Output of Computer Program:

1.Checking whether all the stored patterns are equilibrium states:
test pattern: [1 1 -1 -1 -1 1]
iteration: 1 ‖ firing neuron no: 5 ‖ new state: [1 1 -1 -1 -1 1]
iteration: 2 ‖ firing neuron no: 0 ‖ new state: [1 1 -1 -1 -1 1]
iteration: 3 ‖ firing neuron no: 3 ‖ new state: [1 1 -1 -1 -1 1]
iteration: 4 ‖ firing neuron no: 2 ‖ new state: [1 1 -1 -1 -1 1]
iteration: 5 ‖ firing neuron no: 1 ‖ new state: [1 1 -1 -1 -1 1]
iteration: 6 ‖ firing neuron no: 4 ‖ new state: [1 1 -1 -1 -1 1]
equilibrium state : [1 1 -1 -1 -1 1]

test pattern: [1 -1 -1 1 -1 -1]
iteration: 1 ‖ firing neuron no: 2 ‖ new state: [1 -1 -1 1 -1 -1]
iteration: 2 ‖ firing neuron no: 1 ‖ new state: [1 -1 -1 1 -1 -1]
iteration: 3 ‖ firing neuron no: 4 ‖ new state: [1 -1 -1 1 -1 -1]
iteration: 4 ‖ firing neuron no: 3 ‖ new state: [1 -1 -1 1 -1 -1]
iteration: 5 ‖ firing neuron no: 5 ‖ new state: [1 -1 -1 1 -1 -1]
iteration: 6 ‖ firing neuron no: 0 ‖ new state: [1 -1 -1 1 -1 -1]
equilibrium state : [1 -1 -1 1 -1 -1]

test pattern: [-1 -1 1 1 1 -1]
iteration: 1 ‖ firing neuron no: 2 ‖ new state: [-1 -1 1 1 1 -1]
iteration: 2 ‖ firing neuron no: 0 ‖ new state: [-1 -1 1 1 1 -1]
iteration: 3 ‖ firing neuron no: 4 ‖ new state: [-1 -1 1 1 1 -1]
iteration: 4 ‖ firing neuron no: 3 ‖ new state: [-1 -1 1 1 1 -1]
iteration: 5 ‖ firing neuron no: 1 ‖ new state: [-1 -1 1 1 1 -1]
iteration: 6 ‖ firing neuron no: 5 ‖ new state: [-1 -1 1 1 1 -1]
equilibrium state : [-1 -1 1 1 1 -1]

test pattern: [-1 1 1 -1 1 1]
iteration: 1 ‖ firing neuron no: 2 ‖ new state: [-1 1 1 -1 1 1]
iteration: 2 ‖ firing neuron no: 5 ‖ new state: [-1 1 1 -1 1 1]
iteration: 3 ‖ firing neuron no: 0 ‖ new state: [-1 1 1 -1 1 1]
iteration: 4 ‖ firing neuron no: 3 ‖ new state: [-1 1 1 -1 1 1]
iteration: 5 ‖ firing neuron no: 1 ‖ new state: [-1 1 1 -1 1 1]
iteration: 6 ‖ firing neuron no: 4 ‖ new state: [-1 1 1 -1 1 1]
equilibrium state : [-1 1 1 -1 1 1]

All the stored patterns are equilibrium states

2.Finding all the associated states for all the avialable 64 patterns:
test_pattern: [1. 1. 1. 1. 1. 1.]
iteration: 1 || firing neuron no: 1 || new state: [1. 1. 1. 1. 1. 1.]
iteration: 2 || firing neuron no: 3 || new state: [1. 1. 1. -1. 1. 1.]
iteration: 3 || firing neuron no: 4 || new state: [1. 1. 1. -1. 1. 1.]
iteration: 4 || firing neuron no: 2 || new state: [1. 1. 1. -1. 1. 1.]
iteration: 5 || firing neuron no: 5 || new state: [1. 1. 1. -1. 1. 1.]
iteration: 6 || firing neuron no: 0 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 7 || firing neuron no: 1 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 8 || firing neuron no: 3 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 9 || firing neuron no: 4 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 10 || firing neuron no: 2 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 11 || firing neuron no: 5 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 12 || firing neuron no: 0 || new state: [-1. 1. 1. -1. 1. 1.]
equilibrium state: [-1. 1. 1. -1. 1. 1.]

test_pattern: [-1. 1. 1. 1. 1. 1.]
iteration: 1 || firing neuron no: 5 || new state: [-1. 1. 1. 1. 1. 1.]
iteration: 2 || firing neuron no: 3 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 3 || firing neuron no: 2 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 4 || firing neuron no: 0 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 5 || firing neuron no: 1 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 6 || firing neuron no: 4 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 7 || firing neuron no: 5 || new state: [-1. 1. 1. -1. 1. 1.]
iteration: 8 || firing neuron no: 3 || new state: [-1. 1. 1. -1. 1. 1.]
equilibrium state: [-1. 1. 1. -1. 1. 1.]

test_pattern: [1. -1. 1. 1. 1. 1.]
iteration: 1 || firing neuron no: 0 || new state: [-1. -1. 1. 1. 1. 1.]
iteration: 2 || firing neuron no: 3 || new state: [-1. -1. 1. 1. 1. 1.]
iteration: 3 || firing neuron no: 4 || new state: [-1. -1. 1. 1. 1. 1.]
iteration: 4 || firing neuron no: 1 || new state: [-1. -1. 1. 1. 1. 1.]
iteration: 5 || firing neuron no: 2 || new state: [-1. -1. 1. 1. 1. 1.]
iteration: 6 || firing neuron no: 5 || new state: [-1. -1. 1. 1. 1. -1.]
iteration: 7 || firing neuron no: 0 || new state: [-1. -1. 1. 1. 1. -1.]
iteration: 8 || firing neuron no: 3 || new state: [-1. -1. 1. 1. 1. -1.]
iteration: 9 || firing neuron no: 4 || new state: [-1. -1. 1. 1. 1. -1.]
iteration: 10 || firing neuron no: 1 || new state: [-1. -1. 1. 1. 1. -1.]
iteration: 11 || firing neuron no: 2 || new state: [-1. -1. 1. 1. 1. -1.]
iteration: 12 || firing neuron no: 5 || new state: [-1. -1. 1. 1. 1. -1.]
equilibrium state: [-1. -1. 1. 1. 1. -1.]

test_pattern: [-1. -1. -1. 1. -1. -1.]
iteration: 1 || firing neuron no: 0 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 2 || firing neuron no: 3 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 3 || firing neuron no: 5 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 4 || firing neuron no: 2 || new state: [1. -1. -1. 1. -1. -1.]

iteration: 5 || firing neuron no: 4 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 6 || firing neuron no: 1 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 7 || firing neuron no: 0 || new state: [1. -1. -1. 1. -1. -1.]
equilibrium state: [1. -1. -1. 1. -1. -1.]

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        :
        :   so on for all 64 patterns
        :

test_pattern: [-1. 1. -1. -1. -1. -1.]
iteration: 1 || firing neuron no: 5 || new state: [-1. 1. -1. -1. -1. 1.]
iteration: 2 || firing neuron no: 4 || new state: [-1. 1. -1. -1. -1. 1.]
iteration: 3 || firing neuron no: 0 || new state: [1. 1. -1. -1. -1. 1.]
iteration: 4 || firing neuron no: 2 || new state: [1. 1. -1. -1. -1. 1.]
iteration: 5 || firing neuron no: 1 || new state: [1. 1. -1. -1. -1. 1.]
iteration: 6 || firing neuron no: 3 || new state: [1. 1. -1. -1. -1. 1.]
iteration: 7 || firing neuron no: 5 || new state: [1. 1. -1. -1. -1. 1.]
iteration: 8 || firing neuron no: 4 || new state: [1. 1. -1. -1. -1. 1.]
iteration: 9 || firing neuron no: 0 || new state: [1. 1. -1. -1. -1. 1.]
equilibrium state: [1. 1. -1. -1. -1. 1.]

test_pattern: [1. -1. -1. -1. -1. -1.]
iteration: 1 || firing neuron no: 0 || new state: [1. -1. -1. -1. -1. -1.]
iteration: 2 || firing neuron no: 5 || new state: [1. -1. -1. -1. -1. -1.]
iteration: 3 || firing neuron no: 4 || new state: [1. -1. -1. -1. -1. -1.]
iteration: 4 || firing neuron no: 1 || new state: [1. -1. -1. -1. -1. -1.]
iteration: 5 || firing neuron no: 2 || new state: [1. -1. -1. -1. -1. -1.]
iteration: 6 || firing neuron no: 3 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 7 || firing neuron no: 0 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 8 || firing neuron no: 5 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 9 || firing neuron no: 4 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 10 || firing neuron no: 1 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 11 || firing neuron no: 2 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 12 || firing neuron no: 3 || new state: [1. -1. -1. 1. -1. -1.]
equilibrium state: [1. -1. -1. 1. -1. -1.]

test_pattern: [-1. -1. -1. -1. -1. -1.]
iteration: 1 || firing neuron no: 3 || new state: [-1. -1. -1. 1. -1. -1.]
iteration: 2 || firing neuron no: 5 || new state: [-1. -1. -1. 1. -1. -1.]
iteration: 3 || firing neuron no: 1 || new state: [-1. -1. -1. 1. -1. -1.]
iteration: 4 || firing neuron no: 0 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 5 || firing neuron no: 2 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 6 || firing neuron no: 4 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 7 || firing neuron no: 3 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 8 || firing neuron no: 5 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 9 || firing neuron no: 1 || new state: [1. -1. -1. 1. -1. -1.]
iteration: 10 || firing neuron no: 0 || new state: [1. -1. -1. 1. -1. -1.]
equilibrium state: [1. -1. -1. 1. -1. -1.]

3. Basins_of_attraction:
equilibrium state: [-1. 1. 1. -1. 1. 1.]
no of patterns associated with this equilibrium state: 16
[[1. 1. 1. 1. 1. 1.]
 [-1. 1. 1. 1. 1. 1.]
 [1. 1. 1. -1. 1. 1.]
 [-1. 1. -1. 1. 1. 1.]
 [-1. 1. 1. -1. 1. 1.]
 [-1. 1. 1. 1. -1. 1.]
 [1. -1. 1. -1. 1. 1.]
 [1. 1. 1. -1. 1. -1.]
 [-1. -1. 1. -1. 1. 1.]
 [-1. 1. -1. -1. 1. 1.]
 [-1. 1. 1. -1. -1. 1.]
 [-1. 1. 1. -1. 1. -1.]
 [-1. -1. -1. -1. 1. 1.]
 [-1. -1. 1. -1. -1. 1.]
 [-1. 1. -1. -1. 1. -1.]
 [-1. 1. 1. -1. -1. -1.]]

equilibrium state: [-1. -1. 1. 1. 1. -1.]
no of patterns associated with this equilibrium state: 16
[[1. -1. 1. 1. 1. 1.]
 [1. 1. 1. 1. 1. -1.]
 [-1. -1. 1. 1. 1. 1.]
 [-1. 1. 1. 1. 1. -1.]
 [1. -1. 1. 1. 1. -1.]
 [-1. -1. -1. 1. 1. 1.]
 [-1. -1. 1. 1. -1. 1.]
 [-1. -1. 1. 1. 1. -1.]
 [-1. 1. -1. 1. 1. -1.]
 [-1. 1. 1. 1. -1. -1.]
 [1. -1. 1. -1. 1. -1.]
 [-1. -1. -1. 1. 1. -1.]
 [-1. -1. 1. -1. 1. -1.]
 [-1. -1. 1. 1. -1. -1.]
 [-1. -1. -1. -1. 1. -1.]
 [-1. -1. 1. -1. -1. -1.]]

equilibrium state: [1. 1. -1. -1. -1. 1.]
no of patterns associated with this equilibrium state: 16
[[1. 1. -1. 1. 1. 1.]
 [1. 1. 1. 1. -1. 1.]
 [1. 1. -1. -1. 1. 1.]
 [1. 1. -1. 1. -1. 1.]
 [1. 1. 1. -1. -1. 1.]
 [-1. 1. -1. 1. -1. 1.]

```
 [ 1. -1. -1. -1.  1.  1.]
 [ 1. -1.  1. -1. -1.  1.]
 [ 1.  1. -1. -1. -1.  1.]
 [ 1.  1. -1. -1.  1. -1.]
 [ 1.  1.  1. -1. -1. -1.]
 [-1.  1. -1. -1. -1.  1.]
 [ 1. -1. -1. -1. -1.  1.]
 [ 1.  1. -1. -1. -1. -1.]
 [-1. -1. -1. -1. -1.  1.]
 [-1.  1. -1. -1. -1. -1.]]
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equilibrium state: [1. -1. -1. 1. -1. -1.]
no of patterns associated with this equilibrium state: 16

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[[ 1. -1. -1.  1.  1.  1.]
 [ 1. -1.  1.  1. -1.  1.]
 [ 1.  1. -1.  1.  1. -1.]
 [ 1.  1.  1.  1. -1. -1.]
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 [ 1. -1. -1.  1.  1. -1.]
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 [ 1. -1.  1. -1. -1. -1.]
 [-1. -1. -1.  1. -1. -1.]
 [ 1. -1. -1. -1. -1. -1.]
 [-1. -1. -1. -1. -1. -1.]]
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