.weight = weight;
12         this.neuronName = neuronName;
13         this.nInputs = nInputs;
14         inputs = new float[nInputs];
15     }
16     public void connect(Neuron neuron){
17         outputs.add(neuron);
18     }
19
20     public void input(float inputValue){
21         inputs[inputCounter] = inputValue;
22         inputCounter++;
23         if(inputCounter == nInputs){
24             fire();
25         }
26     }
27
28     public void fire(){
29         float sum = 0;
30         for(int i = 0; i < nInputs; i++){
31             sum+=inputs[i];
32         }
33
34         float signal = sum*weight;
```

```
35
36         if(signal > activationValue){
37             for(int i = 0; i < outputs.size(); i++){
38                 outputs.get(i).input(signal);
39             }
40         } else{
41             for(int i = 0; i < outputs.size(); i++){
42                 outputs.get(i).input(0);
43             }
44         }
45         System.out.println(neuronName + ":" + signal);
46     }
47     public static void main(String[] args) {
48         Neuron inputNode = new Neuron(0,1,"InputNode",1);
49         Neuron hiddenNode_One = new Neuron(0.5f,0.9f,"HiddenNode_One",1);
50         Neuron hiddenNode_Two = new Neuron(0.5f,0.9f,"HiddenNode_Two",1);
51         Neuron hiddenNode_Three = new Neuron(0.5f,0.9f,"HiddenNode_Three",1);
52         Neuron outputNode = new Neuron(0,0.9f,"OutputNode",3);
53         inputNode.connect(hiddenNode_One);
54         inputNode.connect(hiddenNode_Two);
55         inputNode.connect(hiddenNode_Three);
56
57         hiddenNode_One.connect(outputNode);
58         hiddenNode_Two.connect(outputNode);
59         hiddenNode_Three.connect(outputNode);
60
61         inputNode.input(1);
62     }
63 }
64 }
```

Debug Shell Problems Terminal Console ×

<terminated> Neuron [Java Application] C:\Program Files\Java\jdk-18.0.1\bin\javaw.exe (05-Dec-2022, 6:29:15 pm – 6:29:17 pm) [pid: 17124]

HiddenNode\_One:0.9  
HiddenNode\_Two:0.9  
OutputNode:2.4299998  
HiddenNode\_Three:0.9  
InputNode:1.0

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